







Exhibition of the Morks of Industry of All Nations, 1851.

REPORTS

THE JURIES

THE SUBJECTS IN THE THIRTY CLASSES INTO WHICH THE EXHIBITION WAS DIVIDED.





PRESENTATION COPY.

LONDON:

Printed for the Mogal Commission,

WILLIAM CLOWES & SONS, STAMFORD STREET AND CHARING CROSS.

MICCOCLII.

From the unexpected length of some of the Between, they were found to be inconveniently bulk in the large type in which they were originally conposed, and they have been accordingly carefully reprinted in their posent form. In this elition the references were nearranged by the printers, reforming uniformly to the Officeal Descriptive and Librerated Catalogue; in all other respects the two elitions are perfectly identified.

WM. CLOWES AND SONS,

Printers to the Commission.

On the 3rd January, 1850, HER MAJESTY was graciously pleased, on the representation of the Society of Arta, Manufactures, and Commerce, of which His Royal Highness PRINCE ALBERT is President, to appoint a Commission for the purpose of conducting an EXHIDITION OF THE WORKS OF INDESTRY OF ALL NATIONS.

Among the duties entrusted by Her Majesty to the Commissioners, were the determination of the nature of the Prizes, and the means of securing the impartial distribution of them.

For this purpose certain general principles were laid down by Her Majesty's Commissioners, and Juries were appointed to whom the application of those principles was entirely left.

The present volume, containing the Decisions of Her Majesty's Commissioners upon this subject, the names of the persons to when the important duties of adjudication were entrusted, and the Reports submitted by the different Juries to the Commissioners, has been ordered by them to be published for general information, and a copy to be presented to every Exhibitor.

By Order of Her Majesty's Commissioners,

(Signed) Edgar A. Bowring, Secretary.

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† Successor to Sir A. Galloway, K.C.B. (deceased.)

Appointed by Royal Warrant, 12th February, 1850. § Mr. EDGAR BOWRING was appointed Secretary in April, 1852.

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CONTENTS.

REPORT OF VISCOURT CANNING, President of the Council of Chalmoen of Juries, on presenting the Awards of the Juries of the Royal Commission	1	Reports by the Jenes:-	140
Decisions regarding Juries	ili	Mining, Quarrying, Metallurgical Operations, and	
Classification of Subjects in the Thirty Classes into which the Exhibition was divided	v	Mineral Products	
Instructions from the Council of Chairmen to the		Care II.	
Juries	xxiii	Chemical and Pharmaceutical Processes and Pro- ducts generally	at
Minute of Reyal Commission on the Award of the Council Medal	xxiv	Crass III.	
Deputies, Secretary, Council of Chairmen, List of Jurors and Associate Jurors	XXX	Substances used as Food Cases IV.	51
List of Jurors and Associate Jurors also Exhibitors	xxxi	Animal and Vegetable Substances chiefly used in	
Answer of His Royal Highness Prince Albert to	xxxiii	Manufactures, as Implements, or for Ornaments	65
	_	CLASS V.	
Jery Awards:		Machines for Direct Use, including Carriages, and Railway and Naval Mechanism	167
GANERAL COUNCIL MEDALS	XXXV		Late.
CLASH I.	XXXV	CLASS YA.	
Raw Materials . II.	EXXIX	Carriages generally, not including those connected with Rail or Train Roads.	192
	x11		104
IV.	alx	CLASS VI.	
(<u>Y</u> ·	liz.	Manufacturing Mechines and Tools	194
VI.	le lei	CLASS VII.	
	leiii	Civil Engineering, Architecture, and Building	
VIII	lix	Contrivances	206
Machinery IX.	lali	CLASS VIII.	
X	ixiii		
XA.	lav	Navai Architecture and Military Engineering; Ordrance, Armour, and Accoutrements	203
Xn.	Ixviii		-
\ Xc	lxix	CLASS IX.	
(XI,	1xx	Agricultural Implements	225
XII.	laxi	CLUS X.	
XIII.	lxxiv	Philosophical Instruments and Processes depend-	
XIV	laxvii	lug upon their Use	243
Textila Fabrica	laxia	CLASS XA.	
AVI.	lass	Musical Instruments, &c	324
XVII.	laxxiii	CLASS XII.	
XVIII.	IRRET!	Horological Instruments	336
XX	XC.		10.00
(XXI	xeiii	CLASS XC.	
XXII	xcvi	Surgical Instruments	343
XXIII.	ciii	CLASS XL	
Metallic, Vitreous, XXIV.	CT.	Cotton Manufactures	347
and Ceramic XXV.	cvi	CLASS XII.	
Manufactures XXVI.	exil	Woollen and Worsted Manufactures	350
XXVII.	cix	CLASS XIII.	
XXVIII.	exii	Manufactures in Silk and Velvet	302
XXIX.	exili		unid
Pine Arts XXX.	exvii	CLASS XIV.	
Ladies Jury	CXX	Manufactures from Flax and Hemp	369

CONTENTS.

CLASS XV.	Page	CLASS XXIV.
Mixed Fabries, including Shawls, but exclusive of		Glass 52
Worsted Goods	374	CLASS XXV.
CLASS XVI.		Ceramic Manufactures
Leather, including Saddlery and Harness, Skins, Furs. Feathers, and Hair	363	CLASS XXVI.
Ctass XVII.		Decomitive Furniture and Upholstery, including
Paper and Stationery, Printing and Bookbinding	396	Paper-hangings, Papier Maché, and Japannes Goods 54
CLASS XVIII.		CLASS XXVII.
Woven, Span, Felted, and Laid Fabrics, when shown as Specimens of Printing or Dycing	456	Mannfactures in Mineral Substances, used for Building or Decorations; as-in Marble, Slate,
CLASS XIX.		Porphyrics, Cements, Artificial Stones, Clay, &c. 533
Tapestry, including Carpets, Floor-cloths, &c., Luce,		CLASS XXVIII.
Fancy Embroidery, and Industrial Works	460	Manufactures from Animal and Vegetable Sub-
CLASS XX.		stances, not being Woven, Felted, or included in
Articles of Clothing for Immediate Personal or		other Sections 590
Domestic Use	477	CLASS XXIX.
CLASS XXL		Miscellaneous Manufactures and Small Wares . 600
Cutlery and Edge Tools	485	CLOS XXX.
CLASS XXII.		Sculpture, Models, and Plastic Art 680
Iron and General Hardware	492	Supplemental Report to CLASS XXX 693
CLASS XXIII.		Supplementary Report on Design 70s
Works In Precious Metals, Jewellery, Articles of		
Virtu, &c.	511	INDEX

Plates I., H., III. . . to face page 740.

REPORT

OF

VISCOUNT CANNING,

President of the Council of Chairmen of Juries,

ON PRESENTING THE AWARDS OF THE JURIES TO THE ROYAL COMMISSION.

Council of Chairmen of the Juries, it falls to me to lay before your Royal Highness and Her Majesty's Commissioners the Reports of several Juries upon the subjects submitted to them for examination, and the names of the exhibitors whom they have judged entitled to rewards. In doing so, it will be convenient that I should state

briefly the Principle upon which, by the authority of Her Majesty's Commissioners, the Juries were constituted. The various Sobjects included in the Exhibition were divided, in the first instance, into Thirty Classes, Of these two were subsequently found to embrace fields of

these, two were subsequently found to embrace fields of action too large for single Juries, and were therefore divided into Sub-Jories. This increased the number of Acting Juries to Thirty-four.

Each of these Thirty-four Juries consisted of an equal unabor of Hirish subjects and of Fereigners. The Hrishs Juries were selected by Her Majesty's Commissioners from lists frashisch by the Local Commission of visions towas, each town being invited to recommend persons of skill and information in the manufacture or produce for which it is remarkable. The Foreign Juries were appointed by authorities in their own countries, in such relative parameters, the produce of the produce of the protein of the produce of the produce of the protein of the produce of the produce of the protein of the produce of the produce of the proposition of the produce of the protein of the protein of the produce of the protein of the protein of the produce of the protein of the protein of the produce of the protein of the produce of the protein of the protein of the produce of the protein of the produce of the protein of the prote

In the event of a Jury finding themselves deficient in technical knowledge of any article submitted to them, they were empowered to call in the aid of Ausociates. These Associates, who areted as advirens only, without a cote, but whose services were of the greatest value, were to the contract of the c

Each Jury was superintended by a Chairman, chosen from its number by Her Majesty's Commissioners. The Deputy-Chairman and the Reporter were elected by the Jurors themselves.

Such was the cosmittation of the Thirty-four Juries taken singly. They did not, however, set independently of each other, inasmuch as they were associated into six Groups, each Grony consisting of such Juries as had to deal with subjects in some degree of kindred nature; and before any decision of a Jury could be considered to faint and the subjects of the consistence of

The chief object of this provision was, that none of the many Foreign Nations taking part in the Exhibition object; and they recommended that this Medal should be

HAVING had the honour of acting as President of the should incur the risk of seeing its interests overlooked or Council of Chairmen of the Juries, it falls to me to lay neglected from the accident (as unavoidable one is many before your Royal Highness and Her Majetyl. Com-instances) of its being unrepresented in any particular

Each Group of Juries received the assistance of a Deputy Commissioner and of a Special Commissioner, appointed by Her Majesty's Commissioners to record its proceedings, to furnish in formation respecting the arrangements of the Exbibition, and otherwise to facilitate the

labours of the Juries composing the Group.
It was further determined by Her Majesty's Commissioners that the Chairmen of the Juries, consisting sioners that the Chairmen of the Juries, consisting hot British nebyles and of Foreigners in equal numbers, had be be formed into a Council; and that the dotte of the Council should be, to determine the conditions upon Council should be, to determine the conditions upon previously laid down by Her Majesty's Commissioners, the different Priess should be avanted; to frame rules to

guide the working of the Juries; and to secure, as far as possible, uniformity in the result of their proceedings. These are the most important features of the system npon which the Juries found themselves organized. I will now refer briefly to their course of action.

The Council of Chairmen, in proceeding to the discharge of their duties, were met at the outst by a serious difficulty. Her Majesty's Commissioners had expressed themselves desirons that merit should be remarded wherever it presented itself, but nations at the rame time to avoid the recognition of competition between individual Exhibitors. They had also decided that the Prires should consider of these processes of these Prices in software there; and that there could be a supported to the prices of the processes of the prices of

The Council of Chairmen found, to their regret, that it would be impossible to lay down ny rules for the awarding of the three Medals by which the appearance at least of enesting different degrees of success amongst exhibitors in the same branch of production could be avoided, Accordingly, after fully explaining their difficulty decodingly, after full explaining their difficulty to the country of the country of the country of the country of the Medals might be materially diminished, that one of the Medals might be withdraws.

Of the remaining two, they suggested that one, the Prize Medal, should be conferred wherever a certain standard of excellence in production or workmanship had been attained—utility, beauty, cheapness, adaptation to particular markets, and other elements of merit being taken into consideration according to the nature of the holiect and they recommended that this Medal should be awarded by the Juries, subject to confirmation by the Groups,

In regard to the inher and larger Medal, the suggested that the conditions of its award should be some important novelty of invention or application, either in material, or processes of mandatener, or eigenfaulty combined they great heauty of design: but that it aboud not be conferred for excellence of production or workmanily included for excellence of production or workmanily included and the second of the conferred to the conferred by the Group of a Jury, supported by its Group.

The principle that described met the views of He Modey's Commissioner, and was assessmelly further developed by them in a Minnie which they commissioned by them in a Minnie which they commissioned programs and the proposition of the proposition of the proposition of the Proviga Jarons. Many of these cally as regarded the Proviga Jarons. Many of these cally as regarded the Proviga Jarons. Many of these cally as regarded and the Proviga Jarons. Many of these cally a second the proposition of degrees of the provided of the provided provided

degrees of success attained by rival exhibitors. It was to be expected, therefore, that cases would arise in which the Council Medal, as the higher reward, would be asked for Exhibitors whose claims were only somewhat stronger in degree, without differing in kind from these of others to whom the Prize Medal had been awarded. In such cases it became the duty of the Conocil of Chairmen to refuse their sanction to the award of the Council Medal : without, however, necessarily impugning the alleged superiority of the article for which it was demanded. On the other hand, some instances have occurred in which they have felt themselves called upon to confirm the claim to a Council Medal, where the object for which it was claimed showed, in itself, less merit of execution or manufacture than others of its Class. It follows therefore that the award of a Council Medal does not necessarily stamp its recipient as a better manufacturer or producer than others who have received the Prize Medal. It is rather a mark of such invention, ingenuity, or originality as may be expected to exercise an influence upon industry more extended, and more important, than could be produced by mere excellence of manufacture.

This is to be borne in mind in considering the List of Awards which have the honour to lay before your Boyal Highness; and I trust it will be found that the Jaries have succeeded in doing justice to the Exhibitors of exnation and Class, and that they have not departed in any important degree from the purpose of Her Majestyle Commissioners.

One of the first instructions addressed to the Juries by the Conocil of Chairmen was to the effect that the Prizes should be awarded without reference to the country of the Exhibitors, the Exhibition being considered in this respect as recognizing on distinction of Natious.

It is gratifying to add that the Jarors of every country

cordially acquiesced in this principle, and that, notwithstanding unavoidable differences of opinion, uninterrupted harmony prevailed amongst them throughout the whole course of their labours. It is not too much to hope that the happy influence of this intercourse may extend and

endure far beyond the present occasion.
It is not necessary that I should detain your Royal
Highaess and Her Majesty's Commissioners with a recital
of the other instructions framed by the Council of Chairmen for the guidance of the Juries, or with a detailed
account of their proceedings in the discharge of their own
functions.

The number of Prize Medals awarded is 2,918. The number of Council Medals is 170.

It is important to observe that no more than one Medal of either denomination has been allotted to one Exhibitor in the same Class, although he may have contributed to that Class more than one article deserving of reward.

The Juries have found i Jas, in framing their Reports, to make Housenist Neutron Exhibitors whose Contributions were not such as to cutilte them to receive a Medal. Some have applied speciment or 17m state-find, which, although curious and instructive, do not imply any great merit of production on the part of the Exhibitor and others have furnished articles of manufacture which, without raching a high degree of receillence, are interesting as examples of the grocesses, or present condition of the trades which their illustrate.

Before concluding, I trust I may be allowed to add that it would be difficult duly to estimate the time and labour expended by the Jurors in their endeavour to discharge faithfully the important duty confided to them. The number of Exhibitors was about 17,000. Of these many, who were reckoned but once in the Catalogue, contributed a large variety of objects, and came within the province of more than one Jury; whilst in other cases towns, and even whole countries, were coauted as single Exhibitors, although they presented for examination every kind of manufacture and raw produce which their ingenuity and natural resources could furnish. Upon the whole, the task of the Juries involved the consideration and indement of at least a million articles; the difficulties attending it being not a little increased by the want of a uniform system of classification of the subjects in some of the foreign divisions, and by nnavoidable imperfections in the Catalogue.

In those circumstances the Juries can scarcely venture to hope that secidental omissions may not have occurred; but they have the satisfaction of feeling that these, if any, are not attributable to a want of care or diligence on their nart.

It now only remains for me, in laying the result of and relationar respectfully before your floyal Higness and for Majesty's Commissioners, to offer, on behalf of my Colleges and myself, our grateful a sketowieeligeneet of the bonourable confidence which you have placed in m; and to express the hope that we shall be found to have fulfilled our trust in a manner worthy of the noble undertaking in which we are proud to have been called upon to hear a part of the meaning the meaning of the meaning the manner worthy of the noble undertaking in which we are proud to have been called upon to hear a part of the meaning the meanin

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APPENDIX A.

DECISIONS REGARDING JURIES.

final.

GENERAL CONDITIONS

Number

1. There shall be one Jury to each of the Thirty Classes, iuto which the Exhibition is divided The number of Jurors in each Jury is determined by the amount of articles exhibited in each Class, and the greater or less diversity of the subjects included in it. but

no abstract idea of the relative importance of the Classes is involved in the numbers attached to them, The following list describes the Thirty Juries, and the

number of Jurors to each Jury :-

A. RAW MATERIALS.

Manufactures, as Implements, or for Ornament 8 B. MACHINERY.

V. Machines for direct use, Including Carriages and Railway and Navai Mechaulsm VA. Carriages VI. Manufacturing Machines and Tools VII. Chil Engineering, Architectural and Building 12 Contrivances. VIII. Naval Architecture and Military Englacering; Ordnance, Armour, and Accoutrements. IX. Agricultural and Horticultural Machines and Implements .

X. Philosophical Instruments and processes depending upon their use; Musical, Horological, and Surgical Instruments Xa. Musical Instruments . 10

C. MANUFACTURES. - Textile Fabrics.

XIII. Silk and Velvet . Manufactures from Flax and Hemp

Mixed Fabrics, including Shawls, but exclusive of Wersted Gools (Class XII.).

XVI. Leather, Including Saddlery and Harness,
Skins, Fur, Feathers, and Hair.

XVII. Paper and Stationery, Printing, and Book-

binding XVIII. Woven, Spun, Felted, and Isid Fabrics, when shows as specimens of Printing or Dyeing, 10
XIX. Tapestry, including Carpets and Floor-cloths,

Luce and Embroidery, Fancy and Industrial Works XX, Articles of Clothing for immediate Personal or Domestic Use

D. Metallic, Vitreous, and Ceramic Manufactures

XXI. Cutlery and Edge Tonly

XXII. Iron and General Hardware.

XXIII. Weight Precious Metals, and in their
imitations, Jewellery, and all articles of
Virtu and Luxury, not included in the other 12

Classes 10 . Gines XXV. Ceramic Manufacture, China, Porcelain, Enrthenware, &c.

* The Jury for Agricultural Implements is made excepional, as the Agricultural Committee, consisting of eminont Members of the Royal Agricultural Society, have undertaken the functions of the Jury. Foreigners may be added to this Committee if desired.

- E. Miscellaneous Manufactures. XXVI. Decorative Furniture and Upholstery, includ-
- ing Paper Haugings, Papier Mache, and Ja-XXVII. Manufactures in Mineral Substances, used for building or decoration, as in Marble, 12
- State, Porphyries, Cements, Artificial Stones, &c. XXVIII. Manufactures from Animal and Vegeta
 - Substances, not being Woven or Felted, or included in other Sections XXIX. Miscellancous Manufactures and Small Wares 8
 - F. PINE ARTS. XXX. Sculpture, Models, and Plastic Art 15 218

4. A classified List of Subjects under the province of each Jury is prepared, and forms the limitation to each Class. Sury is prepared, and rorms too immitted to enew cases.

5. The Articles in the Building are arranged as much or possible in the 30 Classes, so as to be coincident with the field of action of each Jury, and to fiscilitate its labours.

6. If Exhibitors occept the office of Jurors, they cease to be competitors for prizes in the Class to which they are ap-pointed, and these cannot be awarded either to them indi-

vidually, or to the firms in which they may be parined sort of the man with the state of the sta 8. Juries may act in matters of detail by sub-committees, but no oward can be made except by the majority of the Jury. Before a Jury can finally make its awards, they must be submitted to a meeting of the Juries of allied subjects. os indicated in the groups in the Decision 3. Theso Meet-ings of allied Juries will have power to confirm the award of the Juries, and to investigate any disputed decisions. Before, however, the awards are published, they must be submitted to a Council, cumisting of the Chairmen of the Jaries, in order to secure uniformity of action—and a compliancewith the regulations originally laid down by that body 10. The awards of a Jury, when reported by the Council of Chairmen as being made in conformity to the rules, are

The Juries will commence their duties on Monday the 11. The Juries will commence their duries on Monday the 12th May, at 12 c chock, and will be added in the general transaction of the business by a person to be named by the Royal Commissioners, who by binnelf, or by a deputy to be approved in by the Commission, may be present at their deliberations, for the purpose of explaining the rules of the Commission. This Nominee of the Commission will not have a vote in any of the Juries, or at all interfere in the

adjudication of awards. CONSTITUTION OF JUNIUS.

 The Jury will in general consist of an equal number of British subjects and of Foreigners.*
 If Foreign Commissions do not send a sufficient num- If Foreign Commissions do not send a sufficient num-ber of Foreigners to represent one-half of the Jurors in each Class, the deficient numbers may be completed by the apones, me accurrent numbers may be completed by the ap-pointment of British subjects.

14. Country as well as metropolitan districts will be represented on the Jury.

* The following list contains the actual number of the

Jarors sent by each country: Russia . Austria. . . . 14 Slelly . Belgium Denmark Spain Egypt Switzerland . France Sweden Great Britain . . . 160 North Germany Zollverein . . 23 Holland . . . Total . . . 183 Portugal .

15. Each Jury will be presided over by a Chairman to be noninated by the Commissioners, and he will be aided by a Deputy-Chairman to be elected by the Jury. 16. Juries may appoint one of their own body as a Reporter.

COUNCIL OF CHAIRMEN.

17. The Chairmen of the Thirty Juries will be associated as a body, to be called the "Council of Uniframen."

18. In the absence of a Chairman, the Deputy-Chairman will take his seat at the Council.

19. The Council of Chairmen will be constituted, as far

as practicable, of British subjects and Foreigners in equal

numbers.

20. The first and chief duties of the Council of Chairmen

will be to frame the rather for the guidance of the Juries.

21. The Cosmical will sub-have to describe the conditions nation which the 1st, 2nd, and 3st Class Steldar respectively which is the 1st, 2nd, and 3st Class Steldar respectively which is will be activated to confirm in the asserts in the sorteral departments of the Ishibition. It is the wish of the Commission that Methal should be asserted. In most comparison that Methal should be asserted in most superiority may be, and not with reference to a merely insisting analysis. The three theorems of Media to an and as not a first, second, and third in degree for the same can into as first, second, and third in degree for the same class of subjects.

* The fellowing decisions relative to Prizes and Jories, already published, are repeated for the purpose of more detailed information:—

orance merentions;—merentions;—taxe had under their consideration the suiject of the Prizes to be marsied to exhibitors, and have resolved to take immediate seeps for having times) Mankels struck of cardious sixes and different its will, generally speaking, he mest desirable that the remark should be distributed. The phear devided to select account, the considering that the phear devided to select account, to considering that metals to be before excluded, commercing that metals to be before excluded and any other fart the development of superior skill and, han any other fart the development of superior skill and

than any other for the development of superior skill and longenuity in the medallic art, and at the sancot time the most likely to constitute a lasting memorial of the Exhibition. "With regard to the most in which the Prices are to be awarded, the Commissioners think it inexpedient to establish beforehand rotes so precise as to fetter the discretion of the Jurice upon which that task will ultimately devolve. It will he sufficient for the present to indicate the general prioriples

to which it will probailly be a tvisable to conform in the award of Prizes for successful competition in the several departments of the Exhibition.

"In the department of Raw Mattana axis Danice, for Instance, Fixus will be awarded upon considerations of the state and Impartance of the article, and the approximation of the article and impartance of the article, and the approximation of the Enkhlidten, the Jaries will take into account in based on the Enkhlidten, the Jaries will take into account in our top and impartance of the prepared profile, and the supports of the propared profile, and the support of the propared profile, and the support in the several take the profile of the profi

In the use of the article exhibited. The importance, in a social or other point of view, of the purposes to which the article is to be applied, will also be taken into consideration, as will also the amonot of the difficulties overcome in bringing the invention to perfection.

"In this department of M-swractrum, those articles will be rewarded which fulfil in the highest degree the conditions specified in the sectional like, viz.: - Increased usefulness.

he rewarded where main in this ingener acgree me containings specified in a contract of the properties of the properties

Power. As r, the rewards will have reference to the beauty and originality of the specimens exhibited, to improvements in the pracesses of production, to the application of art to manufactures, and, in the case of models, to the interest attaching to the subject they represent.

"Those general indications are sufficient to show that it

ts the wish of the Commissioners, as far as possible, to reward articles in any department of the Exhibition which may

 The Council of Chairman must see that the awards of the Individual Juries are in accordance with the rules before they are considered final.

23. Although the Commissioners may be disposed, under peculiar cfreumstances, as as the forth in the unisermentioned decision. It consider the propriety of peculiary grants to individual exhibitors, they will only take such application pluc consideration on the recommendation of the several

Into consideration on the recommendation of the second parties, anothernously the Council of Chairmen. 23. As some of the most important duties of the Gueries, it of Chairmen are preliminary to the action of the Juries, it is necessary that they should meet one week pretions to the assembling of the Juries. The daties of the Council will

is necessary that they should meet one week previous to the assembling of the Juries. The daties of the Council will therefore commence on Monday, the 5th of May. 25. In order to represent the wishes of the Commission, and to explain its rules, o nomines of the Commission will attend the meetings of the Council, and aid it in the transaction of business; but he will not possess a vote, as act as a member of the Council.

Mode of Appointing the Esglish Jugors.

26. Those towns which exhibit to a considerable extent in any of the Clauses will be invited to send a list of names of persons who would efficiently represent the knowledge of those Clauses as Jurors.

37. It will be proposed to state according to the clausification.

times to according to the classified.

27. It will be necessary to state, according to the classified.

27. It will be necessary to state, according to the classified.

28. As it is necessary to reduce the lists to the standard to aggregate.

28. As it is necessary to reduce the lists to the standard.

20. As it is necessary to reduce the lists to the standard number for each Jury, the Commission charges itself with this duty.

29. Those persons who have been recommended as Jurous.

but who from the small numbers of the Jury are not placed on it, may, on the application of a Jury, be called it on special occasions, to give aid, under the title of Associates, but without a vote.

appear to competent Judget to Ispanier any develod impartilationists of the Commissioner in red and excitation in Intuition of the Commissioner in red and excitation in the dishertime of a morely individual competition. At the commissioner law of terminol in law of the comtant of the commission of the commission of the comtant intuition of the commission of the comlation of making distinctive marks in the case of the color of the commission of the commission of the comlation of making distinctive marks in the same often of Artistan exhibited. They this promption that excellence of the commission of the commission of the comlation, when combining quality with however of prices or and nature is sufficient in particular commission of the comtant natures with the position in grid the commission of the commission of the commission of the comtant natures with the position in grid the commission of the other South American models, or they would to the financian of American for our or the contract of Laures of the contract of the commission of the commission of the comtant of the commission of the commission of the comtant of the commission of the commissio

"- Lastly, the Commissioners in assumeding likely interlor of gring bladel First, for set represent supporters to the of gring bladel First, for set represent supporters to competition, or a stratel under special circumstaters, ascompetition, or a stratel under special circumstaters, asternative to the set of the strategy of the set of the strategy of the set of the second of the second of the resultion of life of the successful competitor for, for instance, the time and supporter result of supports excellence, and its which, from a consideration of the capture increased in to which, from a consideration of the capture increased in the second commission of a periodic article conal pressure; of the summarison of a periodic article conal pressure; of the second commission of the second contribution. The Commissioners are no prepared, for the pressure of least, to establish say regulation on these was been also as the second commission of the second contribution. The Commissioners are not prepared, for the pressure of the second contribution of the second contribution. The Commissioners are not prepared, for the pressure of the second contribution of the se

Mone or Appointing Poneigy Jenons. Note. - The decisions regarding Foreign Jurors are delayed until the apinions of the Agents of Foreign Commissions are obtained as to the proportions in which each nation should be represented in the respective classes, and as to the principles of namination most agreeable to the

MEETING OF JUNIOR

31. The Jurors, on being appointed, will receive immediate notice of appointment, and their names will be

countries which they represent,

32. The Chairman will be required to meet on Monday the 5th May, at 10 o'clock.

33. The Juries will meet for the transaction of business,

33. The Juries will meet for the transaction of business, on Monday the 12th May, at 10 o'elnet.
34. Atthough impossible to set apertapecial days in which the Juries about ean examine the Articles exhibited, to the exclusion of the public, arrangements will be made to early on three examinations with as little delay as possible.

35. Jurors, immediately on their arrival in London, are requested to report themselves at the Jury Office, in the Exhibition Building, where they will obtain their Jurur's Ticket, and receive all necessary information.

APPENDIX A 1.

CLASSIFICATION OF SUBJECTS IN THE THIRTY CLASSES INTO WHICH THE EXHIBITION IS DIVIDED.

RAW MATERIALS,

I. Mining, Quarrying, Metallurgical Operations, and Mineral Products. II. Chemical and Pharmoceutical Processes and Products generally

111. Substances used for Food IV. Vegetable and Animal Substances, chiefly used

in Manufactures, as Implements, or for Oronment.

MACHINERY.

N. Machines for direct use, including Carriages and Railway and Naval Mechanism.
 VI. Manufacturing Machines and Thols.

VII. Civil Engineering, Architectural and Building Contrivances.

VIII. Naval, Architectural, and Military Engineer-ing; Ordnance, Armour, and Accourtements. IX. Agricultural and Horticultural Machines and Implements.

X. Philosophical Instruments and Processes d pending upon their use; Musical, Horological, and Surgical Instruments.

MANUFACTURES,

XI. Cotton. XII. Woollen and Worsted,

XIII. Silk and Velvet.

XIV. Manufactures from Flax and Hen XV. Mixed Pabrics, including Shawls, but exclusive of Worsted Goods (Class XII.). XVI. Lenther, including Saddlery and Harness, Skins, Fur, Feathers, and Hair.

XVII. Paper and Stationery, Printing and Booklanding.

XVIII. Woven, Span, Felted, and laid Fabrics, when shown as specimens of Printing or Dyeing. XIX. Tapestry, including Carpets and Floor-cloths, Lace and Embroidery, Fancy and Industrial Works

XX. Articles of Clothing for immediate Personal or Dumestie Use.

XXI. Cutlery and Edge Tools. XXII. Iron and General Hardware

XXIII. Working in precious Metals, and in their imitations, Jewellery, and all articles of Virta and Luxury, not included in all other Classes. XXIV, Glass.

XXV. Ceramic Manufactures, China, Porcelsin, Farthenware, &c. XXVI. Decorative Furniture and I pholstery

cinding Paper-hangings, Papier Maché and Japanned Goods. XXVII. Manufactures in Mineral Substances, used for building or decoration, as in Marble, Slate,

Porphyries, Cements, Artificial Stones, &c. XXVIII. Manufactures from Animal and Vegetable Substances, not being Woven or Felted, or in-cluded in other Sections.

XXIX. Miscellaneous Manufactures and Small Wares, FINE ARTS.

XXX. Sculpture Models and Plastic Art.

I. Mining, Quarrying, Metallurgical Operations, and Mineral

A. MINING AND QUARRING OPERATIONS. I, Quarries and upon workings.

Streaming; washing alluvial deposits. Mines worked on the tode.

a. Ninking of shafts.
b. Cutting sdits.
c. Driving levels.
4. Mines worked on the bed.

a. Sinking shafts.
b. Driving levels.

c. Cutting stalls or headings. alt deposits.

6. Ventilation; Safety Lamps, and other modes of lighting. 7. Methods of raising Men, Ore, and Water.

o. Raising Ore.
b. Lowering and raising Miners.
c. Dralning.

B. GEOLOGICAL MAPS, PLANS, AND SECTIONS.

C. OHER AND METALEURGICAL OPERATIONS. 1. Ores, and the Methods of deessing and rendering Ores merchantable.

a. Ores of the taure common Metals, as of Iron,

 Orea of the harve common Metals, as of Iron, Copper, Zinc, Tin, Lead.
 Native Metals, as Guid, Silver, Copper, &c.
 Orea used for various purposes, without reduction, as Peroxide of Manganese, &c.
 Methods of reasting, smelting, or otherwise reducing Ores.

a. The common Metals, as Iron, Copper, Zine, Tin, Lead The Metals more generally used in combination, as Autimony, Arsenic, Bismuth, Cadmium, Co-balt, Nickel, &c.

balt, Nickel, &c.
 Methods of preparing for use the nobler Metals, as Gold, Silver, Mercury, Paliadium, Platinum, &c.
 Adaptation of Metals to special purposes.
 Metals in various Chesnical states, as Irou in the condition of Cast und Malleubio iron, Steel,

Metals in their progress in finished Manufactures, as Pigs and Ingots, Sheets, Bars, Wites,

80. 5. Afloys, and methods of ren lering more generally seful metals and their alloys

o. Statuary, Bronze, Uno, Bell, and Speculum Me

A. Brass, and alloys used as a substitute for it.

- e. White alloys, as Britannia Metal, German Silver, Pewter, ke d. Type, Sheathing Metals, and other alloys.
- D. NON-METALLIC MINERAL PRODUCTS. I. Minerals used as Fuel
 - n. All kinds of Coal and derived products. b. Lignite and Peat e. Buuminous bodies and antive Naphtha.
 - 2. Massive Miserals used in construction n. For purposes of construction generally-Siliceous or Calcureous Free Stones and Flags.
 - Granites, Perphyritie and Besuitie Rocks. Slates b. For purposes of Ornament, Decoration, and the Fine Arts -
 - Marbles. Alabanter, Sinc. &c.
 - Screenting and other hard rocks susceptible of high polish.
 - c. Cements and Artificial Stones-Calcareous and Hydraulle Cements. Puzzuolanas, Trass, &c.
 - Gypsum for plaster. Artificial Stenes 3. Minerals used in the Manufacture of Pottery and
 - Sands, Limestones, &c., for Glass-making. Various Clays and felapathic Minerals, as those
 - used for Bricks, Tiles, and various kinds of Pot-tery and Porcelain. Siliceous, Calcareous, and other Minerals, used in Plastic Arts.
 - 4. Minerals used for personal Ornaments, or for Mechanical and Scientific purposes.
 - a, Gems and precious Stones.

 b Models of Minerals and Crystals, &c.
 c, Collections of Minerals for scientific or educa-
 - 5. Minerals used in various Arts and Manhfacture n. Simple bodies or compounds containing the Al
 - kalies or Alkaline Earths Those used principally for culinary purposes or for Medicine, as Salt, Mineral Waters, &c. Those used in various manufactures, as Sul-
 - These used in various manufactures, as surphur, Boras, &c.
 b. Earthy and semi-crystalline Minerals.
 Minerals used for grinding and polishing, as
 Grindatouce, Honestones, Emery, &c.
 Lithographie Stones, Drawing Chalks, and
 Slate Peucils.
 - Graphite. Earthy and other Minerals used as pigments, Earthy and oller Minerals used as pigments, or for staining, dyelng, and colouring. Various Minerals used in Manufactures; as Alum, Sobist, Fuller's Earth, French Chalk, Casting Faods, 6. 6. Solls and Mineral Manures.
 - 11. Chemical and Pharmaceutical Processes and Products
- generally. A. CHEMICAL SCENTANCES USID IN MANUFACTI DE.
 - 1. From the Mineral Kingdom.
 - a. Nun-metallic substances Those used principally in their elementary state, as Sulphur, Phosphorus, &c. Acids, as Sulphurie, Muriatic, Nitric, Boracie,
 - Sec. Miscellaneous Manufactures, as Sulphuret of
 - Carbon, Chloride of Sulphur, &c. b. Alkalies, Earths, and their compound Alkalies and their Alkaline Salts, as Soda, Pot-
 - asb, Ammonis, and the Carbonates, &c. Neutral Salts of the Alkalles, as Sulphate, Nitrate of Soda, Saltpetre, Borax, &c.
 - trate of Soda, Saltpetre, Borax, &c.
 Earths and their compounds, as Lime, Magnesis, Barytes, Strontia, Atumina, &c.
 e. The compounds of Metals proper, as Salta of
 Iron, Copper, Land, Southern, Southern,
 d. Mixed Chemical Manufactures, as Prussiste of
 - Potash, &c. 2. From the Organio Kingdom, and not included in
 - Sections III, and IV.

 3. Manufactured Figurents, Dyes, and miscellaneous Chemical Manufacturers. (See also Section IV.)

- a. Pigments employed in House Decoration, and for colouring Woods.
 b Pigments used for Textile Fabrics.
- c. Pigments used for Paper Hangings, and for felted and laid Fabrics generally.
 - Artists' Colours. c. Miscellaneous Chemical Manufactures
- B. RABER CHEMICAL SUBSTANCES MANUFACTURED CHIEFLY TOR THE EST OF THE SCH STIFFE CHEMIST. I. From Substances of the Mineral Kingdom,
- Vegetable 11 C. CHENICAL SUBSTANCES USED IN MEDICINE AND IN PHAR-
 - MACL
 - 1. From the Mineral Kingdom.
 2. Non-metallic substances and their compounds.
 3. Alialies, Earths, and their compounds.
 4. Alialie Proparations.
 5. From the Vegetable Kingdom, when shown for
 - Pharmaceutical Purposes. (See also Scetlens III. and IV.)
 - a, Vegetable Infusions, Decections and Solutions, elear or saccharine. b. Thetures.
 - c. Extracts and Inspirated Juices. d. Resins, Gum Resius, and Olco Resins, and
 - Balsams, Aloes, &c.
 - e. Aloes, &c. f. Gums as Acacla, Tragacenth, &c. g. Essential Offs, Calput, Savine, Turpentine, &c. & Essential Offs, Calput, Savine, Turpentine, &c. & First Olis, N. Calor, T. Otton, Almond, Ulive, &c. & Vegetable parts, as leaves of Digitalis, Hemlock, roots of Japan, Ipeccanaha, &c. j. Barks as Imported, Cinchona, Cascarilla, Cussaria &c.
 - paris, &c. paris, &c. & Vegeto-Alkalies, their Salts and other Crys-
 - talline principles of medicinal substances.

 I. Vegetable Acids.
 - m. Miscellaneous Compous 3. From the Animal Kingdom. a. Cod-liver and other Animal Oils for Internal or external application.

 b. Ungueots of Spermacetl, Land. Oil, and combi-
 - nations of them. c. Autispassoodies, as Musk, Castoreum, Civet,
 - Ambergris, &c.

 d. Phosphurus, Ammonia, and their products,
 r. Irritants, as Cantharides. f. Antacids, as Crab's-eyes, Calcarer as concretions of the Craw-fish, Cuttle-bone, &c.
 - III. Solstonces used as Food.
- VEGETABLE KINGDOM. A. AGRICULTI RAI. PRODUCE -- CEBEALS, PURES, OHS,
 - SEEDS, ETC. I. Common European Cereals.
 - Cercals more rarely cultivated in Europe.
 Millet and other small Grains used as food. 4. Pulses and Cattle Food.
- 5. Grasses, Fodder Plants, and Agricultural Roots.
 6. The Figure or preparations of the above classes.
 7. Oil Seeds and their Cakes.
- S. Hops and other aromatic plants used for like pur-
- B. Daien FRUITS AND SEEDS. 1. Raisins, Currants, Figs, Plums, Cherries, Apricots,
- 2. Dates, Tamarinds, Dried Bananas, &c. 3. Almonds, Chesnuts, Walnuts, &c.
- 4. Cocca-nuts, &c. C. SCRPTANCES USED IN THE PRETABATION OF DRINKS.
 - I. Real Teas of all klods, 2. Substitute for Tens, as Paraguny, Arabian, Benego-
 - 3, Coffee of all kinds, and Cocoa Seeds and Nibs. Various substances, as Chicory Roots, Amande de Terre, Gusrana Bread, &c.
- D. INTOXICATING DIM GS, FURMENTED LIQUODS, AND DIS-
- . I. Fermented Liquors and Spirits from unusual sources. 2. Tobacco.

- 3. Opium. 4. Itemp, and other lotoxicating Drugs.
- E. SPICES AND CONDEMENTS.
 - Cimaamon, Cassia, and their substitutes.
 Nutmers and Mace; Cloves and Cassia Buds.
 Peppers, Capsicum, Mustard, Vanilla, Pimento, Caramums, &c.
 - 4. Ginger, Turmerie, &c
- F. STARCH SERIES. I. Starebes of all kinds prepared from Wheal, Rice,
 - Potators, Maize, &c Arrowroots of all kinds, Tois les Mois.
 Sagos from the Palms, Cassava, Tapioca, &c.
 - 4. Lichens of all kinds.
- 5. Other Starchy Substances, as Portland Sago from Arum suculatum, and from various like plants. G. SCOAR STRIES.
- 1. Sugars from the Cane and Beet. daple and Palms Birch, Poplar, Oak, and Ash, Grape Sugar
 - 2. Liquorice, Sarcocoll, &c.
- ANIMAL KINGDOM. H. ANIMAL FOOD AND PREPARATIONS OF FOOD AS INDUS-TULAL PRODUCTS.
 - pecimens of preserved Meats.
 - Specimens of preferred parents.
 Portable Soups, and concentrated nutriment, as consolidated Milk, &c.
 Caviare, Trepang, &c.
 Articles of Lastern commerce, as Shark Flas, Nest of
 - the Java Swallow, &c. 5. Honey and its preparations.
 6. Blood and its preparations.
 7. Industrial Products, as Glue, Gelatine, Isinglass,
 - Gluten, &e.
- IV. Vegetable and Animal Substances, chiefly used in Manufactures, as Implements, or for Ornaments.

VEGETABLE.

- A. GUN AND RESIN SERIES. 1. Gums of all kinds of natural occurrence-
 - Gums made artificially, as British Gum. Mucilagiaous Seeds, Barks, Pods, and Seaweeds 2. Resing-
 - Resins and Balsams of all kinds. Gum Resins. Sum Elastics and Gutta Percha.
 - Distilled Reslus and Varnishes.
- B. OIL SERIES.
 - Yolatile Oils, including Campbor.
 Drying Fat Oils.
 - 3. Non-drying Fat Oils. 4. Solid Oils. 5. Wax.
 - 6. Distilled Fat Oils.
- C. ACIDS, AS ACETIC, CITRIC, TARTARIC, OXALIC, &c.
- D. DYES AND COLOURS.

 - Dia active.

 J. Indigos.

 J. Malders.

 J. Malders.

 J. Lichens and their preparations.

 Dying Barks, as Acacins, Quercitron, Mangrove, &c.

 Woods, as Log-wood, Brazil-wood, Peach-wood, Fus-
 - 6. Flowers and Berries, as Persian Berries, Saffower, Saffron.
- 7. Miscellaneous, as Turmeric, &c. E. TANNING SUBSTANCES.
- TANNISO SUSTANCES.

 1. Pods, Berries, Scela, and Fruits of various kinds, as Algarous, Acacia, Nib-alb and Divi-divi Peds, &c., 2. Barks of various kinds, as Barks of the Baboul, Brazilian Acacias, Muricl, Buelda, Gordonia.

 3. Galla, and similar Tanoning Materials.
- 4. Catechu, Kiao, Gambeer, &c. F. Finbous Surstances, including Materials for Cornage
- AND CLOTHING.
 - 1. Cottons of all kinds
 - 2. Hemp and Flax; Manilla Hemp and New Zealand Flaz.

- 3. Chiaa Grass, Nettle Fibre, Plantsin, and Pine Ap-
- ple Fibre.
 4. Sunn, Jute, and other tropical substitutes for Hemp, Flax.
- 5. Colr. or Cocos Nut Fibre, Gomuth &c. 6. Rushes and Miscellaneous Substances G. CELLELAS SUBSTANCES.
 - 1. Corks of all kinds. 2. Woods and Roots used for Corks, as the Ochrona
 - Anony paint room used for County as and Anony painteris.

 3. Rice-paper of Chius.

 4. Birch Bork, Pottery Bark, Citrus Rind, &c.
 - 5. Substances used as Amadou
- H. TIMBER AND FANCY WOODS ESED FOR CONSTRUCTION AND ORNAMENT, AND PREPARED BY DYFISO.
 - 1. Saited chiefly for purposes of construction, or for the Navy.

 2. Suited chiefly for Ornamental Work.

 3. Prepared Woods, as by Kyan's, Payne's, Bethell's,
- and Boucherie's processes. I. MISCELLANDOUS SUBSTANCES.
 - I. Substances used as Sonp, as Quillal Bark, Sonp Berries (Supindus suposaria), Soap Roots (Sonosaria officinalis, &c.). 2. Perfumes, as Pucha Pat, Vetiver, Spikenard, Tonka-
 - beans, &c. 3. Substances used mechanically, as Teazels, Dutch Rushes, &c.
 - Scels and fruits used for Ornamental purposes, as Ganitrus Bends, the Ivory Nut, the Doom Palm, Coquilla Nuts, Bottle Gourds, &c.

ANIMAL. J. For Textile Farrics and Clothing.

- 1. Wool, Hair, Bristies, Whalelsones. 2. Silk from the Silk-worm Bombyr mori, and from
- other species in Iudia, e. g. Bombyvilla Cynthia and Attiens Paphia. 3. Feather, Down, Fur, Skins.
- 4. Miscellaneous, K. For DONESTIC OR ORNAMENTAL PURPOSES, OR FOR THE
 - MANUFACTURE OF IMPLEMENTS. I. Bone, Horn, Hoofs, Ivory, Tortoisesbell, Shagreen, Chatlie
- 2. Pearls. Seed Pearl, Mother-of-Pearl, Coral, and Shells generally.

 3. Oils. Tallows. Spermaceti, Wax. Land
- 4. Miscellaneous, as Sponge, Goldbeater's-skie, Catgut, Silkworm-gut, Bladders, &c.
- L. AS AGENTS IN THE MANUFACTURE OF VARIOUS ARTICLES. I. Glue, Isinglass, Gelatiac, Bone-black, Ivory black, Animal Charcoal.
 - M. FOR THE PRODUCTION OF CHEMICAL SUBSTANCES. Blood, Bones, Horns, &c., for the production of Phos-phorus, the Prusslates, the Superphosphates, &c. N. FOR PRIMERTS AND DYES.

 - Cochineal and Carmine.
 Dyes from the Galls of the Aphides. Gail-stone, pigment from Ox-gall
 - 4. Indian dyes from the Coreus, the various kinds of
 - 5. Miscellaneous, as Sepia, Enena d'Orient, &c.

MACHINERY.

- V. Machines for direct use, including Carriages and Railway and Naval Mechanism.
- A. STRAM ENGINES AND BOILERS, WATER AND WIND MILLS,
 - AND VARIOUS OTHER PHIME MOVERS. . Boilers
- 2. Land Engines.
 3. Murine Engines.
 4. Windmills.
- 5. Water-wheels and Turbines,
- 6. Water-pressure Engines, as Illchenback's and Arm- o
 - strong's.
 - Vacuum Power Engines 8. Electro-Magnetle Engines, &c. 9 Miscellansons

viii	CLASSI	FICATION OF SUBJ
B.	SEPARATE PARTS OF MACI	INTS, SPECIMENS OF WORKS
	I. As heavy Castings or	Forgings In the rough; (
	ings or Forgings,	ATTR and GAS Works in V Forgings in the rough; (plain, intricate, or beautifu (in Metals, mit faished Work in Me- regular Figures, &c. 8, Governors, &c.
	2. Specimens of Tarning	in Metals.
	3. Specimens in filing a	arl finished Work In Me
	4. Vnives, Cocks, Piston	s, Governors, &c.
C.	PRESMATIC MACHINES.	
	1. Air Pumps, 2. Blowing Fras. 3. Blast Engines for Fur 4. Miscellancous.	
	3. Blast Engines for Fut	naces, &c.
D,	INTERACTION MACRINES, C.	RANGE, ETC., PILE DELVERS,
	L. Hydraulle Machines Pumps and Fire E. Water Rama, Hydraulie Presses,	
	Pumps and Fire E	ngines,
	Hydraulie Presses,	&c.
	Any sort of Crane:	motion mid contrivances, J. or Windlasses, Capstans, E.) also VII, A.) steam, nes,
	of nil sorts. (F	or Windlasses, Capstans,
	3. Pilling Engines. (See	also VII, A.)
	By hand power, or	steam,
	Pile Extractors, &c	1
E.	LOCOMOTIVES AND RAILW	AY CARBIAGES, &c.
	1. Railway Loromotives,	other
	3. Railway Chrriages, To	ncks, and Waggons.
	4. Railway Velocipedes,	kc, &c., of all sorts.
	1. Railway Lecomorlyes, 2. Common Read Locom 3. Railway Chringes, T. 4. Railway Velocipeles, 5. Atmospheric Railway 6. Carriage Breaks, 7. Roffers, Caupilius, &c.	жириния.
	BAHWAY MACHINERY AND	PERMANENT WAY.
	1. Permanest Wny comp 2. Steepers.	actor.
	2. Nicepers. 3. Cluirs, &c. 4. Rails. 5. Smitches. 6. Turntubles. 7. Stution Arrangements 8. Nignats.	
	5. Switches.	
	7. Station Arrangements	
	8. Signals. 9. Misrellancous.	
G.		AND RECOVERING MACON
	FOR COMMERCIAL	AND RESISTENING MACHINAND NOT FOR PHILOSOPHIC
	Proposes.	Instruments
	2. Instruments of Measur	C.
	3. Registering Instrume Telltales.	Instruments. S. sts, Gauges, Indicators,
<u>V.</u> ,	A. Carriages generalle not	including those connected a
	21 20 XI	
	Dress Vis-a-Vis.	Landaulet.
	Dress Chariot. Landau.	Landaulet, Step-pieco, Baronelie, Sociable,
	Landau.	Sociable.
В	BAYELLING CARRIAGES.	
	Coach. Driving Coach.	Britska. Droitska,
	Chariot.	Fourgon.
	Britska Charlot	Fourgon. Invalid Carriage. Stedges, &c.
	Britska Chariot. Dormeuse Post Chariot. Post Chariot.	Chagan ac.
	Basterna. Brougham. Double Brougham.	Curricle, Cabriolet,
	Double Brougham.	Hended Chase
	Pilontum	Tilbury. Stanhope,
	Cariole.	Dennett. Gig.
	Cariole. Domestic. Driving Phaeton. Mail Phaeton.	Gig. Irish Car.
	Marit Diseases	District Control

BJECTS	
n VII.) ; Cast- tiful, in	1
Metals,	1
	,
RS, ETC.	1
, Jacks is, and	1
	c
THINES,	E
e nod	E
d with	
	A
	B.
.	

D. PUBLIC CARRIAGES. Mail Coach. Hansom's Cab. Stage Coach. Street Cab Omnibus. Fly. Hackney Couch Hearse Hackney Charjot. Carayon Glass Coach. CARTS AND WAGGONS OF ALL KINDS, NOT BEING AGUS-

CULTURAL

1. Manufacturing Machines and Tools, or systems of Machinery, Tools, and Implements employed for the underseentioned purposes,

L. MANUFACTURES OF ALL SPUN, WOVEN, FELTER, OR LAID FABRICS. Michinery for the complete formation from the Row Material of all Pabrics of Cotton, Wool, Flax,

Hemp, Silk, Caoutchoue, Gutta Percha, Hnir, Paper-making and Staining.
 Printing and Bookbinding.

3. MANUFACTURES OF METALS. 1. The manufacture of Metals from the Ore into Bars, Rods, Wire, Sheets, and other general forms; also easting and polishing of Metal, &c.

easting and polishing of Metal, &c.

The cutting and working of Metals by Markine
Tools, such as Lather; Machines for Pinning,
Drilling, Boring, Slotting, Sawing, Stamping,
Shearlog, Riveting, Punching.
Machines and Tools used by the Makers of Gold,
Silver, and Plated Goods.

4. Machines and Tools used by the Makers of Cutlery,

Nnils, Screws, Pins, Needles, Buttons, and metallie Pens, &c.
5. Machines and Tools used by Locksmiths, Dicsinkers, &c.

MANUFACTURES OF MINERAL SUBSTANCES AND MINING MACHINERY. (See also SECTION I.)

 Much lines and Tools for the preparation and working of all kinds of Glass, Stone, Granite, Alabaster, Slate, Clay, &c.

2. Machines and Tools used in the preparation and

working of Gems, &c. MANUFACTURES OF VEGETABLE SUBSTANCES

 Machines and Tools for the preparation and working of all kinds of Wood.
 Mills and other machinery for Grinding, Crushing, or preparing Vegetable Products.

Mancracture of Annal Sustances.

Muchinery and Tools for working in Horn, Bonc,
Ivory, Leather, &c. MACHINERY AND APPARATUS FOR BREWING, DISTILLING,

AND MANUFACTURING CHEMISTRY.

II. Civil Engineering, Architectural and Building Con-tricunces. POUNDATIONS AND BUILDING CONTRIVANCES CONNECTED

WITH HYDRACLIC WORKS. Application of the Screw Pile for the Foundation of Piers, Jetties, &c., Beacons, and Ships' Moor

of Fiers, Jetties, ac., Beacots, ma Sups Accor-ings.

2. Pocumatic Piling, Machinery illustrative of the mode of shaking and guiding the Cylinders, also Contrivences for overcoming difficulties where obstructions are offered to their shaking.

3. Coffer-doms on soft and rocky bottoms, and Apparatus connected with them.

Foundations of Lighthouses exposed to the violent action of the sea. 5. Diving-bells, Helmets, and Apparatus connected

with them.

6. Boring Tools, and Contrivances for ascertaining the stratification on Sites of intended Structures. SCAPPOLDING AND CENTERINGS.

Scaffolding for the erection of Brick Chimney Shufts, Columns of Masonry, Towers, and Spires.
 Portable Scaffoldings, Ladders, and Fire Escapes.

 Fortable Scannings, Laurers, and Five Escapes.
 Seaffolding for the creetion of Monolithic Blocks, as Obelisks, &c., and for the hoisting of great Weights.

- Fixed and Turning Scaffolding for the repairs, &c., To Homes, &c., internally and externally.
 Scaffolding and Contrivuoce fur the erection of large Girler Bridges (as Britansia Bridge).
 Centerings for Arrival Bridges, Dames, and Vault.
 Centerings for Turnela, Shirlds, and Contrivuance for Incilitating their exercisation.
- C. BRIDGES, TUNNELS, AND ENGINEERING CONTAINANCES FOR CROSSING RIVERS, RAVINES, &c.
 - Timber Bridges Cast-iron Bridge Castiron Bridges

 Fromptheim Bridges

 Fromptheim Bridges

 Fromptheim Bridges

 Fromptheim Bridges

 From and Rolling Bridges

 Drive and Rolling Bridges

 From the Bridges

 From

 - r loating Bridges, as across the Hamedze, and receive Railway Trains, as across the Humber.
 Examples of Brick and Stone Bridges.
- D. DOCK, HARBOCK, RIVER, AND CANAL WORKS. 1. Docks and Slips for the building and repairing of
 - 2. Mercantile Docks, and Arrangements connected therewith, for the loading and unloading of
 - 3. Sea and Capel Locks, Gates and Entrances, Stop-
 - gates, Sluices, &c.
 4. Marine Railway Slips and Hydraulic Docks.
 5. Harbours of Refinge.
 6. Breakwaters, Piers, Jetties, Wharfs, and Landing-
 - 7. Groynes, Sen-defences, &c.
 - 8. Perpendicular Lifts for Canals, and other Engineering Contrivances instead of Locks.
 9. Dredging-machines, Hedgebogs, and other Machines. employed in Harbour Works, for removing Shoals,
- E. LIGHTHOUSES AND BEACONS.
- F. ROOFS, BUILDINGS, AND CONTRIVANCES FOR COVERING
 - LABOR AREAS.
 - Examples of Timber and Iron Trusses.
 Roofs for Markets, Railway Stations, &c.
 Roofs for Theatres.
 - 4. Fire-proof Buildings, arranged so as to be applicable to the conomical methods of construction. 5. Coverings for Boots.

nected therewith.

- G. Water-Worse, and the Engineering Contrivances connected with the Ohtaining, Stoning, and Distribution of Water is Towns.
 - 1. Well-sinking and Boring, and the Apparatus con-
 - 2. Storing, Filtering, and Distributing Reservoirs, and the Contrivances connected with them. 3. Contrivances for maintaining and producing efficient Heads and the Apparatus connected with Street
 - 4. Services, and Apparatus connected with Domestic
- Water Supply (See also V., B.) H. GAS-WORRS, AND CONTRIVANCES CONNECTED WITH THE ECONOMICAL PRODUCTION OF ANTIFICIAL LIGHT.
- ECONDRICAL L'EDUCTION DE ARTIFICIAL LIGHT.

 Rendeming, Separating, and Portfying Apparatus.

 GOVERNORS and Contrivances connected with the

 Mains for the Distribution of Gos. (See also

 XXII.)
- 1. SEWERAGE, CLEANSING, PATINO, AND THE CONTRIVANCES
 CONNECTED WITH THE NANITARY CONNECTED BY
- Towns. 1. Forms of Sewers, their Entrances and Junetions
 - 2. Contrivances for Cleansing, Flushing, and Ventilating Sewers.
 - Contrivances for removing and distributing Sewage. Traps, and other Means of preventing emanations. (See also XXII.)
- 5 House Drains, and the Internal Sanitary arrange-ments of Houses. (See also XXII.) 6. Pavements.

- J. WARNING AND VENTILATING DOMOSTIC RESIDENCES AND
- Arrangements for Warming, as with Hat Air, Water, Steam, &c.

 Contrivances for preventing Smoke, and Chimneysweeping Machines.
 - 3. Contrivances for Ventilation on a large Scale.
- K. MISCELLANDOUS.
- al Architecture, Military Engineering; Ordnance, Armour, and Accountements.
- A. ILLUSTRATIONS BY MODELS OF SHIPBUILDING FOR PUR-POSES OF COMMERCE.

 - 1. Ships.
 2. Barks.
 3. Brigs and Brigantin
 4. Snows and Ketches.
 5. Nehomers.
 6. Stoops and Cutters.
 Z. Luggers, Barges, &c
- ILLESTRATIONS BY MODELS OF SHIPBULLING FOR PUR-

 - 1. Ships of the Line.
 2. Frigates.
 3. Skops, Corvettes, and Brigs.
 4. Cutters, Brigantines, Ketches, Schooners, Barges, &c.
 5. Bomb or Mortar Vessels, Fire-ships, Gun-boats, &c.
- C. ILLUSTRATIONS BY MODELS OF SHIPBUILDING FOR THE ACPLICATION OF STEAM OR OTHER POWERS.
- Great War Steamers.
 Steam-vessels of large hirden for long Passages.
 Steam-vessels for Inland, River, or Lake Navigation.
 Sailing-vessels fitted for the temporary appliance of Steam or Human Power.
- D. VESSELS USED FOR ANUSEMENT, AND SMALL VESSELS
- Sengoing Yachts of all Kinds.
 River Yachts, and Pleasure Bests of a smaller class.
 Rowing Boats of all Kinds.
 Fishing Boats and Vessels.
 Life Boats and Paddit-box Boats.
- ANCHORS, WINDLASSIE, CAPSTANS, SREATSBAR
- AND ARTICLES CONNECTED WITH PRACTICAL SLA-MANSHIP AND THE SAVIND OF LIFE FROM SHIPWBECK. . INFANTAL ARMY-CLOTHING AND ACCOUNTS MENTS.
- G. CAVALAY ARMY-CLOTHING AND ACCOUTREMENTS. H. CAMP EQUIPAGE, SUCH AS MARQUEDS, TENTS, &c.
- I. NAVAL GUNERY, AND WEAPONS OF ATTACK AND DE-TENCE NORE ESPICIALLY ADAPTED TO NAVAL PUR-
- J. ARTILLERY EQUIPMENTS, ROTH IN GARRISON AND THE FIELD, MACHINES FOR MOUNTING AND DISMOCRY-ING ORDNANCE.
- Gerrison Equipments, Field Equipments, Machinery for Mounting, Direcounting, and Trons-porting Ordmance, Carriages, &c.
- ORDNANCE AND PROJECTILES.
- 4. Shot, Shells, and other Projectiles.
- MALL ARMS.

M. MILITARY ENGINEERING, FIELD EQUIPMENTS, METHODS OF PASSING RIVERS AND OTHER DISTACLES, THE ATTACK AND DEFENCE OF FORTHELSES, AND FIELD FORTIFICATION.

1. Field Engineer Equipments. Military Bridger, Protonna, Ratts, pours, ev.
 Field Fortification and Materials used in the Attack and defence of Fortresses. 4. Permanent Fortification.

1X. Agricultural and Horticultural Implements. A. INPLEMENTS FOR THEADP.

1. Ploughs, including Subsoil Ploughs and Pulverisers. Harrons
 Searifiers, Cultivators, and Grubbers,
 Clod Crushers and Norwegian Harrons,

Digging and Trenching Machines.

B. Dutleing, Sowing, Manuelng, and Horing Magnines.

Broa least Sawing Machines, Contrivunces connected with the Distribution of Ma

C. HARVESTING MACHINES.

Machines for Uniting Corn or Grass.
 Todding Machines for Hay.
 Rakes for Hay, Corn, Stubble, &c.

D. BARN MACHINERY

BARN MACHINERY,
J. SPERII Tenfeines in II. Water-gover Machines,
J. Stein Lending Machines,
A. Threshing Machines,
S. Winnesder, Corn Clevatine, and Barley Hummelling,
A. Winnesder, Corn Clevatine, and Barley Hummelling,
J. Winnesder, M. W. William,
J. Charley, Machines and Maters,
J. Whose Machines, Machines,
J. Shelony Cuttlers,
J. Shelony Cuttlers,
J. Shelony Cuttlers,
J. Shelony Cuttlers,

E. PIELD, POLD, AND YARD MACHINERY,

1. Tarabje-cutters,
2. Hour transfront Sequencing Machines,
3. Existo-numbers,
5. Existo-numbers,
5. Foreing Application,
6. Weighout Machines for Cattle, &c., (See G.V.)
7. Watering Fagines, for Fire or Garden Purposes,
6. Cites D.L.)
6. Cites D.L.;
6. Cites D

Storing.

Contributes for Fencing, Folding, &c. 0. Fillings for Stables, Cou-

AGRICULTURAL CARRIAGES, HARNESS, AND GUAR, Waggons, Carts, &c. Brakes.

Separate parts, as Wheels, Axles, &c. Harness and Gear.

G. DRAINAGE INTLEMENTA

DAMSAGE MELOSECTE.

I. Machines for making Pipes, Tiles, and Briefes,

2. Uniferentis for Divising, and Tools.

3. Tiles, Pipes, and other Materials used in draining,

4. Scopy whereasth other Materials used in Brainin

or Litturg Water,

5. Schimes and Contrivances for Irrigating Lands,

5. Schimes, Piraw Cater, &c.

DAIRY IMPLIMENTAL

1. Churns.
2. Cheese-presses.
5. Miscellaucous contrivances used in the Dairy.

5. MISCOLINGOS CONTITURIOS DAVID IN UNICASONAL DI SUR ASSOCIATORE.

L. Rick Vestilator.

J. Rick Assilator.

J. Rich and Tar Meliters.

S. Pitch and Tar Meliters.

E. Steep-dipping Apparatus.

E. Farini Kaliway.

Models of Farm Buildings,
Alarm Guns for protecting Crops,
Bechives,
Instruments for Cattle, Probason

ments for Cattle, Probungs, &c. Tree Remover, Various Miscellaneous Articles.

J. GARDEN ENGINES AND TOOLS

C. Philosophical Instruments and Processes depending upon their use: Musical, Horological, and Surgical Instruments. INCOMPARED FOR THE MEASUREMENT OF SPACE,

1. In fixed observatories, as Transits, Transit C great Quadrants, Mural Circles, Zenith S.

B. INSTRUMENTS TO MEASURE THE EFFECTS OF MECHANICAL

"Historia bearing and the properties of the prop

C. INSTRUMENTS TO BLUSTBATE THE LAWS OF MECHANICAL AND PRESIDENT SCIENCE. "Kinematics,"—Instruments to exhibit and describe Motions and Ibeir Combinations, as Compasses, Pentagraphs, Instruments for describing Elliptical

and other Figures, &c.

Mechanics, or Justruments to illustrate the Laws of Static and Dynamic Forces. a. Stereo Mechanics, as for illustrating Mechanical
Powers, accelerated and retarded Motion,
Equilibrium and Parallelogram of Forces,

Levers, Cathetometers, Centripetal and Centrifugal Forces, Elasticity, &co. Hydro-Mechanics, as Instruments to illustrate the motion and Impinging Force of Waves, &c.

the motion and uniprogram Force or waves, ac.
e. Pieumo-Mechanics, as Apparatus connected with
the Air-Dunp, &c.
instruments to illustrate the Laws of Corpuscular
Forces, as Whitworth's Planes, Endoamometers,

Electricity, In-

eluding Vultair and Thermo-Electricity, Magnet-lsm, Electro-Magnetism, Magnetic Electricity, Dia-Magnetism, &c. D. APPLICATION OF MECHANICAL AND PHYSICAL SCIENCE.

TO USERCE PURPOSES, NOT INCLUDED IN ANY OF THE PRECEDING OR SUBSEQUENT SECTIONS. 1. Mechanics.

a. Stereo-Mechanics when not Included in Sections describing their more extended uses.
c. Pacumo-Mechanics as Air Pumps, Rarefying and Condensing, Diving Bells, Air Balloone,



rmoreas, Burning Lence, and Mirroretism and Electricity—Mariners C estre and Electric-Magnetic Telegravity Light, applications of Electro-Mag lotive Power, Therapeuric Applie Electricity, Electrotype Apparatus, and Speci-

E. CHEMICAL AND PHARMACEUTICAL APPARATUS. F. MISCELLANDOUS.

X.A. Musical Instruments, &c.

WIND INSTRUMENTS. French Horn Trampets. Bugle Horns Cornels & Pis tes (also in Metal, &c.)

B. STRINGER INSTRUMENTS.

Harps. Viologeellos. Guitars. Violius. Double Basees. C. KEYED INSTRUMENTS WITH FIXED TONES.

Harmoniums Pinnofortes. Concertings. Scraphines. Accordions. INSTRUMENTS OF PERCUSSION.

E. AUTOMATIC INSTRUMENTS. Mechanical Organs Musical Boxes, &c.

P. MISCELLANGUE ABTICLES IN CONNEXION WITH MUSICAL INSTRUMENTS. Tuning Forks, Taning Hammers, Pitch Piper, &c. Wire Strings, Catgut Strings, &c.

G. Mesical Diagrams. X.a. Horology.

A. GREAT CLOCKS FOR CHURCHES, CASTLES, STABLES, AND PUBLIC BUILDINGS IN GENERAL.

1. With three and four wheel Trains. With Remontolres and with various Escapements. 3. To strike the Hours, and the Hours and Quarters.
4. The various Compensation Pendulums io use.

5. The various modes of making the work to carry the Hands, and communicating the motion from the Clock to the Hands.

6. Electric or Magneto-Electric Clocks.

B. ASTRONOMICAL CLOCKS.

1. The various Escapements employed.
2. The various Componsation Pendulums used. 3. Equation Clocks.

4. Clucks, commonly called Journeymen Clocks, for Observatories. C. CLOCKS APPLIED IN REGISTRATION.

To register the Barometer daily for twelve mouths, or other periods.
 To register Titles and Winds.
 To register the panetual attendance of Watchmen

D. CLOCKS SHOWING DIFFERENT PRENOMENA.

Cycle of the Sun and Moon, Eclipses, Moon's Age, Equation of Time, the Golden Number, Tides, &c.

E. CLOCKS FOR THE COMMON PURPOSES OF LIFE. t, Weight Clocks. Spring Clocks with Pendulums

3. Balance Clucks of various descriptions.

F. CLOCKS AND TIME-PIECES IN DECORATED CASES, COMMONLE CALLED ORNAMESTAL CLOCKS, TOR DEADING DOOMS, LIBRARIES, &c.

In Metal Cases, Gilt and Lacquered. In Buhl Cases.

G. SUNDRIES APPLICABLE TO CLOCKS.

 The various modes by which Clocks are kept going while being wound. while being wome.
The various escapements employed to Clocks of
different descriptions.
Various portloss of Mechanism forming parts of, or
applicable to, Clocks.

MARINE CHRONOMETERS.

4. The various descriptions of Compensation Balances applied to Chronometers. 5. The various descriptions of Pendulum Springs ap-

plied to Chronometers. 6. Pocket Chrunometers. I. POCKET WATCHES OF VARIOUS DESCRIPTIONS.

1. For measuring Minute Portions of Time and registering Observations

 With Compensation Balances.
 Duplex Escapement. 4. With Horizontal Escapement. 5. "hever Escapement upon different constructions.
6. "the old original Vertical Escapement
7. Repenters upon different constructions to strike the

Hours and Quarters. 8. The same to strike the Hours, Quarters, and Half-

Quarters.

9. The same to strike the Hours, Quarters, and Minutes.

10. Clock-watches to strike the Hours and Quarters in a similar manner to Clocks.

11. Clock-watches, and, in addition, Repeaters. Watches with Alarums Watches known by the denomination of Ladies'
 Watches, with the cases decorated in various ways.
 Various portions of Mechanism forming parts of

J. WATCHES FOR DIFFERENT MARKETS-As for Turkey, with three Cases and Turkish Dials.
 For Chius, with peculiar Cases and Dials.
 For India and South America.

4. For Home Country Districts.

K. MISCELLANEOUS.

X.c. Surgical Instruments. A. FOR OPERATIONS ON THE EYE.

Special Instruments for-1. Operation on the Eyelida.

 Fistula Lachrymulis.
 Strabismus. Artificial Pupil.

5. Cataract. By Depression.

By Extraction.
a. Including Elevators in Silver and Ivory,

a, incuming Lievators in curver and Ivery, Fine Bistouries, Trocurs, Caaulia, Styles, Sounds, various Needles, &c. b. Cataract Kaives, Hooks, Capsular Forceps,

B. OPERATION ON THE EAR. Special Instruments for-

1. Exploration of the Anna and Eustachian Paso. Sounds, Catheters, Specultums, &c.

2. The Conveyance of Air or Liquid into the Tym-

2. The Currectance of Air of Liquid into the Tympaule Cavity.

b. Procumptic and other Syringes in Metal,
Glass, and Casuteloue, Sc.

3. The Removal of Foreign Bodies from the Meatus. a. Lavers, Branch Forceps &c.

4. Perforation of, and other Operations on, the Membrana Tampani.
The Conduction of Sour
a. Including all kinds
and Contrivances.

C. OPERATIONS ON THE NOSE - NAME FOR PLANT AND APPROXI

ling all Contrivances for "Tam

tion and Injection of the Antrum-luding Liston's Drills, Antrum Sy

D. OPERATIONS ON THE MOUTH AND PRIARYAX.

Special Instruments for—

1. Hare Lie.

2. Operations on the Teeth (Dental Instruments).

E. OPERATIONS ON THE THORAX AND RESPIRATORY OPERAND.

F. OPERATIONS ON THE ADDOMINAL WALLS AND ALIMENT-

ARY CANAL Special Instruments for-1. Stricture and other morbid states of the Cino-

 Stricture and other morbid states of the Gao-phagus, the removal of Foreign Bodies, &c. a. Including Geophagus Bougies and Pro-bangs in clastic gum and other muterials, Gisuphagotomes, Guillet-foreign, &c.
 The intraduction and withdrawal of Fluids from he introduction and withdrawal of risings tarms. Stomach; the removed of Poison, &c.
a. The Stomach Pump and its appendages,

Enema Syringes, &c. 3. The formation and maintenance of artificial Anna a. Enterotomes, Porte-Satures, &c., by Dupuy-

4. Prolopsus Ani.
a. All kinds of Rectum-Plugs, in metal, clastic

b. Fistule, Fissures, and Vegetations in Ano. dures (on Luke's and Sampson's

6 Hernia lernia.

2. Cutting lostruments for its radical cure.

5. Tristaes and all nrtificial necass of support, arrecutesis Aldoninia.

Tristael squaination of the rectum, ratious Speculums (by Hitton and others).

G. OPERATIONS ON THE GENITO-UNIVARY SYSTEM IN THE

incensing Lithotomes, Gorgets, Staffs, Forceps, Scoops, &c. ithofrity. a. Lithofrites, which disintegrate the Stone by

Perforation,
Ditto ditto by Concentric Pressure,
Ditto ditto by Percussion,
b. Syrioges and other Instruments to inject and

Spiere the Bladder e. Dilators, Sliding-scoops, and Apparatus to remove Calculi impacted in the Frethra; Instruments for Lithertasy, &c.

Instruments for Litmettary, ec.
Printer Fastilia.

a. Including all Frethroplastic Instrume
Verethrotomes, ec., for Recto-Predictal,
rinnest, and Recto-Verent Fastilia.

Stricture, Postatic and Vesical Disease, and 4. Stricture

a. Every variety of Catheter, Bougle Porte-Caustique, and Urinal; Cur-fars for Paneture of the Budder, Pubes, through the Rectum, &c.

ntus employed by Jews. 8, By the

luding Instruments for obliteration of the

Spermane veins (micos or, those for simple support; Supensory and other Bandages; Serotal Rings, &c. ON THE GENITO-URINARY SUSTEM IN THE

Exploration.

a. Including Speculoms In all Materials,

Sounds, Dintors, &c.
2. Operations on the Uterus, Vagina, and Corvex

a. Hysteronomes and Instruments for Paracen-Hysteronomes and anstruments to a more-tecis Uteri (Lisfranc's and Simpson's). Uterine Scissors and dressing Forceps (corved and straight), Porte-Caustiques, &c.

3. Polypus Uteri.
a. Vuicelia and other Forceps, Porte-ligatures,

A. Vuicella and other Forceps, Porte-ligatures, Serre-neuds, &c.
 Prolapsus and Procidentia Uterl.
 a. Including Possaries, Bandages, and artificial support of all Kinds.
 Vesico-Vaginal Fistula and Recto-Vaginal Fis-

a. Hancock's new Instruments, Urinary Receptueles, &c. 6. Obstetrical Purposes. a. Including all Midwifery Instruments, and Contrivances to remedy Lacerated Pe-

rincum, I. OPERATIONS ON THE EXTREMITIES.

Special Instruments for-I. Amputations.

o. Army (portable) and Hospital Cases, &c.
2. The Adjustment of Fractures.
o. Including Splints, Inclined Planes, Pads,
Slings, and Bandages, to all Materials. 3. The Reduction of Dislocations.
c. Pulleys, Rings, Staples, &c.

K. OPERATIONS ON THE OMERCS SESTEM

Special Instruments for—

1. Terpanning.
2. Resection and Exarticulation.
3. The Extraction of Sequestra, &c.

L. OPERATIONS ON THE VASCULAR SYSTEM.

I. Venescetion a. Cupplog Instruments, Lancets, Leech-tubes,

2. The Control of Linmarrhage,

s. Tourniquets, Compressors, Torsion Forceps, &c. 3. Transfusion.

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4. Aneurism.
     By Ligature: -a. Angurism Nordier, Purtedi-
     gatures, Sampson's Speculum, &c.

By Compression:—6. New Instruments, by
Wyld, Bellingham, and others.
5. Navus.
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a. Needles, Porte-aiguilles, &c. (Listen's and Brodie s). 6. Varices.

a. including Elastic Bandoges, Stockings, Ankletr, &c.

M. AUTOPLASTIC AND ORTHOP, EDIC OPERATIONS. Special instruments for—

1. The various Taliacolian Processes.

3. Mechanical Compensation of Lost Parts.

Artificial Eyer, Noses, Ears, Colus, Palaies, Teeth, Hands, Arms, Legs, &c.
 Orthopædic Processes.

a. Including all Orthopedio Apparatus, Back and Leg Boards and Irons, Stays, Belts, Supports, Suspenders, Boots, Shoes for the cure of Bunious (Lanagua's).

N. DRESSING INSTRUMENTS. a. Surgeons' Pocket Cases and their usual contents: Spring Distouries, Tenaculums, Scalpels, Scissors, Forceps, Spatilie, Probes and Directors, Needles, Ligature-Sills, &c.

O. MISCELLANEOUS PRILOSOPHICAL APPARATUS APPLIED TO THE INVESTIGATION AND TREATMENT OF DISEASE. a. Microscopes, Englecopes, and Lenses: Urinometers and Thermometers; Volta-electric Apparatus; vaand Thermometers; Volta-electric Apparatus; va-rious illuminating Speculums; lustraments in India-rubber for the application of Intense Coll; glooper's Water Curbions for the reception of fluids of any temperature; spompio-piliuc, Pstent Lint, Plaisters, Collodion, Nipple Shields, Breast-

pumps, &c. P. Surgical Tables, Beds, Mattresses, Chairs, Craoles RESTS, &c.

Q. POST-NORTEM AND DISSECTING INSTRUMENTS, AND IN-STRUMENTS FOR EMBALMMENT.

R. INSTRUMENTS APPLIED TO VETERINARY PURPOSES.

MANUFACTURES. X1. Cotton.

A. Corron Yann and Thurad.
1. Grey Twist in Hanks and Bobbins, from No. 20 White and Bleached Yarn, Dyed Yarn, assorted Colours

2. Cotton Threed—
Two-fold Lace; 2, 3, 4 6, and 9-cord rewings.
Two-fold Liste; kuftlings. Turkey-red and Pink.

Crothel Cottons 3. Crape Yarn

B. CALICOES.

Sheetings (Grey and Blenched)-3 and § Super. Shirtings (Grey and Bloached).

Domestics, Madapollamsand I and 40 meh Printers'.

Long-rioths (Plain and Twilled)lmitation frish.

CORDS AND BEAVERTEENS. 1. 4 cil and 2 Cords.

Genoa.
Beaverteens.
2. Drabbotts.
Fancy Drills

wansdowns. Ticks.

3. Velvets and Velveteens D. MUSLINS, &c.

1, Cambric and Jaconnet --Mulls and Books.

Bishop and Victoria Lawns, &c. Jacusuet, Organdies, Lenes, and Foncy Checks for Printing (Grey and Bleached),

and Nets, White and Dyed.

Allover and Dingonal Spid-Bengal Scarf Spot, assorted

Harness, assorted Garments, Window Curtains, 2 Port, Book Jaccount and Dacon Loppets.

Figured. Finall Stripe and Check Dorials.
Mcklean Lappets, Coloured and White.
Turkey Gauze, White and Dyed.

Shawls, Handkerchiefs, and Dresses -Imitotion Cambrie Handkerchiefs, Plain and Em-

appet Shawis. look Muslin Dresses, Checks,

Blenched Goods of various Finishes Cambric Fluish.

Jaconnet Finis Book Muslins, Hard, Electic, and Lundon Finish. richly Ornamented

E. Diserus, &c. Furniture Dimitics, Plain and Figured.— Bair, Cord, and Indis, Plain and Figured.

Quitting. Setteen and Twiffed Jean. 2. Marscitles and Summer Quittssurrectites and Suntmer Quitts— Counterpanes (White and Coloured), Tollet Covers (Fisin and Coloured), Anti-Macassurs, Grey Sheets, Window Hollands,

Cotton Dispers and Damasks. F. COLOURED WOVEN COTTON.

I. Handkerchiefs for the Pockel, Bead, Neck, and
Shoulders—
Initation Malras and Policat,
n. Java and Mautita.
Fancy White Grounds, Checke

Imitation Manilla Pine-Apple Cioth.

White Cambrie.

Figured Barders. Cravets, assorted colours.

2. Ginghams. Common Light Grounds, assorted, Plair.

Common Light Grounds, assorted, Plaite,
"Dark Grounds, assorted, Ploiu,
Earlston, Gingham.
Power-loom Servuckers and Checks.
Turkey-red Grounds.
Blue and Black Lenvy Checks.

Muslin Ground Stripes and Gheckt. Coloured Dispers. Crossover Stripes, Jean Stripes.

Integrations.
Imbrella Ginghoms.
Dresses, Searfs, &c.
Java Bugis, and Manitla Sarongs.

"Chinaics and Searfs.

4. Zehras-Blue and White Striped Dresses. Orange-pino Blue pine

Hobe de Chambre. G. OILED CALICOES ON CAMBRICS FOR PACKING.

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XIL Woollen and Worsted,
A. BROAD CLOTHS.
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Single Milled, 52 to 63 inches wide. Wool-dyed Wonded Colours—

Blue Black Melleys.

Oxford and other Mixtures. N.B. The term "Medleya" Includes all Wnol-dyed Colours, excepting Blue and Black. Wool-dyed, common colour, nawouded.

Black. Medlevs Oxford and other Mixtures.

Drah, Piece-lyel, Wonded Colours -Black.

Blue Fancy Colours. Piece-dyed, unwoaded.

Gentlan Other Fancy Colours.

2. Double Milled, 52 to 57 inches wide.

Subdivided same as No. 1, 3. Medium Cloths, 54 to 63 inches wide, 8nbdivided same as No. 1,

4. Ladies' Cloths, 54 to 63 inches wide. Subdivided same as No. L.

5. Venetians, 54 to 58 Inches wide. Subdivided same as No. 1,

 Army Cloth, 52 to 54 inches wide. Subdivided same ns No. 1. 7. Beavers.

Subdivided same as No 1. 8. Pilots.

Subdivided same as No. 1. Molnir, 54 to 58 inches wide.
 Subdivided same as No. 1.
 Clonkings, 54 to 58 inches wide.

Subdivided same as No. 1.

11. Tweeds-Single Milled

Double Milled. 12. China Stripe Cloths, fist, piece-dyed, and other Cloths, 60 Inches wide.

13. India Cloths, piece-dyed, 60 inches wide.

14. Billiard Cloths, piece-dyed, 72 to 81 inches wide.

15. Elastic Glove Cloth, 54 to 70 inches wide.

Subdivided same as No. 1.

16. Union Cloths, Cotton Warps, piece dyed, 52 to 54 Inches wide.

17. Double Colours, plece dyed, 54 to 63 Inches wide.

B. NARROW CLOTHS. 1, Cassimere dauble milled, 27 to 23 inches wide. Subdivided same as Broad Cinths, No. 1

2. Cassimere, single milled, 27 to 29 inches wide. Subdivided same as No. 3. Doe-Skins, treble milled, 27 to 2) inches wide, Subdivided same as No. 1

4. Doe-Skins, double milled, 27 to 2) Inches wide. Nublivided same as No. 1.
5. Doe-Skins, single milled, 27 to 29 inches wide.

Subdivided same as No. 1. 6. Cashmerettes, 27 to 23 inches wide. All Colours.

7. Tweeds, Wool-dyed, 27 to 29 inches wide. Double milied,

Single milled 8. Fancy Trouserings.

C. PLAYNEL 1. Saxony Flannel. White. Coloured 2. Various Flannels. Lancashire. Real Welst-

Imitation Welsh Bath Coating. D. BLANKETS

1. Cloth Blankets.
2. Sangrfine Blankets

3. Medium Blankets. 4. Ordinary Blankets.

E. WOOLLEN CLOAKING.

1. Pinin. 2. Mixtures. 3. Fancy.

Long Etts, White and Coloured,

G. TARTANS.

Plain.
 Fancy.

IL WORSTED STEEF GOODS.

t. Pabrics composed entirely of Wool.

Shalloons, Says, Serges, and Plainbacks. Calinianous, Plain and Figured Lastings, Princettas, Serges de Berry,

De Laines Durants and Buntines. Marcens.

Damasks Pannask Aprons, Pamask Table Covers, &c.

Camiets.

2. Fabrics composed of Wool and Cotton. t'oburg and Paramatta Cloths. I'nlon Double Twills.

Plain Orleans Cloths, Single and Double Warps. Plain Muslin de Laines, Barèges, &c. Shawl Claths.

Lustings, Princettas, and Sorges de Berry. Stockinetts,

Fancy Lastings.
Worsted and Cotton Goods. Figured Coburgs, Orleans, &c. Aprens, plain and figured. Linings, plain and figured.

Linings, plant and uptred.
Union Dainesks.
Damask Table Covers, &c.
J. Fabrics composed of Wool and Silk.
Silk-warp Cobargs and Orleans.
Double Twil's.

Russels. Silk-weft Lastings

Silk-warp Damasks.
4. Fancy Goods composed of Woof, Silk, and Cotton.
4. Fahries composed of Alpaca and Mohair mixed with

Cotton or Silk. Plain Alpaca Lustres, Mixtures, Twiffed Alpaca Mixtures. Plain Mohair Lustres.

Silk-uarp Alpaca Lustres.
Alpaca and Mohair Linings.
Mohair, and Silk Fancy Goods. I'mbrells and Parasol Cloth.

I. WOOLLEN, WORSTED, ALPACA, AND MORAIN YARNS.

XIII. Silk and Velvet.

A. SILK YARNS 1. Spun Silks. 2. Thrown Silks. 2. Thrown Sex-

B. PLAIN SILKS.

1. Gros. Sarsnets, Persians, Satinets, Armures, and

other plain Silks.

2. Satins black or coloured.

3. Armonines, Barattees, and Serges.
4. Serges and Latestrings, for Parasols, and Umbrellas.
5. Bressells, Ducape, Saiin and other plain Cravats for Meu's west.

6. Satin twilled and other plain Haudkerchiefs for Ladles' wear.

7. Bandanns, Corales, and other Cloth for Printing. 8. Spus Silk Handkerchiefs (for printing).

- C. FANCY SILES. Shot, striped, checked, watered (métré), shaded, elouied (chine), or striped with satia.
 Floret, Damask, Tobiac, Brocade, and other Figured
 - 3. Figured Vestings, Cravats and Scarfs.
 4. Figured Handkerchiefs, Searfs, Aprons, and Veils,
 - for Ladjes' wear,
 5. Parasol and Umbrella Silks figured, or with figured
 - borders. 6. Furniture Damesks and Brocades. 7. Gold and Silver Tissues, figured and plain, 8. Figured Pocket Handkerchiefs for Gentlemen's wear.
- D. VELVETS.
- Plain Velvets, black and coloured.
 Plain Terry.
 Figured and Embessed Velve s.
 - Plush (Ludies', &c.).
- 5. Hat Plush. E. GAURES AND CHAPES.

 - 1. Lisse, Arcophane, and other Gauzes, 2. Plain and coloure t Crapes. 3. Figured Gauze (Blowde, &c.)
- 4. Fancy Gauze or Crape Han-lkerchiefs. F. PLAIN RIBBONS
- 1. Sarsuct and Lutestring Ribbon, 2 Satin Ribbons.
 - 3. Ganze Ribbons. 4. Velvet Bands or Bindings.
- G. FANCY RIBBONS
 - Shot, striped, checked, staded, clouded (chiné), or striped with satia.
 - 2. Figured or Brocaded.
 3. Gauze or Crape, with brocaded or cut figures.
 - 4. Embossed Satin. 5, Figured or checked Velvet.
 - XIV. Manufactures from Flax and Hemp,
- A. FLAX FIBER.
 - Steeped, sentched Flax Fibre, both systems.
 I'nsteeped Flax Fibre, from dried Straw.
 Ilnekled Flax from both systems, and Hackled Tow 4. Tow from both systems, and from the unsteeped
- 5. Tow in the forms to mix with Wool. 6. Flax, Hemp, &c., prepared as a substitute for Cotton
- B. LINES YARN AND THREAD,
 - Linen Yarn, Thread, &c: English, Scoteb, and Irish (Tow and Linea Yarn, 14 to 430 ica).
 Hand-Spun Thread, as used for some fine Cambrics,
 - &c. (240 to 800 lca).
 - Dyed Yarns and Threads of various e loors.
 Dyed Yarns and Threads to resemble Listee of Silk.
 Fisx-Cotton, Flax-Fibre, Flax Wool, and Flax-Silk Yarns.
- 6. Flax Thread from unsteeped Filing. C. PLAIN LINESS OF ALL WIDTHS, BECACHEO, UNBLEACHE
- AND DYES. 1. Canvas English, Scotch, Irish, French, Dutch, and Russian,
- 2. Henvy Lines leavy Lineus— As Crash, Huckabacks, Glass Cloths, and Sheet-ings: Yorksbire, Nawark, Scotch, Drogheda, Courtral. Ghent, Russia. Tubleg for Irrigation, and Banding for Machinery.
- 3. Irish Manufreture Brown, Black, and coloured Linens.

 Platillas, Creas, Britannias, German ditto ditto.
- 5. Irish Lineus and Shertings Conrtral, Gheat, Bielefield, Prussian,
- D. DAMASSS, DIAPERS, DILLIA, AND OTHER TWILLEO LANENS: BLEACHED, UNBLEACHED, OR DAED. 1. Damasks and Diapers
 - English, Scotch, Irish, Saxon,
 - 2. Dritts-
- English, Sentch, Irish, French, Saxen, Russian.

 3. Linen Velveteeus, Linen Velvets, and Linen Cords.

- E. CAMBRICA CAMBRIC AND LINES HANDERSCHIEFS, PLAIN, BORDERED, EMBROIDERED, PLAIN, PRINTED OR DVER; PRINTED LINENS, LAWS, CAMPRICS, BLEACHED, UNBLEACHED, OR DATE.
 - 1. Irish. 2. Freach. 3. Irish, Scotch, and Swiss Embroldering (In Cambrie).
- F. COSDAME OF ALL SINDS.
- Repes, Lines, Twines, Nels, &c. XV. Mixed Fabrics, including Sounds; but exclusive of
- Worsted Goods. (Class XII.) A. MINEU WOVEN FARRICS.
 - Cotton Warp, plain, watered, or figored.
 Shot with Wood or Worsted. \(\) For Dresses, Damasks. Aproas, Nose, Boot Cloths, Linings, Cravats, Ventings, Mohnir. Linen. Cravats, Vestings, Ponehos, Pantaloons, Silk and Worsted, Silk and Cotton. Shawla, Scarfs, Cont-ings, Tweeds, Quilt-ings, Phids, &c. Silk and Cotton.
 - 2. Span Silk Warp, plain, watered, or figured. Shot with Wood or Worsted. Mohair. Dresses. Dres:es. Linca.
 - Damasks. Net Silk Vestiags, &c. Silk and Worsted All Cotton
 - Silk Warps, plain, watered, figured, or embossed. Shot with Cotton. Wool or Worsted. Tabineta: Poplins:
 - Mobble. Paramattas; Chales; Bariges; Cashmeres, Cotton and Silk. &c. Cotton & Worsted
 - graduated. 4. Linea Warpa, plain, watered, Shot with Wool or Worsted. or figured. Mehair.
 - Cotton and Silk. Silk 5. Cotton and Silk Warps, plain, watered, or figured.
 - Shot with Cotton. For Dresses, Arti-Mohair Silk.
- Shawls, &c. China Grass. B. SHAWLE.
 - 1. Woven Shauls Chenille, all Silk, or Silk and Cotton. Cashmere from the East.
 - Imitation Cashmeres, that is, Harness or Jarquard Wove Shawle
 - lein Silk and Satin Figured Silk and Satin.
 - Crape, plain and embroidered. Crispe, plain and embrodered,
 Gauze, plain and figured.
 Lace, plain and figured.
 Sheeland or knitted Woollen,
 Sheeland or knitted Woollen,
 Grenadine and other thin texture, in Silk and Silk
 - and Wool. Embroidered Lace, Silk, and Cashmere.
 - Woolien, plain, tartan, and fancy, 2. Printed Shawls,
 - Barege. Silk, including Silk, Grenndine, and other thin mixtures. Cashmere.
- Chine, or Shawis printed on the warp before they are woren.
- XVI. Leather, including Saddlery and Harness, Shins, Furs, Feathers, and Hair.
 - A. LEATUES.
 - 1. Rough tanned Leather -
 - Tanced Butts,
 - Crop-hides. Offsl, i. e. Shoulders and Bellics
 - Horae Butta. Dressing-hides. Horse hides,

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Tanael Calf-skins,
                                                                            Alumed Sheep-skins for Gloves.

Kid-sklus for Shoes.
                  Seul-skins.
          11
                  Hog-skins.
                                                                                      Calf-skins
                  Bearile
                                                                                      Sheep-skins
                                                                                      Varieties
                                                                             Gaiter Leather.
 2. Curried Leather-
      Curried Calf-skin, Russet (i. c. Natural Colour),
Waxed (i. c. Black).
                                                                        7. Sheep and Skin Ruge -
                                                                             Sheep and Lamb, Brown Rugs.

Coloured.

White.
                           Butts, Russet.
Butts, Waxed.
                 Kips, Russet.
Kips, Waxed.
                                                                             Sheep Rugs for Cavalry Saddles.
                                                                             Angola Goat, Coloured
White
                 Cordovan, Waved,
Cordovan, Grain,
                                                                        Various Wild Animal Skins for Rugs.
8. Parchment and Vellum.
                                                                             Sheep-skin Parehment for Deeds.
                  Seni-skins.
                                                                                                           Bookbinding, White.
                  Dog-skins
                                                                             Vellum for Bookbluding, White
Coloured,
                                                                                                                           Colspred.
                  Goat-skins.
                  Boot-legs.
                                                                                           Painting.
                  Varietles.
                                                                                           Tembourines.
                 Saddler's Illides.
                                                                                           Di um-hends.
                 Rein-hides.
                 Collar-bides
                                                                                           Gunpowder sieres.
                 Chaise-hides
                                                                   B. SADDLERY AND HARNESS.
                  Pouch and Scabbard Hides.
Powder Hides.
                                                                             1. Haraess; Carriage, Gig, Cart.

    Saddlery.
    Whips.

                  Bellows Hides.
                 Pipe Backs.
                                                                   C. MISCELLANEOUS,
                 Bag Hides.
                                                                             1. Leather Manufactures, such as Bellows, &c.
                 Pig-skins.
                                                                             2. Braces, Webbing-beits, &c.
                  Hog-skins
                 Russia Leatber.
                                                                   D. SLINS AND FUR.
          12
 3. Enamelled Leather-
                                                                        I. Sable and Martin -
      Black Enamelled Horse-hides.
                                                                             Cow-hides
                                                                            Hudson's Bay Martin or Suble, acst in repute and vaine The North American or Canadian Baum of Wood Martin, a null for tured for Muff, Tippets, Stone Martin, Ilving in rocks, old ruined castles, buildings, &c. English Martin
Dyed Suble and Martin.
                         Caif-skins.
                         Scal-skins.
                         Ciont-skins.
                          Hoans.
     Coloured Enamelled Calf-skins.
                         Sheep-skins.
     Black Japanned Horse hides.
                         Cow-hides.
                                                                       2. Otter-
                                                                            Calf-skins.
     Sheep-skins.
Coloured Japanned Skins, various.
4. Dyed Leather-
     Dyed Leather—

Dyed Morocco i. c. (Goat-sklas) for Furniture and
Coach purposes.

Roan, i. c. (Sheep-skins) for Furniture and
Coach purposes.

Morocco, for Shoc purposes.

Hona ditto.
                                                                       3. Fex-
                                                                            Hudson's Bsy and North
                                                                              American Black and Sil-
                                                                               ver Fox
                                                                                                             As used abread for
                                                                            Blue Fox
                                                                                                              Dresses, and in this
country for Coat-
linings, Carriage
           Morocco for Bookbinding and Pocketbooks,
                                                                            White Fox . . . . .
                                                                            &c.
            Roan for Bookbinding and Pocketbooks, &c.
                                                                                                              Wrappers, Ottomane,
Foot-Muffs, &c.
                                                                            Grey Fox . . .
            Skiver ditto
                                              ditto.
                                                                            Kitt Fox
                                               ditto.
                                                                            European Red Fox
     Striped Seal-skin for Shoe-binding, &c.
              Cape Sheep-skins
                                                                           Black Bear of Hudson's Bay
              Sheep
                                                                              and North America
                                                                                                             Army Clothing and
              Goat
              Horse-hide "
                                                                            Brown or Isabelia . .
                                                                                                             Accountements,
and for Hearth-rugs
                                                                            Grey
5. Oil Leather-
                                                                           European Grey and Black
Bear
Polar or White Bear
                                                                                                              and Sleigh cover-
     Buck skins, finished natural colour.
                                                                                                              ings.
     Calf
                                                                      5. Beaver-
            **
     Lamb "
                                                                           Sheep ...
Ox and Cow Hides ...
Buck-skins, dyed or coloured.
     Don
Caif
                                                                      6. Swan-
                                                                           Swan Skin
                                                                           Swan Skin
Swan Skin
Swan Foathers
Swan Foathers
Swan Quilis
Swan Quilis
     Lamb
     Sheep
6. White or Alum Leather ---
                                                                      7. Goose +
         " Calf-skias.
                                                                           Goose Skin
                                                                                                         Used as Swansdown
             Sheep-skins strained white.
Lamb-skins
                                                                           Goose Down
                                                                      8. Mink-
              Lemb skins coloured.
                                                                           North American and Hudson's Bay Mink; as used
            Kid-skius for Gloves, White,
                                                                      for Muffs, Tippets, Cuffs, &c.

9. Buffulo, for Sleigh Coverings, Open Carriages, and
for Railway purposes.
            Lamb skins "
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1 Section 1. As used in America, when dyed policy of Lyns (1994 Lyns 1994 Ly		EXHIBITION IS DIVIDED. xvi
The printer of Waster Utter and State of Particle of Waster Utter State of Particle of Waster State		
The printer of Waster Utter and State of Particle of Waster Utter State of Particle of Waster State		E. Frathers.
Remines Would tellbergering Frames For general part Frames		1 Ostrich
Ermine B. Products of Pitch. For general pure pass of Ladies Appeared to the Company of the Co		
The second Price of P		Mogador , , , occasions by Knights of
The growth of the control of the con	Weasel	
Dyod Phot Dyod Collands, Capter Company and Company an	Polocat or Fitch For general pur-	Cape application to general Dress
Schmitz and Pyrel Keinbank South Chercia, Bartenal, Langer Chercia, South Chercia, Bartenal, Crys, Walsonat, South Chercia, South Cherci	Russian Fitch poses of Ladies'	Aigon Bay for Ladies and for Funeral
Scholes And Type Karlench South Georgia, Shellench and Falkhald liker All Coars and All Coape, Coffi final wheel yet of final liker and the falker and the falker and the falker and final liker said. Back, Cope, Coffi final liker and final final liker and for military purpose and for military pur	Kolinski and Dyad Kolinski	
Adjusted of March Courts and March Courts and Labor Desection of Pathicular March Courts and Labor Desection of the Pathicular March Courts and the Pathic	Kelrosk and Dyed Kelrosk I	2. Markoogis.
ment published sites. The Fleeder and Manifest. Ment Ment Ment and Manifest. Ment and Ment Ment and		
The Pirelest and Manife.— For all when dept — For general purposes of Fore — For general purposes of Fore — Foreign — For all when dept — For general purposes of Fore — Foreign — Foreign — For general purposes of Fore — Foreign	south Georgia, Shettand,	Paddy or Rico Bird Dresses, Muffs, Tippets and
The Pirelest and Manife.— For all when dept — For general purposes of Fore — For general purposes of Fore — Foreign — For all when dept — For general purposes of Fore — Foreign — Foreign — For general purposes of Fore — Foreign		Grey Fans, and as used with
The Laterial Sported and Silver State 1 State 1 State 2 State	The Plucked and Manufac- Men's Coats and	Dyed Gold, Silver, or Pearls.
The Laterial Sported and Silver State 1 State 1 State 2 State	tured Scal Ladies' Dresses,	(The Feathers known by the
The Laterial Sported and Silver State 1 State 1 State 2 State	The Greenland and News Caps, Walstones,	Plumassiers as "Vulture's,"
The Labrace Sported and December 2015. The passes of the p		
Assemble For Earlier Assemble Section Assertine Section Sectio	The Labrader Spotted and	Short Floary and for military russesses
Assemble For Earlier Assemble Section Assertine Section Sectio	The same in its dwed state	Brown in America; the common
Hannire Ar for Moffs, Tippets, Linkeys, Ferreiraciae Ar for Moffs, Mr.	3. Musquash, or large North American Rat, for Ladies	
Hannire Ar for Moffs, Tippets, Linkeys, Ferreiraciae Ar for Moffs, Mr.	wear, as for Muffs, Boss, &c.	brooms.
and the Packe Regions and the Packe Regions Illusions, Bey yeal North Equipo Rabbit Person Rabbit Isq. Cust, ac. Isq. Cust, a		The Feathers of the small
and the Packe Regions and the Packe Regions Illusions, Bey yeal North Equipo Rabbit Person Rabbit Isq. Cust, ac. Isq. Cust, a	Poressingle Cuffs, &c.	4. Osnrey. enly. Those of the inre-
American Malablar American Malablar American Malablar Moffi, Tippets, Lin- Flemin Balablar Moffi, Tippets, Lin- Flemin Balablar Moffi, Tippets, Lin- Flemin Balablar Moffin Malablar Moffin Malablar Moffin Malablar Malabl	4. Hare and Rabbit—	Large , Osprey for Ladies, and the
American Malablar American Malablar American Malablar Moffi, Tippets, Lin- Flemin Balablar Moffi, Tippets, Lin- Flemin Balablar Moffi, Tippets, Lin- Flemin Balablar Moffin Malablar Moffin Malablar Moffin Malablar Malabl	White Hare from Russia)	Small Egrett Feathers of the back, as
Business Bay ded North Feathers varying The Feathers varying Feather var	and the Polar Regions .	nsed for Military Pinmer
English habbit Selection for plaint The Stag Bird. The	Hudson's Bay and North	
Service orgy Babbil. Rich and Ries Rabbil. Rich and Ries Rabbil. Rich and Ries Rabbil. The Mean of President and President a	American Habbit Must Tienes Vie	shades, as used in their no.
Selver over Rabbit Martine Back and Bine Rabbit Australian Babbit Australian Babbit Australian Babbit Australian Babbit Australian Babbit Denny Australian Babbit The Stanli Breech size when by a babbit and by Radjab in Furnish Lamb Denk A traveland Lamb Per general pur- pones of Press. Per general pur- pones of Press. Denk A traveland Lamb Per general pur- pones of Press. Denk A traveland Lamb Per general pur- pones of Press. Denk A traveland Lamb Denk Ramis Frank Ramis Frank Ramis Frank Ramis A traveland Chiedhila African Chiedhila Lamb Dard Cut or Jeanet Per Coal Linings, Sendy Deventure Dard Cut or Jeanet Dard Cut or Jeanet Dard Cut or Jeanet Sendy Deventure Dard Cut or Jeanet Dard Cut o	English Rabbit ings. Cuffs. &c.	5, Emu' tural colour for Ladies
Rich and Rilbe Robbit Dynel Robbit The State Forman The State F		
Rich and Rilbe Robbit Dynel Robbit The State Forman The State F	White Polish Rabbit	(cotours and black,
Lend, the size of the Lamb Lamb Lamb Lamb Lamb Lamb Lamb Lamb	Black and Bine Rabbit	The large Fragald cone of var
Lend, the size of the Lamb Lamb Lamb Lamb Lamb Lamb Lamb Lamb		The Small Emerald also by Ladies in Eurone
Crey Russies Crimes Lamb Bank Attendance Anne Lamb Brevia tory Lamb Devia tory Lamb Logaria Lamb Logar		
Black Astroches Leads. For general pre- Freins lifet 1, but a press of Dress. Black Resiste Black Resiste Black Resiste Black Resiste Black Resiste Black Resiste For Laller' week, Lising, Young, Tippeds, Coffs, Lising, True, True, The Drown of Meet Back True, The Drown of Meet	Grey Russien Crimes Lamb)	Bird.
Fagilish Jamb Short Same Per Laller weep Short Same	Biack Ukraine Lamb	(The Feathers of the head
Fagilish Jamb Short Same Per Laller weep Short Same	Black Astrachan Lamb.	and breast of the Andres
Fagilish Jamb Short Same Per Laller weep Short Same	Persian Black Lamb Por general pur-	7. Heron. and by Knights at their in-
Fagilish Jamb Short Same Per Laller weep Short Same	Hungarian Lamb	The Heron stallation. Those from the
Search Services For Ladier west, and for Maria, Land Search Sea		
Blue Sibrition For Ladier west, American Saprirel Lorian Reprint Sprinter Darian Reprint Sprinter Lorian Reprint Sprinter Lorian Reprint Sprinter Lorian Reprint Sprinter Lorian Reprinter Sprinter Sprinter Sprinter The Dear of Renez Index Linker, The Power of Renez Index Index The Dear of Renez Index The Power of Renez Index The Dear of Renez Index The Dear of Renez Index The Power of Renez Index The Dear of Renez Index The Dear of Renez Index The Power of Renez Index The Power of Renez Index The Renez Index Lorian Renez Index Lorian Renez Index Lory Himmon. Passecha The Feather meters in Common Flantanti, The Feather meters in Constitution of the Seather Sprinter Lory Tiper Monanted for one- Monanted for one- Lory Tiper Monanted for one- Lory Tiper Mo	English Lamb J	Darter , , as used in England by La
Blue Sibrition For Ladier west, American Saprirel Lorian Reprint Sprinter Darian Reprint Sprinter Lorian Reprint Sprinter Lorian Reprint Sprinter Lorian Reprint Sprinter Lorian Reprinter Sprinter Sprinter Sprinter The Dear of Renez Index Linker, The Power of Renez Index Index The Dear of Renez Index The Power of Renez Index The Dear of Renez Index The Dear of Renez Index The Power of Renez Index The Dear of Renez Index The Dear of Renez Index The Power of Renez Index The Power of Renez Index The Renez Index Lorian Renez Index Lorian Renez Index Lory Himmon. Passecha The Feather meters in Common Flantanti, The Feather meters in Constitution of the Seather Sprinter Lory Tiper Monanted for one- Monanted for one- Lory Tiper Monanted for one- Lory Tiper Mo	Black Russian	Countries by Princes and
and for Month Egyph Squirrel Egyph S	Blue Siberian For Tadies' week	persons of Rank,
Figuith Supered Tippede, Coffi, Distance April Supered Tippede, Coffi, Distance April Supered Tippede, Coffi, Distance April Supered Bran, Francisco Allier, Bran, Francisco Allier, African Chinebila An and hat varie on artifets of Coffice Chinebila An and hat varie on artifets of Coffice Chinebila Francisco Chineb	Kazan Siberian For Ladies wear,	The Feathers of their nature
Indian Storped Squirred mines, &c. mines, &c. Proposity Squirred pro		8. Ibis. scarlet colour, as made into
Dyed Squirrel African Chichella and and a late varieties of Carlo African Chichella and	Indian Striped Squirrel	
Dyed Seguired African Chineshia As made into varie Bornes Ayres Chineshia As made into varie Bornes Ayres Chineshia Artican Chineshia Fur Coat Linker, Services Cat Juney, Services Cat Linker, Services Cat Linke	Flying Squirrel mings, &c.	Swan, For Ladies' Bennets and
Affrein Chinebila Affrein Chinebila Ladie Press. The Feather of the safe in	Dyed Squirrel)	
Date Core assets consensus Date Clear Forms For Coat Linkey, Engineer Care Street, Eng		The Down of these birds as
Date Core assets consensus Date Clear Forms For Coat Linkey, Engineer Care Street, Eng		Trimmines
Durch Cut or Jenusch For Coat Liniange, Streek Developer, Streek	Lima or bastard Chinchilla 1 Ladies' Dress.	(The Feathers of the seek
African Ct. African Ct. Every Duck For Ladle's use. For Justice Argus Pleasant Argus Pleasant Argus Pleasant Argus Pleasant For the Indian Servers. For State Turning Argus Pleasant Argus Pleasant Argus Pleasant For State Turning Common Pleasant The Futhers forming if Fact visit for its limit, and its limit of the lead. Minguil Tiper Monated for orna- Light visit for the Justice Monated for orna- Light visit for the Justice Argus Pleasant The Futhers forming if The Futhers orning if The Futhers or the Justice Argus Pleasant The Futhers orning if The Futhers or the Justice Argus Pleasant The Futhers orning if The Futhers or the Justice Argus Pleasant The Futhers orning if The Futhers or the Justice Argus Pleasant The Futhers orning if The Futhers or the Justice Argus Pleasant The Futhers orning if The Futhers or the Justice Argus Pleasant The Futhers orning if The Futhers or the Justice Argus Pleasant The Futhers orning if The Fu	l. Cat.	back, and tail made into
African Ct. African Ct. Every Duck For Ladle's use. For Justice Argus Pleasant Argus Pleasant Argus Pleasant Argus Pleasant For the Indian Servers. For State Turning Argus Pleasant Argus Pleasant Argus Pleasant For State Turning Common Pleasant The Futhers forming if Fact visit for its limit, and its limit of the lead. Minguil Tiper Monated for orna- Light visit for the Justice Monated for orna- Light visit for the Justice Argus Pleasant The Futhers forming if The Futhers orning if The Futhers or the Justice Argus Pleasant The Futhers orning if The Futhers or the Justice Argus Pleasant The Futhers orning if The Futhers or the Justice Argus Pleasant The Futhers orning if The Futhers or the Justice Argus Pleasant The Futhers orning if The Futhers or the Justice Argus Pleasant The Futhers orning if The Futhers or the Justice Argus Pleasant The Futhers orning if The Futhers or the Justice Argus Pleasant The Futhers orning if The Fu	European Cat Sieigh Coverings	Cock Plumes for Ladies' and
African Ct. & A. Description of the Company of the	Wild Cat Travelling Bags,	Children's Hats and Mili-
Eier Dock For Jades' use. Argus Pleasant. Argus Pleasant. Argus Pleasant. Argus Pleasant. Argus Pleasant. Argus Pleasant. For the least. For Forther pressed. For Forther pressed. For the least. For Forther pressed. For the least. For Forther pressed. Forther pressed.	African Cat &c.	Passasha For Diames, and Common
Pengulo A Argus Cost. Various purposes. Common Thesands, Cost. C	Grebe	The Frethers market with
Terior Feed Dyel Gost Date Trepies Date Trep	Penguin Por Ladies use.	cyes, are need, the small for
Angered Cost. Various purposes. Common Piessand, Massing Free Bright Common Piessand, Massing Cost Bright Cost Common Piessand, Massing Cost Bright Cost Cost Cost Cost Cost Cost Cost Cos	Tarter Fool	Argus Pheasant . Plumes, the large for Tlaras
Lion Tiper Eggle Wing of this little are Fortier Copp Tiper Monated for ornal-copard Leopard Leopa		for the bead.
Lion Tiper Eggle Wing of this little are Fortier Copp Tiper Monated for ornal-copard Leopard Leopa	Dyed Goat	Common Pheasant, Made Into Trimming.
Royal uger Cape Tiger Mounted for ornamental purposes and for Furnil- Leopard and for Furnil- Leopard Duck, Grebe, and Toesan, also several Bind from the Cape Cape Cape Cape Cape Cape Cape Cap		The Feathers forming the
Cape Tiger Mounted for ornan- mental purposes Panther and for Furni- Zebra 9, Miscellaneous also several Birds from it	Royal Timer	for the Highland Bound
heopard mental purposes and for Furni- Zebra	Cape Tiger Mounted for orna-	(The Passbare of the Low
Antelope and for Furni- ture. and for Furni- ture. 9, Miscellaneous also several Birds from t Troples, in their application to Ladder Gresses.	Leopard mental purposes	Duck, Grebe, and Turan as
Antelope		9. Miscellaneous also several Birds from the
	Antelope ,	Tropies, in their applications
	Black Monkey	(in Ladies' dresses,
Ant-eater	Ant-cater	

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F. HATE
   1. Hair as a substitute for Human Hair, as Wirs, Curls,
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Fronts, &c. Ornaments In Hair, as Plumes, Bracelets, Guards, &c. (See also XXIII. C.)

Hair Cloth for the purposes of Furniture 4. Hair for miscellaneous purposes, as for stuffing Furniture.

XVII. Paper and Stationery, Printing and Bookbinding. A. PAPER IN THE RAW STATE AS IT LEAVES THE MILL,

 Brown Paper and Packing Papers.
 Miliboards and Glazed Boards for pressing. 3. Printing Papers.

3. Frating Papers.
4. Drawing Papers.
5. Writing Papers.
6. Tissue Papers, white and tinted.
7. Papers tinted in the Pulp.
8. Tracking Papers, made so in the Pulp.
9. Papers represented in the Waterman.
9. Papers

9. Papers ornamented in the Water-mark. 10. Cartridge Paper.

B. ARTICLES OF STATIONERY.

Envisiones, plain and ornamental,
 Embossed and Lace Papers.
 Printed Fancy Papers and Surface-coloured Paper Prioted and Embossed Ornaments.

Wedding Stationery (Cards, Papers, and Envelopes). 5. Mouraing Stationery (Cards, Papers, and Enve-

lopes). Sperimens of Ornamenting, Glazing, and Packeting Writing Papers.
 Scaling-wax and Wafors.

8, Pens.

 Fens.
 Small Wares for Stationery.
 Tracing Paper, made transparent by Varnishes. 11. Inks of all kinds.

C. PASTIBOARDS, CARDS, &c.

 Playing Cards.
 Playing Cards.
 Message Cards, plain and ornamental.
 Drawing Boards. 4. Mounting Board, plain and ornamental. 5, Pasteboard and Cardboard.

D. PAPER AND SCALEBOARD BOXES, CARTONS (CARTON-NEGIE).

All kinds of Bones and Cases made of Pasteboard and Paper (not being Papier-maché), plain or ornamented

E. PRINTING (NOT INCLUDING FINE ART PRINTING). 1. Type-printing generally. 2. Printing Inks and Varnishes

2. Printing im...
F. Booksinging, &c.
1. Binding in Cloth,
Vellam.

Vellum.
 Leather.
 Nester Vilvet.
 Wood, Papier-maché, or Metal.
 Nester Nester Nester Name Cooks.
 Albums, Serap-books, Portfolios, Masic-books, Manuscript-books, Memorandum-books.

7. Leigers and Acc ount-books.

8. Biorting-cases, Desks, Cabinats, Pocket-books, Card-cases, Note-cases, &c.
9. Porte-monnaie, and other Articles of a similar nature.

XVIII. Woven, Span, Felted, and Laid Fabrics, when shown as specimens of Printing or Dyring.

A. Painting on Dysino of Woollens, on any Mousseline na Soie, ne Laine, on Alpaca Mixture.

Mousselina de Laine, de Soin, &c.— Made of ail Wool. , Cotton and Wool.

Cashmere-Made of all Wool. Cotton and Wool.

Barège --Made of Silk and Wool,

Cotton and Wool. all Wool. Cotton, Silk, and Wool. Balzarine, piain and figured— Made of Cotton and Wool.

Silk and Wool. Cotton, Silk, and Wool. Printed or Dyed Collon or S woven, known as Chine.
 Printed Woollen Table-covers.

2. Printed or Dyed Cotton or Silk Warps, afterwards Japanned. 4. Printed and Dyed Silks— India Corahs in the Grey.

printedin England. India Bandanas (tied and dyed in India), , Choppahs (prioted in India),

British Coralis in the Grey. dyed,

printed British Twills in the Grey. dyed.

British Span Silks, printed. British Cambrics, printed.

British Spun Silk Dresses, dyed. printed. British Corah Dresses, printed. India Corah Dresses, printed. Printed China Crape Shawls.

B. PRINTED CALICOES, CAMBRICS, MUSICINS, VELVET, AND VELVETCENS.

I. Cottons printed by Machines only.
by Block only.
partly by Block and Machinery.
Turkey-red, printed or dyed.

Mules

Muslim printed by Machinery.

by Block only. partly by Block and Machinery.

Prints and Furniture by Machine only.

by Block only.

partly Block and Machine. 2. Handkerchiefs for the pocket, bend, neck, and shoulders. Single Colours, blue ground, &c.

Single Colours, paus grouns, no.
Assorted Colours, fast and loose.
Turksy-red, Bandanas printed.
discharged. Chints pattern. Printed Border Handkerchinfs, Imitation Cambric.

Fancy Muslin. Fancy Muslin.
Imitation Java batticked Handkereldefs.
Printed Aprons.
3. Printed Shawis and Dresses.

Shawis, assorted Colours. . . [part with fringe, Turkey-red, or purple.] part without. Java Sarongs battleked. Turkey-red

Java Siendrongs, Turkey-red, and batticked, Mainy Chindey or Imitation. Bombay Patolio. Siam Shawis,

Scarfs. Dresses.

C. DYED COTTON GOODS D COTTON GOODS.

Cambries and Madapollams, assorted Colours.

"Turkey-red.
Imitation bias Morries and Basstas.
Long Cloths of all kinds.

Mull and Book Morlin of all kinds.

Cotton Drills (blus). Velveteens.

D. DYED LINES GOODS. Printed Linens, Cambric Handkerchiefs. Lawn Shirt Fronts. Lawn Handkerchiefs.

E. DYEING OR PRINTING OF LEATHER, HAIR, FUR, ETC.

XIX. Topestry, including Carpets and Floor-cloths, Lace, Embroidery, Fancy and Industrial Work.

A. TAPESTRY.

L. Carpets of all kinds, in which the Pattern is produced by Weaving or by the Hand, in the manner of Tapestry proper, including Hall Carpets, Rugs, Stair, &c. s. Axminster Carpets, Flax or Jute, Chain, Woollen, er Worsted Pile, worked by hand.

- b. Table and Chair Covers, &c., worked in the sar e. Patent Axminster Carpets, manufactured at Glasgow, made firstly as a woven Fringe, and that adapted afterwards to a thick Flax Surface.
- d. Patent Tapestry Carpet, Pattern printed in warp, any number of Colours used: Table-covers
- and curtains made in same way.

 c. Patent Tapestry Bugs, Valvet Pile Surface, with a thick west shoot of Cotton, Flax, or other
- material. f. Brusselis and Velvet Pile Carpet.
- g. Tapestry Brusseils Carpets, called Moquette, of a fine quality.
- a fine quality.

 k. Kidsterminister and Venetian Carpets.

 l. Patent Mosaio Tapestry and Rugs, whera the cut Wool is fixed to a ground by caoutchoue, &c. f. Printed Felt Carpet, Plain and Printed Druggets, Printed and Embossed Cloth for Table-covers
 - and Curtains.
- Patent Printed Carpets with Terry Pile Surface; the same Moquette for Curtains or Furniture.
 Cloth Embroidered by Machinery for Tablecovers or Curtains.
- 2. Matting of Hemp. Cocoa-nut Fibre, Straw, Reeds, and Grasses, for Fioor and Walls.

 3. Oil-cloth for Fioor or Table, whether painted or
- Ul-cleik for Floor or Table, whether painted or the Worts or Embeodery, Creeke and Net Work.
 Constrepanse and Quilts for Bed-covers; Quilties to Construct the Construction of the Construction of the Construction of the Section of the Construction or of these materials mingled together, or with Mend Wires, whether wore in the Leons or with Mend Wires, whether wore in the Leons or so much artistic excellence as to entitle them to be exhibited in Section XXx. as Works of Fine Art.
- 1. Pillow Lace, the article or fabric being wholly made by hand (known as Vaienciannes, Mechlin, ton, Buckingham); or guipare made by the Crochet Nacelle; and Silk Lace, called "Blonde" when white, and Chantilly, Puy, Grammont, and Black Buckinghamshire when black.
 - 2. Lace, the ground being Machine-wrought, the Orna mentation made on the Pillow and atterwards ap plied to the Ground (known as Brussells, Honiton,
 - or applique Lace).

 3. Macbine-made Nets and Quillings, wholly Plain, whether Warp or Bobbin (known as Bobbin Nat, Tulles, Blondes, Cambrale, Mechlins, Malines, Brus-
 - Tulles, Blonder, camorate, Auceanum, namuro, veilla, Alengon, Aci), who ship made by Machine; A. Laev, the Ground heir physical party by Hand, et wholly Ornamented by Hand, whether handboured, Needle-Embrodered, or Darned.

 Lace actually Wrought and Ornamented by Machinery; comprising Trimming Laces of very description, Veilas, Palis, Scata, Shawis, Lappets,
 - scription, Vo
- C. SAWED AND TAMBOURED MUSLINS. Ladies' Collars, Cuffs, &c. hildren's Robes,
 - Handkerchlefs Trimmings and Insertions Vest Pieces
 - Shirt Fronts. Mantles
- Curtains, &c. D. EMBROIDERY.
 - Gold and Silver and Glass.
 Silk, as Shawls, Dresses, Mantles, Table Covars, and Curtains, &c 3. Berlin Wool, Chair Covers and Fancy Articles for
 - the Drawing-roo 4. Embroidery by Machinery.
- Fringes, Tassels, Gimps, &c., sultable as Trimmings for Upbolstery.
 Ditto for Dresses and other fine Work.
- F. FANCY AND INDUSTRIAL WORKS.
- 1. Berlin Wool Work. 2. Needlework.

E. Parnors, &c.

3. Miscalianeous Industrial Works.

- XX. Articles of Clothing for immediate Personal or Domestic Une.
- A. HATS, CAPS, AND BONNETS.
 - 1. Hats, made of Silk, Beaver, or other materials, for Men Men.
 2. Caps, for Men.
 3. Bonnets of Straw, Silk, or other material.
 a. British Chip Bonnet made from the Poplar.
 b. Willow Bonnet.
 c. Bratilian Grass Hats.
 d. Tuscan and Leghorn Plaiting and Bonnets.
 c. Straw Plait Bonnets.

 - f. Straw Trimmings and Bonnets. g. Horse-hair Trimmings and Bonnets.

 A. Silk and other Bonnets made by Milliners.
- B. HOSTERY. 1. Cotton. 2. Woollen.
- 3, Linen. 4. Silk. C. GLOVES
- 1. Made of Leather or Skins 2. Made of any other materials. D. BOOTS, SHOES, AND LASTS.
 - Made of Leather.
 Made of other materials.
- E. UNDER CLOTHING. 1. For Ladies. 2. For Gentlemen.
- F. UPPER CLOTHING.
 - 1. For Ladies, including all kinds of Millinery.
 2. For Gentlemen, including all kinds of Tailor's work.

XXI. Cutlery and Edge-tools. A. CUTLERY, SUCH AS KNIVES AND FORKS, PEN AND POCKET

- KNIVES, RAZORS, SCISIORS, AND SHEARS. 1. Knives and Forks-Table, Dessert, Carving.

 Dessert or Fruit, with plated and silver blades.

 Cake and Meion Carvers, "
 - Fish Knives and Forks, 2. Spring Knives -Pen and Pocket Knives of every description,
- Hunting and Sportsmen's Knives.

 3. Knives of all other descriptions—
 Paper Knives of all kinds.
 Desk or Office Knives.
 - Palette Knives. Knives for Hunting and Self-defence, as Conteanx-
- de-Charse, Bowle Knives, &c.

 Knives for Kitchen and Domestic Purposes, as
 Books', Oyster, Onlou, Bread and Butter, and Cheese Knives Knives used in various Trades, as Butchers', Shoe
- makers', Glaziers', Gardenors', &c.
 4. Seissors and Shears—
 Ladies' Work and Cutting-out Scissors of every description. Nail, Button-hole, Barbers', and Trimming Scient
- Shears used in various Trades, as Tailors', Brushmakers', &c. Garden and Sheep Shears. . Razors of all kinds.
- orkscrews, Button-hooks, Boot-hooks, Nail-nlp-pers, Nail-files, Tweezers, &c. Corkscreus.
- B. FILES AND OTHER SMALL EDGE TOOLS, NOT INCLUDED IN MANUFACTURING TOOLS IN SECTION VI.
 - 1. Files and Edge-tools used by Engineers, Smiths, or other Metal Workers.
 2. for purposes of Building, by Masons, for purposes of Building, Bricklayers, and Plasterers,
 - for fine Metal and other work, as for Clock
 - and Watch makers, Jewellers, Lapida-ries, Engravers, and Modellers. for Wood-work, as for Carpenters, Joiners, Cabinet-makers, Coopers, &c.
 for Leather or Skins, as for Saddlers, Cur-

 - n vo account or Skins, as for Saidders, Carriers, Shormakers, and Bookbinders, 6, Drawing, Artists' and Engraving Instruments.
 7. Files and Edga-toois for other purposes than those specified.

XXII. Iron and General Hardware.

A. BRASS MANUFACTURE. Cabinet and general Brass Foundry, consisting of Hinges, Fastenings, Escutcheons, Bell-pulls, Brass-foundry used in Ships, Knockers, Door-springs,

foundry used in Stupp, secondary, Castors, &c.

2. Plamber' Brass Foundry, Cocks, Valves, Pumps,
Water-Closets, &c.
Water-Closets, &c.
Finger-plates, &c.
Gas-fittings, Brackets, Chandellers, Pillars, Gas
Burners, and Cossumer's Meters, &c.

"Value Asia and consensations"

Tubing, plain and ornamental. Metallic Bodsteads, Brass and Iron.

 Classiciore, Lamps, and Candelabra, for Oil, Candles, or Camphine, and Lamp Chains.
 Bailway and Carriage Brass Foundry, and Signal Lamps and Lanterns.

Bronze Figures, Busts, and Chimney Orn Bells, House, Church, Ship, Table, &c., and Alarums.
 Candlesticks, Table and Bedroom. Candlesticks, Table and Bedroom.
 Monumental Brasses and Ecclesiantical Brass-work.

13. Copper and Steel Plate for Engravers. 14. Miscellaneons.

B. COPPER, ZINC, TIN, PEWTER, AND GENERAL BRAZIEGY, 1. Kettles, Coalscuttles, Coppers, Saucepans, Steamers, Plate-warmers, &c.

Plate-warmers, &c.

2. Bronsael Tea and Coffee Urns, Kettles, &c.

3. Tubing—Copper, Tin, Lead, &c.

4. Pewter, German Silver, and Britannia-metal Teapots, Basins, Diabes, Spoons, Ladies Instantis, &c.

5. Coffin Furniture—Plates, Escutcheous, &c.

6. Zine Articles generally.

C. IOON MANUFACTURE. (See also I, and V.) 1. Stoves, Grates, Fenders and Fire Irons, Kilchen Ranges, Cooking Apparatus, Smoko-jacks. 2. Warming Apparatus, for Halls and Rooms, Ships, &c., either by Weter, Coal, Coke, Wood, Charcoal, or

3. Shower, Vepour, Air, end Werm-weier Baths. 4. Ventilators - Metallic and others. 5. Pipes end Gutters, &c. 6. Locks and Hinges

7. General Ironmongery. 8. Ice Machines. 9. Knife-classic

N. Knife-cleaning Machines.
 Leiter-copying Machines and Presses.
 Li, Saddlers' Ironmongery.
 Hollow Wore, cast and wrought, tinned and en

melled. mettes.

13. Spades, Shovals, Pickaxes, Hees, Rakes, Garden-rol-lers, &c. (See also S. IX.)

14. Neils, cut, cast, and wrought, in Iron, Copper, and

other Metals. 15, Screws and Railway Bolts, &c.

16. Iren Safes, Cash-boace, fire-proof and otherwise. Horse-shoes.

 Gates, Railings, Hurdles, and Stable Fittings.
 Mangles, Washing Machines, &c. D. STEEL MANUFACTURE. 1. Tools and beavy Steel Toys, Hammers, Vices, &c.

2. Steel Ornameuts, and light fancy Steel Toys, Brooches, Buckles, &c.

3. Steel Pens and Metallic Pens.
4. Needles, Fish-books, and Fishing Tackle. E. BUTTONS, ETC.

 Buttons - Metallic, Florentine, Pearl, Bone, &c.
 Metal Boses, Watch Boxes, &c. F. Wine Wood, &c.

Wire Gauze, fer Window Blinds, Fencing, Phea-santry, Birdcages, &c.
 Wire-Iron, Brass, Steel, and Copper.
 Pins-white end black.

4. Hooks and Eyes.
5. Metallic Wire Baskets.
6. Wire Rope.

XXIII, Working in Precious Metals and in their imitations. wellery, and all articles of Virtu and Luxury not included in the other Classes.

A. COMMUNION SECURCES. As Altar-dishes, Flarens, Challers, Petens, Pletes, &c.

B. ARTICLES OF GOLD AND SILVES PLATE, FOR DECORA-TIVE PURPOSES AND PRESENTATION PIECES.

 Racing Prizes, Testimonials, allegorical, historical, and emblematic Groups and Compositions, Shields, Centre Pieces, Vases, Tazzas, Ewers, Salvers, Candelehra, &c.

2. The same Articles made in hammered or repouses

C. SMALLES ASTICLES FOR MOSE GENERAL DOMESTIC USE. 1, For the Dinner Table; as smaller Candelabra with branches, Caudiesticks, Centre Pieces, Sup and Sauce Turcens, Covered Dishes, smaller Mounted Dishes, Flat Dishes, Flower-stands and Epergues, Dessert Services, Table and Dessert Knives, Spoons om! Forks, Salvers, Bread and Cake Baskets, Claret Juss. Wine Coolers, Cruet Frames, Mustard Puts. Salts, &c.

2. Breakfast and Tea-table Service; as Tea and Coffre z. prenarast dud Teè-table Service; se Tea and Coffee Uras and Kettler, Tea and Coffee Pots and Stands, Sugar Basins, Milk and Cream Jugs, Ewers and Basins, Toutt Racks, dan dar Travelling Utensile; se laktands and Writing Appendages, Dressing se laktands and Writing Appendages, Dressing

Cases and Instruments, &c.

 Miscellaneous; as Watch and Clock Cases, Toys, Pencil Cases, Seels and Keys, Filigree Baskets and Ornamenta

D. ELECTRO-PLATER GOODS OF ALL DESCRIPTIONS, COMPRE-HENOING ALL THAT CAN BE EXECUTED IN SILVER AND OTHER METALS.

E. SHEFFIELD AND OTHER PLATER GOODS. Centre and Side covered Dishes and Wormers Sons Turcens, Cruet Frames, Liqueur Frames, Pickle

furcets, Cuer Frames, Liqueur Frames, Pickle ditto, Candlesbra, Bread and Cake Baskets, Snuffers and Trays, Tea and Coffee Services, Tea-trays, Hand Waiters, Claret Jugs, Decanter Stands, Sugar Stands, Flower Stands, Nut Crackers, Grape Scissors, Mustard Posts for Stands, Nut Crackers, Grape Scissors, Mustard Posts for Stands, Flower France, Canada Stands, Flower Stands, Nut Crackers, Grape Scissors, Mustard Posts for Stands, Flower France, Canada Stands, Nut Crackers, Grape Scissors, Mustard Posts for Stands, Posts for Stan Puts, &c. F. GILT AND OR-MOLU WORK.

Glit by the Electro process.
 Glit by amalgamation, or "Water Gliding."
 Imitation Jewellery and Toys.

 Works exhibiting the Precious Stones and Pearls, as Diamonds, Rubies, Sapphires, Emeraldy, Opals, Turquoise, and the manner of setting them in Crowns, Coronets, Stars, Orders, Tiaras, Head Ornaments, Bouquets, Necklaces, Bracelets and Armlets, Presentation Snuff-Boxes, Broocher, Ear Pendants, Medalilons, Studs, and Buttons.

Ornaments similar to those of the former class, in which are exhibited the setting of the Inferior Stones, Amethysts, Topaces, Carbuncles, Aqua-marines, Jacinths, Crapphrases, Carnelians, Onyxes, whether piain or set, Cameos or Intaglios,

Engraved Shelis, &c. &c.

3. Ornaments made of Gold, whether plain or enamelies; as Braceles, Brooches, Neckinees, Farrings, Pins, Waist-Buckles, Chains, Buckles, Studs, Chatelaines, &c. &c.

4. Jewellery by imitations of Precious and other Stones
5. Ornaments worked in Ivory, Jet, Horn, Hair, and
other meterials, of which the Precious Stones er Metals do not furm the principal feature.

H. Ornaments and Toys worded in Iron, Steel, and other Metals, which are neither Precious Metals nor Biteathous of them, as Chatelainss of Freel, Chains of Steel, Sudia-Hilts, Cet-Stell, Sing and Kyre Bockley, Berlin Iron Ornaments, Changes, Brochaerts, Elmann, Northaces, Brachelts, Feb.

I. ENAMELLING AND DAMASCENE WORK 1. Enamelling of subjects on Gold and Precious Metals.

(Except when shown in the Section of First Aers.)

2. Damsseene Work, or insertion of one Metal in another, not included in the above-named Classes, as furning a minor ingredient in some more im-J. ARTICLES OF USE OR CUSIOSITY NOT INCLUDED IN THE

PREVIOUS ENUMERATION.

2. Sheet.

XXIV .- Glass A. WINDOW GLASS, INCLUDING SHEET GLASS, CROWN GLASS. AND COLOURED SHEET GLASS. 1. Crown.

3. Brown Plate Glass, allvered and unsilvered. 4. Coloured Sheet, Pot Metal, or finahed. 5, Glass Ventilators

6. Glass Shades, round, nval, and square. B. PAINTEO AND OTHER KINDS OF ORNAMENTED WIND 2. Painted and Leaded Windows.

GLAM. 1. Ensmelled, Embossed, Etched, painted white, or coloured Window Glass

C. CAST PLATE GLASS

1. Rough Plate 2. Ground and polished, allvered and unsilvered.
3. Pressed Plate.

4. Rolled Plate, white and coloured.

D. BOTTLE-GLASS. Ordinary Bottle-glass, including Moulded Bottles.
 Medicinal Bottle-glass, including Phials, &c., blown and monlded, of all kiads and shapes.

3. White Bottle-glass. Crown, Pressed, and Moulded

4. Water-pipes and Tubing. E. GLASS FOR CHEMICAL AND PHILOSOPHICAL APPARATUS.

 Glass for Matrass, Retorts, sud other kinds of Chemi-cal and Philosophical Apparatus.
 Water-pipes and Tubing. P. PLINT GLASS OR CRYSTAL, WITH OR WITHOUT LEAD, WHITE, COLOUGED, AND ORNAMENTED FOR TABLE VASIN, ETC.

1. Blown.

Moulded and Pressed.

Cut and Engraved. Cut and Engravei.
Reticulated and spun with a variety of colours, la-crusted, fisshed, enamelled of all colours, opales-cent, imitation of Alabaster, gilt, platinised, sil-

vered, &c.

5. Glass Mosaic, Milleflori, Aventurine, and Venetian Glass Weights, &c. 6. Beads, Imitation Pearls, &c.

 Chandellers, Candlesticks, and all Glass Apparatus for Lamps, Candlesticks, Girandoles, Wall Brackets. with or without drops, &c.

G. OPTICAL GLASS, FLINT AND CROWN. Rough Discs of Flint and Crown, to make Lenses for Telescopes, Microscopes, Daguerrotype and

Calotype Apparatus, &c.

2. Flist and Crown, blown or cast in plates for the Optician.

 Thin Glass for Microscopes.
 Refractive Apparatus, Prismetle Lenses for Lighthouses. (See also Class J.) XXV. Ceramic Manufactures - Porcelain, Earthenware, &c.

A. POSCELAIN, HADD. l. Chinese. 2. Japanese

3. Continental, as Berlin, Meissea, &c. B. STATUARY PORCELAIN.

1. Statuary. 2. Parian. 3. Carrara,

C. TENDER PORCELAIN. English Porcelain, soft or tender,
 French, with Siliclous body.

D. STONEWARE, GLAZED AND UNGLAZED.

3. Coloured body, Jasper "

Coloured body, Jasper "

Reyptian black, unglazed.

Reyptian black, unglazed.

Red "

Red "

Red " Cane.

Drab, 8. Browaware, with sait glaso. (The Lambeth, Chesterfield, and Beauvais manufactures are included in this class.)

9. Chemical utonsils. (These are made both in Stone-

ware and Bard Percelain.)

E. EARTHENWARE I. White body for Printing, Painting, or Enamelling In different Colours.

Common Cream-colour. 3. Green glazed ware. 4. Rockingham 5. Delft ware.

6. Majolica ware. 7. Mocha and Dipped Ware. Common Lend glazed ditto, for utensils. Coloured body, Turquoise.

Drab. Olive.

Cottage brown. F. TERRA COTTA.

 Vases and Garden-pols.
 Crnaments for Architecture.
 Encaustic or Inlaid Tiles. Encaustic or initial street.
 Tensorie of various colours, compressed from pow-

4. Tenserie of various concentration derect clay.
5. Superior Plain Tiles for pavements, ditlo ditto.
6. Bricks, ditto ditto.
7. Roefing Tiles, ditto, ditto.

7. "Roofing 8. Chimney Pipes. 9. Common Bricks. 10. Roofing Tiles, &c.

OBNAMENTED OR DECORATED. 1. Ornsmented on Bisone-

Painted by hand. Printed and transferred in various colours. 2. Ornamented on the place.

Painted by hand. Printed by the press. Printed by hand. Gold Lustre.

Steel Enamelling in various colours. Gilding.

H. PRODUCTIONS FOR ARCHITECTURAL PURPOSES.

XXVI. Decorative Furniture and Upholstery, including Paper-hangings, Paper-maché, and Japanned Goods. A. DECORATION GENERALLY, INCLUDES: ECCLESIASTICAL DECORATION.

Ecclesiastical Decoration generally.
 Ornamental coloured Decoration, as executed by band.
 Imitations of Woods, Marbies, Sc., ditto.
 Relieve Decoration, mechanically produced.

FURNITURE AND UPHOLSTERY.

1. Cabinet Work, plain.
2. Cabinet Work, carved or ornamentel,
3. Marqueteric, inlaid Work, in Woods, &c.
4. Buhl or Metallic inlaid Work. 5. Chairs, Sofas, and Beds, and generally Upholstery.

C. PAPER-HANGINGS Damask Patterns Flower Patterns. Flock and Metal Papers, 4. Decorative Paper-bangings by Block-work

by any other process. 6. Machine-printed Paper-hangings, D. PAPIER-MACHE, JAPANNED GOODS, PEARL AND TORTOISE-

SHELL WORK. Papier-muché, jepanned, inlaid, and decorated.
 Papier-maché (not japanaed), produced in ornamental forms for decoration.
 Japanned Goods in Iron, ée.
 Fear land Tortoisehell Work.

XXVII. Manufactures in Mineral Substances used for Building or Decoration, as in Marble, State, Porphyries, Cements,

Artificial Stones, Se. A. MANUFACTURES IN COMMON STONES.

1. For Building, and constructions not strictly decora-

2. For Decorativa purposes. B, MANUFACTURES IN SLATE. 1. For Construction.

9 For Decoration C. MANUFACTURES IN CRIMENT AND ARTIFICIAL STONE.

- D. MANUTACTURES IN MARRIES, GRANITES, PORPHYRIPS, ALABASTER, SPAR, ETC., FOR USEFUL OR ORNA-MENTAL PERPOSES
- 1. For Construction and external Decoration
 - 2. For internal Decoration (not Furniture), as Chimney-
- S. For articles of Furniture, as Tables, &c 4. For purposes of mere Ornament.
- E. INLAID WORK IN STONE, MARRIE, AND OTHER MINERAL SUBSTANCES. F. ORNAMENTAL WORK IN PLASTER, COMPOSITION, SCAG-
- LIOLA, INITATION MARRIE, &c. G. COMBINATIONS OF IRON AND OTHER METALS WITH GLASS AND OTHER SCHSTANCES FOR VARIOUS USEFUL PUR-
 - 1. For Architectural purposes,
 - 2. For Miscellaneous purposes,
- XXVIII. Manufactures from Animal and Vegetable Substan not being Woren, Felled, or included in other Sections.
- A. MANUFACTURES THOM CASUTCHOUG. I. Impermeable Articles.
 - Holdsworth's Life Preservers. Captain Smith's Life Preservers. Hydrostatic and Air Beds. Water and Air Cushions.
 - Gas Bags. Printers' Blankets.
 - Cloaks, Capes, Coats, Paletots, &c. Boots and Shoes, Over Shoes, or Goloshes. Fishing and Deck Boots.
 - Ship Sheets. Bellows. Air-pump Valves for Steam Engines. Sponge Baths and Bags.
 - Prepared Water and Air proof Textures of every description 2. Elastic Articles Railway and other Carriage Springs and Buffers. Valve Canvas
 - Knee Caps. Surgical Bottles.
 - Surgical Bottles.
 Pump Buckets and Valves.
 Bands and Rings for Letters and Packages.
 Writing Tablets.
 Trouser Straps.
 Gussets for Boots.
 - Vest Backs. Vest Backs.
 Washera for Flange and Socket Joints.
 Driving Bands for Machinery.
 Railway Felt.
 Wheel Tires
 E. Smith's Torsion Springs for Window-blinds and

 - Shades.
 - Stated.

 Doer Nyrings.

 Dr. Belf's Sewer and Sink Valves.
 Hodge's Projectile and Lifting Straps.
 Air-pump Valves.
 Einsto Webbing.
 Cricket Gloves and Balls.
 Stoppers for Decanters, Bottles, Jars, and other
 - Articles in Caontehoue Moulded, Embossed, Co-loured, and Printed.
 - Bas-reliefs. Bags. Maps, printed on Caoutchouc.
 - Sheets, in Colour. Emboused and Printed Ornaments Bracelets, &c., Embossed, Coloured, or
 - Bottles, Embossed and in Colours
- Bottles, Embossed and it country.
 Embossed Sheets for Seats and other Purposes.
 Vilennized Articles combined with Metal such as
 Decanter Stoppers, lukstands, Cocks and Taps
 for Fluids, Hinges, Locks and Boits, Wheel Tires, Plugs for Cisterns, Linings of Vessels, &c.
- B. MANUFACTURES THOM GUTTA PERCHA
 - For Waterpreofing Purposes.
 For Agricultural Uses, as Tubing for Manure, &c.
 For Maritime Purposes, as Spenking Trumpets, Life Buoys, Life Boats, Cords, Tiller Ropes, &c.

- 4. Decorative Uses, as Ornamental Monldings, Brackets, Medallions, Pieture Frames, &c.
- Medallions, Pieure France, &c.

 Sargical, Flectrical, and Chemical Uses, as Dissolved
 Gutin Percha for Wounds, Stethoscopes, Splints,
 Ear Trumpets, &c. Cathoys, Funnels, Acid Yessels,
 Covering of Telegraph Wire, Insulating stooks, &c.
 Domestic and Miscellaneous Uses, as Seles for Shoes,
 Linings of Cisterns, Conveyance of Water and
- Gas, Hearing Apparatus, &c.
- C. MANUFACTURES FROM IVORT, TORTOSESDELL, SHELLS, BONE, HORN, BRISTLES, AND VEGETARLE IVORT. D. GENERAL MANUFACTURES PROM WOOD (not being
 - Furniture). 1. Turnery.
 - 2. Carving, &c. 3. Coopers' Work of all kinds. 4. Basket and Wicker work. 5. Miscellaneous Wood work
- E. MANUFACTURES FROM STRAW, GRASS, AND OTHER SIMILAR MATERIALS.
- F. MISCELLANGOUS MANUFACTURES FROM ANIMAL AND VEGB-TABLE SUBSTANCES.
 - XXIX. Miscellaneous Manufactures and Small Wares.
- A. PERFUMERY AND SOAP. B. ARTICLES FOR PERSONAL USE, AS WRITING DESIGN
 DEESING CASES, WORKROADS, WIEN NOT EXHIBITED IN CONNEXION WITH PRECIOUS METALS
- (XXIII.), AND TRAVELLING GEAR GENERALLY. C. ARTIFICIAL FLOWERS.
- D. CANOLES, AND OTHER MEANS OF GIVING LIGHT E. CONFECTIONARY OF ALL KINDS. F. BEADS AND TOUS, WHEN NOT OF HABOWARE, FANS, ETC. UMBRELLAS, PARASOLS, WALRING-STICES, ETC.
- II. FISHING TACKLE OF ALL RINGS, ARCHERY. GANTS OF ALL RINGS. J. TAXIOERNY.
- K. OTHER MISCELLANEOUS MANUFACTURES.
 - FINE ARTS. (So for as they come within the fourtetions of the Exhibition.)
- XXX. Sculpture, Models, and Plastic Art. A. Sculptune as a Fine Ant.

 1. In Metals simple, as Gold, Sliver, Copper, Iron, Zine,

 - Lend, &c.

 2. In Metals compound, as Bronze, Electrum, &c.

 3. In Minerals simple, as Marble, Stones, Gems, Clay,
- 4. In elaborate Mineral Materials, as Glass, Porce-
- inin, &c.
 5. In Woods and other Vegetable Substances. 6. In Animal Substances, as Ivory, Bone, Shells, Shell Cameos.
- B. Works in Dir-singino, Intactics.
 1. Coins, Medals, and Models of a Medaliic character in any material.
 - 2. Impressions struck from Dies for ornamental purposes.
 3. Geme, either in Cameo or in Intaglio, Sheli Cameos.
 - 4. Scals, &c.
- C. ARCHITECTURAL DECORATIONS.
 1. Integral, In Relief, Colour, &c.
 2. Adventitious, as Stained Glass, Tapestry, &c.
- D. MORAICS AND INLAID WORKS. 4. In Wood. 5. In Metal. 1. In Stone. 2. In Tiles
- 3. In Vitrified Materials. E. ENAMELS
- 1. On Metals. 3. On Glass. 2. On China. F. MATERIALS AND PROCESSES APPLICABLE TO THE PINE ARTS OFSTRALLY, INCLUDING FINE ART PRINTING, PRINTING IN COLOUR, ETC. ETC. 1. Encaustle Painting and Fresco.
 - Encaustle Painting and Freeco.
 Ornamental Printing. Chromo-typography. Gold-Haminated Typography. Typography combined or uncombined with Embossing.
 Lithography. Black. Chromo-lithography. Gold-Illuminated Lithography. Lithography combined or uncombined with Embossing.
 - 4. Zincography, or other modes of Printing.
 - 1. in Architecture. 2. Topography. 3. Anatomy.

LYON PLAYFAIR

APPENDIX B.

INSTRUCTIONS FROM THE COUNCIL OF CHAIRMEN TO THE JURIES.

1. In accordance with the decisions of the Royel Commissioners, the Council of Chairmen have met and agreed to the following Instructions as a guide to the Juries.

2. Working of Juries.—In regard to the working of the Juries, the Council of Chairmen think it advisable to leave Juries, the Council of Chairmen think it advisable to teave much to the discretion and grapular experience of each Jury; but upon the following points the decisions of the Royal Commissioners are precise, and it will be decirable that the practice of the Juries should be uniform.

3. The Juries will, at their first meeting on Monday, consider the course to be followed in the examination of the

autjects coufided to them, and arrange generally the time

end places for their respective meetings.

4. Deputy-Chairmen.—The first duty of each Jury will be to elect a Deputy-Chairman, who will assist the Chairman, and fill his place in the Jury, or at the Council, in his

ansence.

5. Reporters.—A Member of the Jury will be appointed to draw up a Report npon the class of subjects submitted to it. It will be advisable that this appointment abould be made as soon as the eligibility and willingness of some Member. as soon as the cligibility end willingness of some Member to underlike that duty can be ascertained. As the Reports will probably be published, they should be drawu up with the care necessary to describe the State of Industry of all Notions, as shown in this Exhibition, and in such e mourer as may best form a permanent record of the Exhibition itself.

6. Sab-Committee.—The Royal Commissioners have given their senction to Juries ecting in matters of detail by Subtheir searction to Juries exting in matters of detail by Sab-Committees. How far it may be convenient in each case to edopt this system, and to depute to a Sub-Committee, or to Individual Members, the investigation of particulers objects, is left to the judgment of each Jury; but it must be boroe in mind that so Award can be made but by a majority of the Jury.

7. Ecidence and Associates.—Whou e Jory may wish to call lo the sid of persons of technical knowledge to aid their judgment, they may do so in conformity with the 20th Article of the General Decisions.

8. Jurora of another Class, when knowledge of thet Class 8. Jurora of another Class, when knowledge of thet Class is required to guide the Jury, may be called lu If a majority of the Jury should decide to do so, 9. In both the above cases, however, the persons to be consulted do not possess Notes, and only remain ssecciated with the Jury as long as the special occasion for which they

were called requires their presence. 10. Juries to curry on their Juvestigations without delay,The Juries are expected to carry on their luvestigation with

is little intermission, and to come to their decision with as as Hitle intermission, and to come to their decision with as little delay as possible.

11. Mode of moking Acards.—When a Jury has decided upon its Awards, those Awards will be submitted to a Meeting of all the Juries of the same group for confirmation, and for the investigation of any Decisiou that may be

12. The Awards will then be submitted to the Council of Chairmen, to secure uniformity of action, and a compliance with the Rules now laid down, or which may be eafter be sanctioned by the Council.

13. The Awards will become final as soon as the Council of Chairmen shall have reported that they are in conformity

to those Rules. 14. Sorrest.-All the Considerations, Discussions, and Decisions of each Jury and of the Council of Chairmen, are to be considered as strictly confidential, and on no account

to be divulged until the Award has become final.

15. Medals to be awarded without reference to Nationality.

The Medals will be ewarded for excellence only, without reference to countries, the Exhibition heing considered as a whole, and not as consisting of the produce of different nations

16. Individual competition to be avoided.—In making the Awards, the Juries will bear in mind that the Royal Com-misslopers desire that the different Medals should indicate majutenance

different kinds of merit, and not degrees lu the same kind

of merit.

17. Two Medals only to be awarded, - The Juries will only to be awarded. - The Juries will only the small bave to eward the medium size and large Medal. The small Medal will not be given by the Juries, the Commission having withdrawn it as a Prizu Medal at the request of the Council of Chairmen.

Council of Chairmen.

Its, Condition of the enerod of the Models.—The inclums its for at it is proposed to be called the "Print Models" will be a proposed to be called the "Print Models" will be a former of the condition of the

The grounds, on which this recommendation is made etion. must be fully stated. The Great Medal will only he given for very pre-eminent and indisputable merit. It is imfor very pre-eminent and indisputation merit. It is im-possible, until the Juries have acquired a knowledge of the articles oxhibited, to define the proportion of the Great to the Prize Medal; hut the Council of Cheirmen have to announce their intention of making the proportion a very

21. The Chairman of the groups of Prices have had ander 21. The Chairmean of the groups of Friees have had nader their consideration the various conditions which It will be advisable to adopt in the award of Prizes In the various classes into whole the Exhibition Is divided. They do not intend that these conditions should be computiony on the Juries, as it is probable that they may require modification to particular cases, but they may be useful as indications to show the general grounds on which awards may be made. GROUP A.

Medals are to be ewarded for novelty in the mode of ohtaining, applying, and elapting Rew Materials and Pro-duce, skill and excellence in known modes of obtaining, applying, or adapting them; comparative excellence in the quality obtained, combined with utility. The value of the instructiveness of any Scries exhibited. GROUP B.

The Sub-Committee of the Chairman of this Group, for

eertain reasons set forth in their Report (see Report) erriant reasons set form in their nepore (see Report), strongly urge that if novelty of invention (as far as regords Machinery) be not altogether excluded, the greatest caution should be used, and the most jedous scrutiny employed by Jurors before any Prize whatever be awarded under such claims for morit

CLASS V .- Machines for Direct Use. Fitness of the work for the object sought to be obtained (which combines simest every merit of Machinery), econon in first cost, durability, economy of maintenance, excellency of workmanship.

CLASS VA .- Carriages. Successful application of any new Material, with elegance of design and excellence of workmanship, strength and lightness, reasonable cheapuess.
Note.—These qualities will apply almost exclusively to Carriages of luxury.

For the Public Service. Lightness, sufficient solidity for safety, durability, cheap-

CLASS VI .- Manufacturing Machines and Tools. Pitness of the Machinery for the objects rought, economy in the first cost, durability, and excellence of workmanthip; economy in production, and perfection in articles manufactured; saving in time, and quantity produced; economy of Drawing exhibited.

CLASS VII. - Civil Engis vering, Architectural and Building

Contringuese. Science and skill in Design to obtain the object sought with the greatest economy; fitness in the application of Materials, success in the work in which the Model or Draw-

ing is exhibited; perfection of workmanship in the Model or CLASS VIII .- Naval Architecture and Military Engineering; Ordnance, Armour, and Accouteements

Merits of combination in the Models or Drawings rejating to Military or Navai Engineering; advantages obtained by experiments is carrying out the means proposed either by Models or Drawings. Improvements in Arms, Apparatus, or any articles belonging to Military and Naval Service or Architecture, to Rigging or other branches of Seamanship, to Accountements or Equipments of Troops, their fitness and efficacy; economy in production.

lu this Class actual trial has been found generally neces sary for the safe award of Prizes; Field Instruments being tried on the land, and Yard implements being also set to work, and the results exhibited in Numerical Tables.

Class X.—Philosophical Instrument

Novelty of inventions, or novelty in the whole or part of the instruments; ingenuity of construction; new applica-tion of old principles; application of new principles; im-proved beauty of form; increased durability, and more extensive application,

CLASS XA .- Musical Instruments.

Novelty of invention, novel application of old inventions, improvement of mechanical action. Tone, perfection of worksnauship, beauty of design combined with general excollence, increased felicity of action, cheapness combined with darability.

CLASS X B .- Horology.

Ascertained or probable accuracy and certainty of per-formance, whether time-keeping, discharging of striking parts, or registering; stability, strength and durability, simplicity and economy of construction, guodoess of execu-tion. High finish to be considered subordinate to the scientific objects.

CLASS Xc.-Surgicul Instruments

For instruments which possess novelly of a useful charac-ter, and giving evidence of originality and inventive power, ingenuity in the application, catendar, or modification of principles already known, or for a see combinations, mecha-nical skili, including chespness, finish, and other qualities of mechanical execution.

Guour C .- Manufactures. Textile Fabrics. In this, those articles will be rewarded which fulfil in the

bighest degree the conditions specified in the sectional list, namely, increased usefulness, such as permanency in dyes, improved forms and arrangements in articles of utility, &c.; superior quality, or superior skill in workmanship; new use of known materials; use of new materials; new combi-nations of materials; beauty of design in form or colour, or both, with reference to utility; cheapacse relatively to excellence of production.

GROUP D .- Metallie, Vitreous, and Ceramic Monufacture. Important inventions and discoveries, or regularity com-bined with excellence of design; novel application of known discoveries; great utility combined with economy and beauty; excellence of workmanship and quality.

Guot P E .- Miscellanspus Novelty of material in application, excellency of design, material, workmanship, and cheapness. GROUP F .- Fine Arts.

Originality and excellence of design and importance of the work, combined with great merit of execution; merit in execution, combined with application to useful purposes.

APPENDIX C.

MINUTE OF ROYAL COMMISSION ON THE AWARD OF THE COUNCIL MEDAL.

"Wirm reference to the awards of the Council Medal, the Commissioners think it proper to recapitulate the terms of those Decisions, and to explain with somewhat greater minuteness the exact meaning which they intended to attach

"The 107th of the published Decisions of the Commispioners is as follows :

- sloaers is as follows:—

 "It is the intention of the Commissioners to reward

 "casellence in whatever form it is pre-worded, and not to
 "give Induscements to the distinctions of a merely indi"distinction of the distinctions of a merely indi"without competition. Although the Commissioners have
 "without our parties of the present the commissioners have
 becoming on having three Media's of different sizes
- at determined on having three Nessas of concrett sucresses and designs, they do not propose to iostruct the Juries to a ward time as first, second, and third in degree for the same class of subjects. They do so twish to transmet the same class of subjects. They do so twish to transmet the sucresses of subjects that the duries will rather view the three kinds of the subject in the subject is the subject to the subject in the subject is the subject to the subject in the subject is subject to the subject in the subject in the subject is subject.
- " Melais as a means of appreciating and distinguishing to the respective characters of the subjects to be rewarded,
- 44 and not of making distinctive marks in the same
- "And the 21st Article of the Decisions regarding Juries
- 44 The three classes of Medais are intended to distinguish " the respective characters of subjects, and not as first, second, and third in degree for the same class of subjects."
- **second, and third in degree for the same class of subjects.
 ** The important features in these Decisions, and that which distinguishes the mode of granting Medals on the present occasion from that usually adopted in the Exhibitions present occasion from this unusity resource in the free medials of Foreign Countries, is the assouncement that the Medials are not to be awarded as first, second, or third in degree for the same class of subjects. It is obvious, therefore, for the same case of subjects. It is obvious, therefore, that in the case of manufactured Articles mere excellence that in the case or monitalization arraces mere accuracy of Manufacture, it may sumstance suppre use it is not understood and the control of the control of

any novelty of invention or adaptation, or any peculiarity in the mode of manufacture, which can also be taken into account, and of which the importance and value shall be judged sufficient, the Council Medal may properly be given.

'thus, for example, if a piece of Liaen be exhibited of such remarkable excellence as to be at once and by such remarkable excellence as to be at once and my unanimous consent recognized as greatly superior to any other piece of Linea in the whole Exhibition, yet if the control of the such as the such as the such as the control, and if it is not described, and if it is not described. The control of the such as the control of the such as the control of the such as the s

Lines of very devided excellence should be produced by a new method, cabbiding orderanges on bilither statistics, it would be quite within the prior of the Decision is question. "I or gain, it a smanyle of Super of carcinolizary finences should be exhibited, if such faceses were the result only of the application of the ordinary processes, with more than the application of the ordinary processes, with more than Medal; but if a new chemical agent, or a new process had been employed with advantage in its production, the process by which it was produced, if sufficiently important, "It is soft, however, indeeded to limit the creating of the

"It is not, however, intended to limit the granting of the Council Medal to cases of production by a new process: such a rule would, of course, not apply where the question of Fine Art was invelved. In jindging of works of pure art, the Medal will, of course, be given to those cases where the most remarkable and pre-eminent genius has been displayed; and in cases where design is applied to an article of Manufacture, it may sometimes happen that it will be of for the mere excellence of the workmanship, might properly receive it for a very extraordinary and original merit of the design applied to them. And, in like manner, though a Council Medal ought not to be given to a piece of Furniture, of which the principal merit was that it was well made, it might be awarded to it if there were so much beauty in the

design as to entitle it to great distinction as a Work of Art,
"The Commissioners must, however, limit themselves by observing that they would not recognise beauty of design as a sufficient title to a Council Medul unless applied to a object of some importance. Very great merit might be found in the carving of an umbrella or a pipe, yet it might be thought improper to reward such merit with a Council Medal, on account of the comparative insignificance of the

subject. "The last observation naturally leads the Commissioners." The last observation naturally leads the Commissioners. "The last observation of the last foods and the last leads to the last leads to make the last leads to the preparation of an Article for exhibition should entitle him to a report of an Article for exhibition should entitle him to a commission of an Article for exhibition should entitle him to the prediction of valuable laws, products, of specimens of Manafactured Goods remarkable only for the size of the specimens, of very precious Jewick, products, of specimens of the preductions of the productions of the productions of the productions. precious Jewes, or of collections of the productions of particular districts. In these cases, the Commissioners are decidedly of opinion that the mere fact of a large outlay of money ought not to be regarded as entiting an Exhibitor to receive a Council Media, though care should, of course, be taken, that his zealous co-operation in promoting the objects of the Exhibition, be properly noticed in the Report of the

Jury of his Class. Jury of his Class.

"In the foregoing remarks, the Commissioners have repeatedly spoken of rewarding inventions and new processes. They think it right, therefore, to guard themselves against being supposed to throw upon the Juries the duty of discovering whether each particular object which

claiming the merit of it. They can conceive that, in many claiming the merit of it. They can conceive that, in many cases, such as investigation would, under the electronsumers, he impossible. In Michinery, particularly, they pressume that the Juries will reward an important Machine without undertaking to pronounce whether this moveline exhibited in lit construction have been originated by the Exhibitor, or have been borrowed or adapted by him from some one else. The test of Invention will be attisfied if the Machine be rewarded for its importance and ingenuity, and not for the mere excellence of workmanablp. "As the Commissioners have referred to the claims of

invention, it would appear to be desirable to fix some data beyond which invention should cease to be a claim for the Council Medal. It has not been made a condition lu the Council Medal. It has not been made a condition in the admission of Articles to the Exhibition that they should be new; but it would be obviously difficult and inexpedient new; but it would be obviously difficult and inexpedient properties of the control of the invention should not be admitted.

larcention should not be admitted.
"In communicating these remarks to the Council of Chairmen, the Royal Commissioners must again report that property of the council of the Chairmen, the Royal Commissioners must again report that probabled Decisions being misunderstood. The responsibility of giving effect to those Decisions must rest with the Council to Chairmen, in whom the control of the separate Juries, and more particularly the duty of regulating the distribution of the Council Media, has been regulating the distribution of the Council Medal, has been specially rested; and the Royal Commissioners would strougly Impress apon them the responsibility under which they lie of exercising that control with care and firmness, according to the opinions which they may per-sonally entertain of the merits of the several cause hought they mark for reward is netually the invention of the party | before them."

APPENDIX D.

DEPARTMENT OF JURIES.

DR, LYON PLAYFAIR, F.R.S., Special Commissioner in Charge of the Department of Jeries.

DEPUTIES

John Wilson, F.R.S.E., late Principal of the Royal Agricultural College—for Group A.—Row Materials. Col. J. A. Luorn, F.R.S., Special Commissioner—for Group R.—Backmery. Genoue Wallan—for Group C.—Fattle Monaglereum. Carrains Boscawers Instruces, F.R.S.—for Group D.—Medille and Fibrous Managlerens. CARTAIN BOSCAWERS INSTRUCTOR SUPPRESSED FOR STATEMEN SUPPRESSED FOR STATEMEN SUPPRESSED FOR STATEMEN SUPPRESSED FOR STATEMEN SUPPRESSED FOR STATEMENT SUPPRESSED FOR STATEMEN SUPPRESSED FOR STATEMENT SUPPRESSED FOR STATEME

Sin Systrono Northcorpt, Bart, Secretary to the Royal commission—for Mossificatives and Fas Arts. Lieutestary to the Department of Juries. LIEUTESTAY EDWARN WARD, R. E., Secretary to the Department of Juries. LIEUTESTAY CHORDARY, R. E. J. Assistant Secretaries to Group B. Group Warder, Astisant Secretary to Groups E. and F. Majors Rave. Integreteer, MAJOR BOYD, Interpreter.

COUNCIL OF CHAIRMEN.

A .- Raw Materials.

I. Sta HENRY DE LA BECHE, C.B., F.R.S.

II. J. DUMAS.
III. EDWARD DE LOOE.
IV. PROFESSOR OWEN, F.R.S.

B. - Machinery.

- Machinery,

V. Rey. E. Moseley, M.A., F.R.S.

VA. EARL JUSSEY,

VI. GER, POVCELEY,

VII. J. K. BRUYLE, F.R.S.

VIII. BASON CHARLES DUPIN,

IX. PIHLEP POSTY, M.P., F.R.S.

X. Sie DAVID BRIWWIER, F.R.S.

XA. Sin Hynn Bissoy.

Xr. E. B. DENBON, M.A. Xc. J. H. GREEN,

C .- Textile Fabrics.

XI. SIR JAMES ANDRESON, XII. PROFESSOR HERRMAN, XIII. G. T. KEMP.

XIV. COUST VON HARRACH.
XV. ITER VON HOPGARREN.
XVI. HON. COL. ANSON.
XVII. M. M. VAN DE WEZER.
XVIII. M. SHAN TECKER.
XIX. PROFESSON BOLLET, of Switzerland.
XX. W.M. PERRIN.

D.—Metallic, Vitreous, and Ceremic Manufactures.

.—Metalic, Fiftensi, and Ceramic XXI. Lord Wharscliffe. XXII. Hos. Horace Greelev. XXIII. Dec de Lavyes. XXIV. Lord de Matley. XXV. Derk of Argyll.

E .- Miscellaneous Manufactures.

XXVI. PROFESSOR ROTSNER. XXVII. SIGNOR BENEGATTO PISTEUCCI. XXVIII. SENOR DON JOAQUIN ALFONSO. XXIX. VISCOUNT CANNING.

F .- Fine Arts. XXX. HERE VON VIERARS.

LIST OF JURORS AND ASSOCIATE JURORS.

MINERAL PRODUCTS.

Sie Hener Dr. La Beurg, C. B., P.R.S., Chairman, 28 Jermyn Street, Flecadilly; Director-General of the Geological Survey of the United Kinglops, &c. A. Diraxsoy, Deputy Chairman and Recorder, France; Member of the Institute of France, Inspector-General of

Mines, &c. M FARADAY, F.R.S., Royal Institution, Albemaric Street;

Professor of Chemistry to the Royal Institution JELES HENRI GERNARRY, Belgium; Engiocer-in-Chief of the Corps of Miners.

Geological Survey of Canada. FERDINABU SCHREIDER, Zollverein; Mining Engineer R'cnaso Taylos, F.G.S., Truro; Mineral Surveyor to the

Duchy of Cornwall,
Paorts-on Perra Tennes, Austria; President of Imperial
Mining School, Leoben, Styria.

ASSOCIATE.

Gabriel Kamensky,* Russia; Councillor of the Administratioo of Finances.

. Jugar to Class XXV.

II .-- CHEMICAL AND PHARMACEUTICAL PROCESSES AND

PRODUCTS GENERALLY,

J. Demas, Chairman, France; former Minister of Agriculture and Commerce, Member of Institute, &c. Thomas Garman, F.R.S., Deputy Chairman and Reporter. 4 Gordon Square; Professor of Chemistry, University College

JACOU BELL, M.P., 15 Langlinm Place; Pharmsceutlst, Michelle Galean, H.D., Sielly; Doctor of Medicine, Gronde Goseletti, Austria; Chemical Manufacturer. John Mences, F.C.S., Oakenslaw, near Accrington, Lancashire; Calico Printer. H. L. Parrisson, F.C.S., 10 Grey Street, Newcastle-on-Tyne; Chemical Munufacturer.

Da. VARRENTRAPP, Zollverein; Professor of Chemistry.

ASSOCIATES.

Thomas Anderson, M. D., F. R. A. S., Edinburgh; Chemist in the Highland and Agricultural Society of Scotland.

—— Bulard,* France; Member of the Institute, &c. &c.

L. L. Benaparte, France; Member of the National Assembly.

William Linton, 7 Lodge Pisce, St. John's Wood; Artist, A. Pagen, France; Member of the lastitute, Professor at the Conservatory of Arts and Sciences, Member of the Central Jury, &c. Eupene Peligot, France; Professor at the Conservatory of

Luprar Pergod, France; Professor at the Control Jury.
Arts and Sciences, Member of the Central Jury.
John Perry, M.D., F.R.S., Museum of Practical Geology,
London; Professor of Metallurgy.
J. Perne; France; Professor of Chemistry at Petershurg, Member uf the Central Jury, &c.

· Jurer in Class XXVIII. † Juror in Class IV. 6 Juror in Class XVIII. 2 Jurer in Class AXIV

III. SCHSTANCES USED AS FOOD, Enwann or Lone, Chairman, Russin; Member of the Institute for the Administration of the Domains of the Empire.

Sig J. P. BOILEAU, Bart., F.R.S., Deputy Chairman, 20 Upper Brook Street. JOSEPH D. HOGGER, M.D., R.N., F.R.S., Reporter, Royal Gardens, Kew; Botanist. CONTE HEAVE DE KERGOLAY, France; Secretary of the

Central Jury, &c.
Da. J. Laynary, F.R.S., 21 Regent Street; Professor of Botany, University College.
Assumer Surra, United States; Planter.

No Associates in this Class.

I. MINING, QUARRYING, METALLEBOICAL OPERATIONS, AND IV. - VEGSTABLE AND ANIMAL SUBSTANCES CHIEFLY USED IN MANUFACTURES, AS IMPLEMENTS, DR FOR ORNAMENT. PROFESSOR RICHARD OWEN, F.R.S., Chairman and Joint Re-

porter, College of Surgeons, Lincoin's Inn Fields; Curator to the College of Surgeons. to the College of Surgeons.
A. PAYEN, Deputy Chairman, France; Member of the Institute, Professor to the Museum of Arts and Sciences. Member of the Central Jury, &c.

Paorisson Enwann Solly, Joint Reporter, F.R.S., 15 Tavis-tock Square; Lecturer on Chemistry at Addiscombe. JUDGE E. S. DUNCAN, United States, Da. J. F. ROYLE, F.R.S., Henthfield Lodge, Acton; Professor of Materia Medica, King's College.

NAMES OF LA SAUVA, Spain; Corresponding Member of National Institute of France. Wallien, M.D., F.R.S., 5 Upper Gower Street, Bedford Square; formerly Curatur of the Botanical Gardens,

elcutta F. WEYDE, Zollverein; Councillor of Home Economy.

ASSOCIATE.

George Peterson,* Russia; Member of the Scientific Committee for the Administration of the Domains of the Empire. . Jazor in Class XXVIII.,

V. MACRINES TOR BIRECT USE, INCLUDING CARRIAGES AND RAILWAY AND NAVAL MECHANISM.

Rev. HENRY MOSELLY, M.A., F.R.S., Chairman and Reporter, Wandsworth; Inspector of Schools, and formerly Professor of Mechanies at King's College. COLONEL A. MORIN, Deputy Consession, Pronee; Member of Institute and of Central Jury, and Director to Museum

CHEVALUE ADAM DE BORO, Austria; Director of Imperial Polytechnic Institute, Vice-President of Society of Arts and Manufactures, &c.

of Arts and Sciences.

LUGO CAPPELARYO, Austria; Mechanical Engineer.
PROFESSOR WILLIAM ENGERTH, Austria.
W. FARRARIN, Manchester; Mechanical Engineer.
Jour FARY, 67 Typer Guildford Street, Russell Square;

Consulting Engineer.

Jour lines, Bolton-le-Moors; Mechanical Ergineer.

II. MAUDILAY, 4 Cheltenham Place, Lambeth; Mechanical Engine

ROBERT McCARTY, United States : Civil Engineer, ROSERT NAPIER, Glasgow : Mechanical Engineer and Shipbuilder. CHARLES DE ROSSUES-OBBAN, Belgium; Vice-President of the Chamber of Commerce of Liege.

ASSOCIATES. Professor Edward Couper, King's College, Somerset House; Professor of Mechanics at King's College, W. H. Hatcher, 22 Hawley Road, Camden Tawn; Englineer.

VA. SUE-JUEY FOR CARRIAGES

The East or Jessey, Chairman, 38 Berkeley Square.
J. Holland, Deputy Casirman and Reporter, 254 Oxford
Street; Coach Builder.

C. Ansona, France; Engineer. T. Herrox, Summer Hill, Dublin; Coach Builder. O. McDANIEL, United States. ANTOINE PONCELET, Belgium; Engineer-in-Chief.

No Associates in this Class.

VI. MANUFACTURING MACHINES AND TOOLS. GENERAL J. V. PONCELET, Chairman, France; Member of Institute, late Director of Polytechnic School, &c. REV. R. Willing, F.R.S., Drappy Chairman and Reporter, Cambridge; Jacksonian Professor of Natural and Experimental Philosophy at Cambridge.

Leagung Campropage, Vice-President of Chamber of Con merce, Milan; Member of the Scientific Institute of Bologna.

Paoresson Filarro Conniut, Tuscany; Director of the Technological Institute, Florence. Berlamin Fothersoila, Manchester; Mechanical Engineer.

CHARLES GASCOIONE MACLEA, Leeds; Mechanical Engi-

Gellherme Kopae, Portugal; Mechanical Engineer.
John Penn, Greenwich; Mechanical Engineer.
George Rennie, F.R.S., Whiteball Place, Mechanical Engi-

R. Sewell, Carrington, near Nottingham; Lace Mappfacture SANUAL WEBER, United States; Civil Engineer. Professoa W. Wedding, Zollverein; Member of the Board of Trade and Commerce at Berlin.

ASCOCIATES A. Barelay, Brewery, Park Street, Southwark; Brewer, Rolt, Dargon, 33 Mark Lane; Civil Engineer.

- Dolfouse, France.

J. Mercer, * F.C.S. Oakenshaw, pear Accrington, Lanca-

shire; Calico Printer.

A. Payen, † France; Member of the Institute.

Dr. Vorestrapp, † Zoliverein; Professor of Chemistry. *Jurer in Class II. | Jurer in Class IV. | Jurer in Class II.

VII. CIVIL ENGINEERING, ARCHITECTURAL AND BUILDING CONTRIVANCES I. K. Bounes, F.R.S., Chairman and Reporter, Duke Street. Westminster; Civil Engineer.

CHARLES COMBES, Depoty Chairman, France; Member of Institute and of Central Jury.

Da. NEIL ARNOTT, F.R.S., Bedford Square; Doctor of Medicine.

F. W. Coxaao, Holland; Engineer, Chairman of Royal Institute of Engineers at Deltt. J. M. RENDEL, F.R.S., S Great George Street, Westmin-J. M. RESDEL, F.R.S., S Great George Street, Westmin-ster; Grill Edgineer.
COUNT A. E. Dr. ROMEN, Sweden and NOTWAY; Swedlish Royal Nav., Dr. Little States; Doctor of Medicine.
WILLIAM TITT, F.R.S., 17 St. Helen's Pisce, Bishopsgate;

No Associates in this Class.

VIII. NAVAL ARCHITECTURE AND MILITARY ENGINEERING; ORDNANCE, ARMOUR, AND ACCOUTREMENTS.

BARON CHARLES DUPIN, Chairsons and Reporter, France; Member of lestitute and President of Central Jury, &c. Major-General Sta John Buggover, K.C.B., Deputy Chairson, 87 Pail Mall; Imspector General of Fortifica-

LIEUT.-COL. J. N. COLQUBOUN, Royal Arsenal, Woolwich. CHARLES LESOINNE, Belgium; Member of the Chamber of Representatives, late Merchant. MADRA JEAN L. MICHELLA, France. Sir Baldwin Walker, K.C.B., 66 Westbourne Terraca;

Surveyor-General of the Navy.

A. Warrner, United States; Merchant. ISAAC WATTS, Somerset House; Assistant Surveyor-General of the Navy.

ASSOCIATES.

Copt. Beechey, R.N., Board of Trade. Lieut. A. S. Crepke, R.E., 23 Be-grave Square. Col. L. A. Holl, R.E., Ordnance Map Office, Scuthampton;

Director of Ordnance Survey Cupt. Henry James, R.E., 34 Ladbroke Square, Notting Hill; Ordonnee Survey. George Locall, 12 Ely Piace, Holborn; Inspector of Small

Col. A. Morin, * France; Member of the Institute, &c. Capt, William Yolland, R.E., Ordnance Map Office, Southampton ; Ordnanee Survey.

* Juror in Class V.

Norz.—A. F. 1'reuse, F.R.S., of Lloyd's, attended the meetings of
my VIII, as Member, until acricus illness prevented his attendance, Jury Vtil, as Nember, unto serious when at his desire he was replaced.

IX. AGRICULTURAL AND HORTICULTURAL MACHINES AND IMPLEMENTS.

P. Puszy, M.P., F.R.S., Chairman and Reporter, Puscy, near Farringdon. Farringdom.
COL B. CHALLONER, 11 Charles Street, Berkeley Square.
B. T. BRANDERTH Ginns, Half-Moon Street, Fleesdilly.
A. HAMBORN, Westacre, Noarfbom, Norfleet, Fleesdilly.
Bermhann Holling, Zellverein.
B. P. Johnson, United States; Secretary New York Agri-

cultural Society.

Josn. Locur, M.P., F.R.S., 6 Chester Terrace, Regeot's C. M. LAMPSON, United States

PROTESOR ILL SECK, Austria.*
W. Milles, M. P., Leigh Court, cent Bilstol.
E. Moll, France; Professor of Agriculture at Conservatory of Arts and Manufactures.

DI ACU AND MEMBERS D'OSTIN, Belgiam.
C. H. Hau, Zoliverein; Professor of Political Ecocomy.
J. V. Sheller, Marcefield Park, Sussex,
H. S. Thompson, Most Hall, near York.

* Chevalier Charles de Kleyle, Proxy for Professor Hlübeck, ASSOCIATE.

Sir Joseph Paxton, 36 Gloucester Place, Portman Square.

X. PRILOSOPHICAL INSTRUMENTS AND PROCESSES DEPENDING CON THEIR USE | MUSICAL, HORDLOGICAL, AND SURGICAL INSTRUMENTS.

Sia David Brewster, F.R.S., Chairman and Reporter, St. Andrew's, Fifeshire, N.B.; Principal of the University, St. Andrew's.

PROFESSOR DANIEL COLLADON, Switzerland. B. DENISON, 42 Queen Anne Street,
G.A.SINZA, F. R.S., Reporter, 13 Darsmouth Terrace, Lewisham; Observer in Greenwich Observatory.

Sia John Herschel, Bart., F.R.S., 32 Harley Street; Master of the Mint. PROTESSOR HETSCH, Denmark. E. R. Leslie, R.A., United States; Artist. L. Mathiku, France; Member of Bureau of Longitude, of

Institute, and of Central Jury.

W. H. Miller, F.R.S., Scroope Terraca, Cambridge; W. B. MILLER, F.R.S., Screepe Terraca, Cambridge; Professor of Mineralogy. Richam Pottes, A.M., University College, London, Pro-fessor of Natural Philosophy. Paorzesos Schuarth, Zollvereit; Professor of Chemistry

and Natural Philosophy. BARON ARMAND SEGUIES, France: Member of Institute, &c. ASSOCIATES.

J. S. Boserbank, 3 Highbury Grove, Rev. W. S. Kingsley, Sidney College, Cambridge; Fellow of Sidney College.

Lambert A. J. Ourtelet, Belgium; Secretary to the Royal Academy at Brussels, Lord Wrottesley, 34 St. James's Place.

· June in Class XXX

SUB-JURY A. FOR MUSICAL INSTRUMENTS Sia H. R. Bisnop, Chairmon and Reporter, 13 Cambridge Street, Hyde Park, Professor of Music at Oxford. Signsword Thaloray, Deputy Chairman, Austria; Professor of Music.

f. STEANBALE BENNETT, 15 Rossell Place, Fitzroy Square, Professor at the keyal Academy of Music.

HECTOR BERLIOZ, France.

J. Ronert Black, United States; Physician. CHEVALIER NEURONN, Zellverein.

CIPRIANI POTTER, 9 Baker Street, Portman Square ; Prineipal of Reyal Academy of Music.

Da Scharmanti, Zollverein; Professor of Geology, Mining, and Metallingy. Sto Geoage Swart, St. Anne's, Churtsey; Organist and

Composer of the Chapel Royal. ENRY WYLOT, 55 Westbourne Terrace; Doctor of Music, and Professor at the Royal Academy of Music. ASSOCIATES.

Rer. W. Cazalet, Tenterden Street, Hanover Squarc; Superintendent of the Royal Academy of Music, James Street, 22 Brecknock Crescent, Camden Town; Pianoforte Manufacturer. William Telford, Dublin; Organ Builder.

SUB-JUST B. TOR HORSELSSY.

E. B. DENHON,* Chairmen and Reporter, 42 Queen Anne Street. BARDN ARMAND SERVIER, * Depaty-Chairman, France. PROFESSOR DANIEL COLLADON, * Switzerland.

E. J. LAWRENCE, 44 Chancery Laun; Barrister. . Jurees in Class X.

SUO-JUSY C. FOR SUBGICAL INSTRUMENTS H. Garry, F.R.S., Chairman and Reporter, Hadloy, Da. THOMAS CHADBOURNE, United States, JAMES PHILP, 67 St. James's Street; Sorgical Instrument

Maker Da. Roug, France

DR. LALLEMAND, France.
W. LAWRENCE, F. R. S., Whitehall Place; Surgeon to
Bartholomew's Hospital.

XI. Corrow. SIE JAMES ANDERSON, LORD Provest of Glasgow, Chairman, Glasgow; Cotton Manufacturer, PHILIF ELLISIN, Departy-Chairman, Zoilverein; Merchant, Thomas Ashron, Reporter, Hyde, near Manchester; Cotton

CHARLES BUSCHEE, Austria: Vice-President of the Austrian Com COL. R. E. COXE, United States; Planter W. GRAY, Mayor of Boiton, Wheatfield, Bolton; Cotton Spinner

George Jackson, Corporation Road, Carlisle; Cotton Spinner. PALL KIRCHOPES, Switzerland Avo. MINEREL, France; President of General Council of

J. ASPINAL TURNER, Manchester, Cotton Spinner. ASSOCIATES Thomas Conth, 7 Bread Street, Cheapside; Lines and Man-

Chester Merchant.

Robert Johnson, 95 Watling Street, City, Warehouseman.

John Pittman, 11 Bow Lanc, Chapside; Merchant.

XII. WOOLLEN AND WORSTED. DE. VON HERMANN, Chairman, Zollverein; Privy Councillor In Finance Department. HENRY FORRES, J. P., Deputy Chairman, Bradford; Merchant.

CABLEL ADDINOTON, Reporter, Stroud; Woollen Merchant-HENNY BARTY, Huddersfield; Ditto. C. C. CABL,* Zollveroin; Manufacturer. John Cooten, J.P., Leeds; Woollen Merchant and Manu-

facturer.

Gronge Lawros, Meckleburst, near Ashton-under-Lyne;
Flannel Manufacturer.
Thomas Mausso, Stroud; retired Manufacturer.
J. Handorso, France: Member of Central Jury, &c.;
Member of the Legislative Assembly of France. LAON SAMOROFF, Russin; President of the Council of

Manufacturers at Moscow Manufacturers at Moscow.
Publier Schoolara,† Austria.
Anmann Sthools, Belgium; Merchant; President of the
Chamber of Commorco, Verviers.

ASSOCIATES.

John Barner, Leeds; Salesman. Joseph Bateson, Leeds; Merchant. Joseph Battoon, Leels; Merchant.
Thomas Heckert, Bradford; Worsted Spinner.
Benjamin Harrison, Bradford; Worsted Manufacturer.
Heavy Jennies, Leeds; Merchant! Manufacturer.
Heavy Kelsell, Rocholde; Flammel Manufacturer.
Duration Laydon, Leeds; Wolliam Merchant.
Kudine Freiler, Bradford; Yarn Morelant.
George Tetley, Bradford; Merchant. * F. Lucius, Proxy for M. Carl. † Charles Offermann, Proxy for M. Scholier.

XIII. SILK AND VELVET. GEDROE TAWKE KEMP, Chairman, 35 Spital Square; Silk

Manufacturer. Annes-Derova, Deputy-Chairman, France; Member of Central Jury Thomas Winewoath, Reporter, Gresham Club, King William Street, City; formerly Slik Manufacturer.

SAMUEL COUNTAGLO, 2 Carcy Lane, Cheapside; Crape Manofacturer. Lieur.-Col. Henny Daniell, Turkey; Coldstream Guards. Tuomas Jerrooat, Coventry; Ribbon Monofacturer. Henni Manler, Switzerland.

ANTONIO RADICE, Austria; Vice-President of Chamber of Commerce, Verona.

J. Ventu, Sardinia. Chantes Warwick, 132 Cheapsido; Silk Merchant.

No Associates in this Class.

XIV. MANUFACTURES PROM FLAX AND HEMP

COUNT FRANZ ERNST VAN HARRACH, Chairmon, Austria; Chamberlain of His Imperial Majesty, President of Bohemian Society of Aris and Manufactures, Prague, Chaules Tex, Deputy-Chairmon, Pindar Osk, Barusley; Manufactures WILLIAM CHARLEY, Joint Reporter, Seymour Hill, Belfast; Blenches

GRINITE LETEVAE, Joint Reporter, Beigium; Member of Senate, President of Chamber of Commerce, Ghent. - LEGENTH, France; President of the Chamber of Com-merce of Paris, and of Central Jury, &c. John McMasten, Guildford, Banbridge, Ireland; Mann-

facturer. JOHN MOIR, Dundee; Ditto.

CARL NOBACK, N. Germany; German Commissionor.

ALEXANDER SCHERKE, Russia; of the Ministry of Finance. JOHN WILEINSON, J. P., Leeds; Flax Spinner.

No Associates in this Class XV. MIXED FARRICS, INCLUDING SHAWLS, BUT EXCLUSIVE OF WORSTED GOODS (Class XII.)

Charles Van Horgareden, Chairmen, Belgium; Merchant, Member of Chamber of Commerce, Brussels. JOHN R. LAVANCHY, Deputy Chairman, 6 New Burlington Street; Silk Merear.
. Cananan, Norwich: Manufacture

MAXIMI GAUSSIN, France; Member of Central Jury. Davin Kenr, Glasgow; Shawl Merchant. DAVID KEMP, Glasgow; Shawi Morchant.

N. KYASSURA, United States; Manofacturer.

Jonn Mosgan, Greenlaw, Paisley; Ditto.

WILLIAN PAINER, Reporter, 30 Gloucester Gardeos.

Terra Sant, J.P., Bradfird; Ditto.

Fardearca Schwann, Huddersfield; Merchant.

JOHN H. SWIFT, United States; Merchant. Siz GARDNER WILKINSON, Turkey.

ASSOCIATES. F. Bernorille,* France; Spinner and Manufacturer. George Hairs, 31 Milk Street, Shawl Manufacturer. * Juror in Class XX.

XVI. LEATHER, INCLUDING SADDLERY AND HARNESS, SEINS, FURS, FEATHERS, AND BAIR. Hon.Coz. George Asson, Chairman, 52 Hill Street, Berkeley Square.

Square.

CHABLES NORTERECK, Depoly-Chairman, Russia; attached to the Ministry of Imperial Domains.

J. A. Nicuotav, Reporte, 20 Nafund Street; Furrier.

J. B. Brynsoron, Joint Reporter, Neckinger Mills, Bermondiey; Leuther Manafacturer. J. S. CUNNINGHAM, United States J. F. FAULER, France. JOHN FOSTER, 16 Wigmore Street, Cavendish Square; Plorist

and Feather Manufacturer. W. Newman, Waisail; Suddler and Harness Manufacturer HECTOR ROESSLER, Zollverein; Counsellor of Commerce. EDWARD ZOURAR, Turkey; Turkish Commissioner,

ASSOCIATE. George Kidd, 257 Oxford Street: Saddler and Harness Maker.

XVII. PAPER AND STATIONERY, PRINTING AND BOOK-BINDING.

SYLVAIN VAN DE WEYER, Chairman, Belgium; Ambansador Extraordinary and Pienipotentiary to H. M. the King of the Belgians.

Thomas Dr. La Rue, Deputy Chairman and Joint Reporter, 110 Bushill Row; Ornamontal Stationery Manufacturer. C. Whittinonam, Reporter, Chiswick, and Took's Court, Chancery Lane; Printer. A. FIRMIN DIDUT, Joint Reporter, Franco; Member of Cen-

A. FIRMY Places, and appears, training and activated are the Royal Paortsson Human, Zollverein; Director of the Royal Polytechnie Academy at Dresden Viscour Manon, F.R.S., 41 Groweron Place.
Hunar Strayses, Barnes, Verment, United States; Residing

at Morley's Hotel, Strand VENABLES, Plomer Hill House, Wycombe; Rotired Paper Maker.

ASSOCIATE

George Turner, United States.

XVIII. WOVER, SPUN, FELTER, AND LAID FABRICS, WHEN SHOWN AS SPECIMENS OF PRINTING OR DYRING. HENRY TUCKER, Chairman, 30 Gresham Street; Silk Manu-

scturer. facturer.

J. Pisson, J. Deputy-Chairman, France; Professor of Che-mistry at Paris; Member of Central Jury.

Ensuran Forras, Reporter, Machesier; Calico Printer.

J. M. Bizens, United States.

E. Cinskrauch, France; Member of Institute, Professor and Director to Museum of Natural History.

John Hausmaratra, Acterington, Lancashire; Calico

Printer.

Printer. ALBXANDER HARVEY, Glasgow; Dyer. HENRY PAINCO,* Switzerland; Merchant. C. SWAINLARO, Crayford, Keut; Printer. Dr. Wilhiem Schwarz, Austria; Board of Trade, Vlenna.

* Charles Bovet, Proxy for Mr. Palvol. ASSOCIATES.

- Marnas, Lyons, France. Samuel Smith, Bradford.

XIX. TAPESTRY, INCLUSING CARPETS AND PLOOR-CLOTHS, LACE AND EMPROIDERY, PANCE AND INDUSTRIAL WORKS. DR. POMPEIUS BOLLEY, Chairman, Switzerland; Com-

Peter Graham, Deputy Chairman, 37 Oxford Street; Carpet Manufacturer. RICHARD BIRKIN, Reporter, Nottingham : Lace Manufac-

D. Buolz, 81 Oxford Street; Laceman.

FALR,* Zollverein; Manufacturer.

ANTONY FESSIES, Switzerland.

- LAMES, France; Inspector of Manufactures; Member of Central Jury.

ROBERT LIBRORAY, Belfast; Sewed and Embroidered Muslin

Manufacturer.

Thomas Simcox Lea, J. P., Astley Hall, Stourport.
Francois A. Wasnes, Belgium; Marchant at Brussels. * Philipp Ellisen, Merchant, Proxy for M. Falk † Felix Aubray, Merchant, Proxy for M. Lamel.

No Associates in this Class.

XX. ARTICLES OF CLOTHING FOR IMMEDIATE PERSONAL OR DOMESTIC USE.

WILLIAM FERRY, Mayor of Nottingham, Chairman, The Fringer, Nottingham: Lace Manufacturer, Philappe Waltings, Deputy Chairman, Switzerland. T. Chairer, Reporter, 35 Gracechurch Street, Beaver and Sik Hat Manufacturer.

T. BROWN, 40 Wood Strent; Straw Hat Manufacturer. P. Beggoville, France. ELLIOTT CRISSON, United States.

— HULSSE,* Zoilvaroin.

E. Sarrs, 60 Old Broad Street, City; Tailor. . E. Blank, Merchant, Proxy for M. Hilme.

ASSOCIATES.

E. Blank, 10 Trump Street, Cheapelde; Merchant. Hobert Diron Box, 187 Regent Street; Boot and Shoe Maker.
William Burchett, 29 Cheapside: Boot and Shoe Maker. Alexander Cauming, 104 Fore Street, City; Warehouser Segmour Haden, 62 Sloane Street, Chalten; Surgeon. amuel Hodghinson, 43 Threadneedle Street, City; Hosier and Glover.

William Maclaren, 55 Cornhill; Boot and Shoe Maker.

* Also Proxy for M. Hülsse.

XXI. CUTLERY AND EDGE TOOLS. LORD WHARSCLIFFF, Chairman and Reporter, 28 Lower

Brook Street. JOSEPH B. DURRAM, Deputy Chairman, 456 Oxford Street; C. KARMARSCH,* Zollverein; Director of the Polytechnic

NUBAR BET, Egypt. AUGRAMA CHARLES PEACE, Sheffield; Inte Cutlery and Edge-tool Manufacturer. J. Lepkar, France: Engineer-In-Chief of Mining School and Professor of Metallurgy, Paris.

Dr. Schafhanti, Professor of Metallurgy, Proxy for M. Karmarach.

ASSOCIATES.

Thos. Hethrington Henry, F.R.S., 18 Lincoln's Inn Fields; Thor. De la Rue, 110 Bunhill Row; Ornamental Stationery Manufacturer.

James Ragg, Sheffield; Scissor Manufacturer. C I resubter,† Plomer Hill House, High Wycombe; Paper Manufacturer.

· Jurer in Class XVII. + Jurer in Class XVII.

XXII. IRON AND GENERAL HARDWARE. Hon. Honace GREELEY, Chairmon, United States: Editor. Biru, Deputy Chairman, 5 Martiu's Lane, Caunon Street

City; Iron Merchant.
W. Dyce, Reporter, 2 Fituroy Square.
ARTHUR ADAMS, Walsall; Hardware Merchant.

- Acce, Austria. GOLUZNBERG, France; Manufacturer; Member of

G. Golarmero, France; Manufacturer; Member of Central Jury, &c.

Dox Manuel Herbant.

Brialmed Howard, Scheffled; Grate Manufacturer.

George Shaw, Cannon Street, Birningham; Patent Agent.

Figurancy Strata, Belgium; Member of Senate, vice-President of Chamber of Commerce, Charleroiz.

Dr. F. Straysers, Sollverein; Member of the Board of

Trade and Commerce. HENRY VAN WART, Birmingham; Merchant.

ASSOCIATES.

Ser. H. Billery, 13 Cambridge Street, Hyde Park; Professor M. W. Hydrand, Ph. D., FR.S., F.C.S., Zeliverin; Professor A. W. Hydrand, Ph. D., FR.S., F.C.S., Zeliverin; Professor of Clementy-direct representation Terraces. Related Responses; R.A., 18 Hyde Park Gate, Scath, William Communication, Ph. L. P. R. S., FR.A.S. F.C.S., 7 St. Mary's Boat Cancolary, bilagion; Mannfeaturer of Mary Boat Cancolary, bilagion; Mannfeature of Decker, S. Callerrin; preference of Geology, Minlag, D. Schelmelt, S. Callerrin; preference of Geology, Minlag,

Dr. Schafhautt. Zollverein; Professor of Geology, Mining, and Metallurgy. M. Wyon, ** R.A., Her Majesty's Mint; Medalist,

* Jurer in Class XXX. † Juror in Class XXIX. † Juror in Class XXX. † Juror in Class XXX. † Juror in Class XXX. * Juror in Class XXX. * Juror in Class XXX.

XXIII. WORRING IN PRECIOUS METALS, AND IN THEIR IMITATIONS; JEWELLERY, AND ALL ARTICLES OF VINTE AND LUXURY, NOT INCLUDED IN THE OTHER CLASSES.

AND GARRY, NOT DECOMED IN THE SAME ACCORDANCE ALKERT DUE OF LAYERY, Chairman and Reporter, France; Member of Institute, &o.

HEARY HOPE, MR.P., Departy Chairman, Piecadilly,
Dos Francesco Elozea, Spain; Colonel of Arrillery,
JANES GARRAIG, Goldsmittel, Hall; Frime Westen of
Goldsmither Company.

Billiter Square, City; Silvermith and
Physical Spain; Billiter Square, City; Silvermith and

L. GRÜNER, Zollvorelu; Arebitect, CHARLES SALLANDROUZE DE LAMORNAIN, France ; Commis-

sioner General of Government; Member of Conucil of Manufactures and of Central Jury, &c. Westley Renards, Birmingham; formerly Plater and

Jeweller, Chairman of the Birmingham Exhibition in 1849 ROBERT YOUNGE, Sheffield.

ASSOCIATES.

William Thomas Brande, Royal Mint; Professor of Chemistry, Royal Institution.

N.F. Le Dogre, France; Judge of the Tribunal of Commerce of the Seine, and Member of the Chamber of Commerce

Thoma Vasey, Monmouth Court, Whitcomb Street; Setter of Diamor Percival Nortes Johnson, 57 Hatten Garden: Metallurolcul George Mathey, 57 Hatton Garden; Metallurgical Chymlet.

XXIV. GLASS. LORD DE MAULEY, F.R S., Chairman and Reporter, 21 St.

James' Place.

James' Place.

E. H. Balloce, M.P., Deputy Chairman, 5 Hydo Park Place.

R. L. CHANCE, Glass Works, Birmingham; Glass Manu-L. C. Descay, United States; Barrister,

Jules Farsoy, Belgium; Merchant, Member of Chamber of Commerce at Charleroix. ROBERT OBBARD, 2 Crescent, Blackfriars; Glass Manufacturer.

EGGERE PELIGOT, France; Professor at Museum of Arts and Sciences; Member of the Central Jury. Dr. G. Schierra, Zollvereio; Miniog Councillor.

* Professor Jules Chandelon, Proxy for M. Frison, ASSOCIATES

G-o. Bost-ups, at Messrs. Chance and Co,'s, Birmingham; Glass Manufacturer. Ser David Breaster, Principal of the University of St.

Andrews. Joseph Cinter, 21 St. Dunstan's Hill, Tower Street; Window Glass Dealer. Alfred B. Daniell, 18 Wigmore Street; Flint Glass Dealer. William Motlock, 18 Regent Street; Flint Glass Dealer.
Philip Patner, 118 St. Martio's Lane; Window Glass

James Povell, 16 Temple Street, Whitefriars; Flint Glass Manufacture Antree Roo, 2 Featherstone Buildings, Holborn; Optician Wm. Sciaburne, 93 Upper Thames Street, Cl.y; Plats and Crown Glass Manufacturer.

Cur. Wonton, 3 Harcourt Buildiags, Temple; Barrister. Tun. Wool, 19 Greek Street, Solio; Plate Glass Silverer. Erarst Zuccum, Brick Lane, Splinfields; Looking Glass Manufacturer. . Juree in Class X.

XXV. CERAMIC MANUFACTURE, CHINA, PORCELAIN,

EASTRENWARE, &C.

Deur or Angres, Cooleman and Reporter, Stafford House, St. Jemes's, and Roseneath.
Cuas. Banna Wath, Esq., M.P., F.R.S., D-puty Chairman, 44 Berkeley Square. E. ERLAND, France; Director of the National Manufactures, Sevres; Member of the Central Jury, &c.

GABRIEL KAMENSEY; Russia; Councillor of the Administration of Finances, and Commissioner in London. Manufacturer.

P. OURWHEANER, Zollverein; Director of the Board of Trale and Commerce, Weshaden. Acquisto Payro, Barro, Piertugal. John A. Wisk, Clayton Hall, Newcastle-under-Lyme, Staffordshire.

ASSOCIATES,

E. H. Buldsch. M.P., 5 Hyde Park Place. Tion. H-thrington Henry, F.R.S., 18 Lincoln's Inn Fields: Analytical Chemist.

* Justor in Class XX tV.

XXVI. DECORATIFE FURNITURE AND UPHOLITERY, INCLUD-ING PAPER-HANGINGS, PAPIER MACHÉ AND JAPANNED Goons.

PROFESSION CARL ROSSNER, Chairman and Reporter, Austria; President of the Imperial Academy of Fine Arts. Logo Assuration, Deputy Chairman, 82 Piccadilly; Jour Lewis August, 20 Lower Road Islington, Paper

Stainer. CHARLES BE BENNE, Russin; Architect. FRANCOIS COPPENS, Belgium; Architect

J. G. Caace, 14 Wigmore Street, Cavendleb Square; House Decorator

CHARLES CROCCO, Sardinia; Manufacturer. Jone Jackson, 4) Rathbone Place; Manufacturer of Com-position and Papier Mache Ornaments.

W. Meyen, North Germany.

Natatas Boxnor, France; late of the Embassy to China,
Member of Central Jury, Delegate of Chamber of Commerce of Lyuns and Paris

EDWARD SYRLE, 27 Albemarla Street; Upbolsterer and Jone WERR, 8 Old Bood Street; Uphoisterer &c.

ASSOCIATES.

Lieut-Colonel Charles A. J. Demanet; Colonel of Engineers L. Genner,* 12 Fituroy Square; Architect.

Circ. Leacise, Sardinia; Commissioner to the Exhibition for H. M. the King of Sardinia.

Wolowski,† France; Professor to Museum of Arts and Sciences, Member of the Central Jury, and of the Legis-

lative Assembly of France. * Japar ta Class XXIII. + Juser in Class XXIX.

XXVII, MANUFACTURES IN MINERAL SUBSTANCES, USED FOR BUILDING OR DECORATION, AS IN MARRIE, SLATE, POR-PHYRIES, CEMENTS, ARTIFICIAL STONES, &c.

BENEDETTO PISTAUCCI, Chairman, Italy; Her Majesty's Chief Medalist

Loan Scotler, Deputy Chairman, 35 Dover Street.
Paoresson D. T. Anstro, F.R.S., Reporter, 17 Manchester
Street, Manchester Squara; Professor of Geology, King's College.

BERNARDO OF BERNARDIS, Austria; Architect. George Gonwix, F.R.S., 24 Alexander Square, Brompton; Architect SIR CHARLES LEMON, Bart., F.R.S., M.P., 46 Charles Street, Berkeley Square. ERHANCEL PSYCHA, Greece; Civil Engineer, and late Pro-

fessor of Physical Science VISCOUNT BESICAST OF THUSY, France: Member of Institute.

ASSOCIATES, F Barker, 71 Lower Grosvenor Street. Thes. Hethrington Henry, F.R.S., 18 Lincoln's Inn Fields;

Analytical Chemist.

Lose, C.E., F.R.S., 39 Finsbury Circus; Engineer to Chartered Gas Company. XXVIII. MANUFACTURES FROM ANIMAL AND VEGETABLE SUBSTANCES, NOT BEING WOVEN OR FELTED, OR INCLUDED

IN OTHER SECTIONS. DON JOAQUIN ALPONSO, Chrisman, Spain; Director of tha

Conservatory of Arts, Madrid.

J. E. Grax, F R.S., P.B.S., Deputy-Chairmon, British Museum; Keeper of the Zoological Department, British Museum.

Da. E. Lavarsten, F.R.S., Reporter, 22 Old Burlington Street; Secretary to the Ray Society. Rev. Goanam D. Assort, United States: Spingler Institute. New York, City. New York, Chy.

Ballan, Franca; Member of Institute.

T. J. Millen, T Millbank Street; Merchant.

Gronce Peresson, Russia; Member of the Scientific Committee for the Administration of the Domains of the

T. A. Wise, M.D., 9 Princes Gate, Hyde Park; Hon. E.L.C.

ASSOCIATES. Natalis Roadot,* France; late of the Embassy to China, &c. * Japor in Class XXVL

XXIX. MISCELLANEOUS MANUFACTURES AND SMALL WARES. VISCOUNT CANNINO, Chairman, 10 Grosvenor Square.

— Watowast, Depute-Chairman, France: Professor

Viscoury Cannino, Deutrian, in Gronvenor Square.

Woldwain, Deputy-Chairman, France; Professor to
Museum of Aris and Sciences, Member of the Cantral
Jury and of tha Legislative Assembly of France.

WARLEN DE LA RUL, Ph. D., F.R.S., F.R.A.S., F.C.S.,
Reporter, 78t. Mary's Road, Canobury, Islington; Manufacturer of Ornamental Stationery.

natured Turnamental Stationery.

Armuel Harrar, F.L. S., 17 Manchester Street, Gray's Inn Rooft; Vice-Fresident of the Botanical Society.

Paor. A. W. (IONAMN, Fl. D., F.H.S., F.C.S., Joint Reporter, Zoliverein; Professor of Chemistry.

Jonn Journal Mogm. 4 Leadsanhall Street; Maker of Dress-

Ing-cases and Cutlery. OTTO SCHUMANN, Austria; Member of the Council of the Chairmen of Commerce of Vienna.

W. R. SHITH, United States; Mineralogist.

ASSOCIATES.

D. W. Mitchell, 11 Hanover Square; Secretary to the Zoological Society. Professor Richard Ox-n.* F.R.S., College of Surgeons, Lincoln's lan Fields; President of the College of

Surgeons. Natalis, Roadot, † France; late of the Embassy to France, &c.

* Juror in Class IV. † Juror in Class XXVI.

John Moir . .

XXX. SCULPTURE, MOREES, AND PLASTIC ACT. G. Von Vierans, Chairman, Zollverein; Privy Councillor in the Department of Commerce at Berlin. Loen Coldone, Department, 10 Hill Street, Berkeley Square.

Square.
Annoxio Panizzi, Reporter, Tusceny; British Museum; Keeper of the Printed Books at the British Museum. C. R. Cockratz, K.A., Bank of England; Architect. J. Gisson, 7 Tiles Street, Park Lane; Sculptor. Loen Houtann, Tuscany; Minister at the Court of Tarin. COUNT LEON DE LABORNE, France; Member of Institute, &c.

GENERAL GRORGE MANLEY, 19 Ratland Gete; formerly Adjutant-General in Rome.

C.T. Newtow, British Museum; Assistant in the Antiquarian Department of the British Museum. A.W. Peur, St. Augustine, West Cliff, Ramsgate; Architect, LAMERT A. J. QUETLAT, Belgium; Secretory of the Ac-demy of Fine Arts, and President of the Circle-Artistique,

Brussela

Brussela.

Richard Bridderve, R.A., 18 Hyde Park Gete South,
Kesnington Gore; Arela.

7. D. C. Sterskover, Hollandi; Late Master of the Mint et
Urrecht.

Dec. C. Waadew, Zollverein; Director of the Museum of
Fine Arts at Berlis.

W. Wros, R.A., Her Mojesty's Mint; Medallist.

No Associates un this Class.

APPENDIX E.

LIST OF JURORS AND ASSOCIATE JURORS ALSO EXHIBITORS.

NAME.	ADDRESS.	Exhibit	Excluded.	REMARKS.
	ADDRESS.	Class.	No.	ALEXAND.
CLASS L. Richard Taylor	Truro	I.	434 & 451	
H. L. Pettinson	10 Grey Street, Newcastle-on- Type.	п.	12 & 18	
CLASS IV. Ramon de la Sagra N. Wallich	Spain . 5 Upper Gower Street, Bed- ford Square.	Indian C	ollection,	Honourable Mention, Class IV. Prize Medal, Class II.
CLASS V. W. Fairbairn H. Meudslay C. de Rossius Orban	Manchester	V. & VI. V. & VI.	26 & 200 38 & 228 372	Council Medal, Class V1. Prize Medal, Class I.
Professor E. Cowper Ctass Va.	King's College	VI.	134	
C. Arnous	France	'v."	1542 884	
CLASS VI, G. Rennin T. R. Sewell	Whitehall Place	v. & vn.	52 & 98 92	
CLASS VIII. LieutCol. Colquboun .	Woolwich	m.	13	
CLASS IX. B. T. B. Gibbs	Piccadilly	nı,	104	
CLASS Xc. James Philp	67 St. James' Street	x.	641	
CLASS XI. Sir J. Anderson Robert Johnson	Glasgow	XI. XI.	7 55	
CLASS XII. Henry Brett . John Cooper . George Lawton . J. Randoing . Phillip Scholler . A. Simonls . Joseph Bateson . Henry Kellsall . Darnton Lupton . Emilius Prelier .		XII. XII. XII. XII. XII. XII. XII. IV.	20 42 6 973 927 194 33 486 33 91	
CLASS XIII. G. T. Kemp Samuel Courtauld J. Vertu		XIII.	18 34 28	
CLASS XIV. Count F. Von Harrach . Charles Tee	Austria	źiý :	285 37	Prize Model, Class XV.

NAME.	ADDRESS.	Exhibit E	artuded.	REMARKS.	
		Class.	No.		
CLASS XV.					
W. Clabburn	Norwich	XV.	284		
	Paisley	XV.	299		
Fitus Salt	Brudford	XII.	139	Prize Medal, Class XII.	
Schwann	Huddersfield	XII. & XV.	+ 115		
Gr G. Wilkinson	Milk Street, London	XXX.	319 277		
ieorge Hairs	Milk Street, London	AV.	2//		
CLASS XVI.	Oxford Street	XVI.	301		
B. Bevington	Bermondsey	XVI.	50	Honograble Mention.	
. B. Berington	Detimonary	A 11.		Class IV.	
John Foster	16 Wigmore Street, Cavendish	XXIX.	74	Prize Medal, Class XXIX.	
	Square.				
CLASS XVII.	n n			n	
l'homas de la Rue	110 Banhill Row	XVII.	76	Prize Medal, Class VI.	
A. F. Didot	France		212		
CLASS XVIII.	30 Gresham Street	xvm	2		
Henry Tucker		XVIII	50		
John Hargreaves	Accrington	XVIII.	3, 9, 4 38		
	Accompany	A . III.	u, v, 6: 33		
Ct.ves XIX.	37 Oxford Street	XIX.	390		
Richard Birkin	Nottingham	XIX.	30		
D. Biddle	81 Oxford Street	XIX.	20		
F. A. Washer	Belgium		318		
CLASS XX.					
I. Christy	Gracechurch Street	XX.	33		
F. Bernoville	France		1548		
CLASS XXL					
J. B. Durham	456 Oxford Street	XXI,	46	Prize Modal, Class XXIII.	
CLASS XXII.			851		
G. Goldenberg	France		851		
CLASS XXIII.	Billiter Square	XXIII.	101		
John Gray	Billiter Square	VIII.	240	Prize Medal, Class VIII.	
	cormingous	1111.	240	Time steam, Class VIII.	
CLASS XXIV.	Birmingham	XXIV.	22 & 60	Conneil Medal, Class X.	
Jules Frison	Belgium		392	Comment Interface Comment Act	
E. Luccani	Spitalfields	xxx.	318	Prize Medal, Class XXII.	
CLASS XXVL					
J. G. Crace	Wigmore Street, Cavendish	XXVL	530	Prize Medal, Class XIX.	
Charles Crocco	Square. Sardinia		50		
Charles Crocco John Jackson	49 Rathbone Place	xxvi.	50		
W. Meyer	Mecklenburg Schwerin	AATI.	6	Henourable Mention,	
			-	Class IV.	
Edward Snell	27 Albemarle Street	XXVI.	170		
John Webb	8 Old Bend Street	XXVI.	171		
LieutColonel Demanet.	Belgiam ,		178		
CLASS XXIX.					
W. De La Rue	110 Bunbill Row	XVII.	76	Prize Medal, Class VI.	
CLASS XXX.					
CLASS XXX. J. Gibson W. Wyon, R. A	Tilney Street, Park Lane	XXX.	64 & 80		

ANSWER OF HIS ROYAL HIGHNESS PRINCE ALBERT

TO LORD CANNING'S REPORT.

My Long.

THE Royal Commissioners are much indebted to your Lordship, and to the distinguished gentlemen of this and other nations, who have acted on the Juries intrusted with the award of the Prizes in the recent Exhibition, for the zeal with which they have undertaken, and the ability with which they have fulfilled, the task which has been allotted to them. The Commissioners are sensible that the services of these gentlemen have, in many instances, been rendered at great inconvenience to themselves, and at the sacrifice of very valuable time, and of important avocations. It is with pride and pleasure, that they have noticed in the lists of those who have performed this service to the Exhibition, the names of men of every nation of the most exalted rank, and of the most eminent reputations in statesmanship, in science, in literature, in mannfactures, in commerce, and in the fine arts; of men in every respect well calculated not only to form a correct technical jadgment upon the merits of the articles submitted to their inspection, but also to maintain the high character which the Commissioners have uniformly striven to impart to the Exhibition.

In no department of the vast undertaking, which has just been brought to a happy close, were greater difficulties to have been apprehended than in that in which your Lordship and your eminent Colleagues have given your assistance. On this, the first occasion on which the productions of the different nations of the globe have ever been brought together for the purpose of comparing their several merits, not only were prejudices and jealousies to have been expected to interfere with the decisions, but the nature of the case presented many difficulties of a formidable character, to the formation of a judgment which should appear satisfactory to all. The names of the Jurors, indeed, when once made known, were of themselves a sufficient guarantee for that impartiality which was essential to the fulfilment of their task; and from all that has come to the knowledge of the Royal Commissioners during the progress of their labours, they are fully satisfied that every award has been made with the most careful consideration, after the most ample and laborious investigation, and upon grounds most strictly honourable, just, and candid.

But although the high character of the Jurors would have fully justified the Commissioners in intrusting them with the award of the prizes without fettering their diserction with any instructions whatever, had nothing more than an impartial decision been required, there were difficulties of a very peculiar nature inherent to the task, which seemed to render necessary the adoption of some regulations that might, at first sight, appear to have been somewhat arbitrary in their character. The differences teristics, it would seem to be almost impossible for those who have been in the habit of judging the productions of their own country by one standard, to enter fully into merits which can only be properly appreciated by another standard, since the very points which in the one case appear to be excellencies, may in the other, not unnaturally, betaken as defects. This consideration and a knowledge of the evils which were to be apprehended from any areidentally erroneous decision, in a matter so intimately connected with the commercial interests of every nation, induced the Royal Commissioners to lay down, for the guidance of the Juries, those principles to which your Lordship has referred.

It would, perhaps, have been more interesting to the public had the Commissioners instructed the Juries to follow the practice which has usually prevailed in the Exhibitions of individual nations, and to grant Medals of different degrees, to mark the gradations of excellence among the Exhibitors; but they feel that they have adopted the safer course, and that which was upon the whole most in accordance with the feelings of the majority of the Exhibitors, in directing that no distinction should be made between their merits, if their productions came up to the standard requisite to entitle them to a Prize, but that all should, without exception, take the same rank and receive the same Medal.

The Commissioners, however, considered it right to place at the disposal of the Council of Chairmen a peculiar or "Conneil" Medal, in the cases to which your Lordship has referred. Important discoveries in many branches of science and of manufactures bave in this Exhibition been brought under the notice of the public; and it seems just that those who have rendered services of this kind to the world, should receive a special mark of acknowledgment on an occasion which has rendered so conspicuous the advantages which the many have derived from the dis-

coveries of the few. The grant of the Council Medal for beauty of design, and for excellence in the fine arts, as applied to manufactures, though made upon a somewhat different principle, is also compatible with the views of the Commissioners, since in the cases in which it has been given it does not mark any greater comparative excellence of manufacture or assign to one producer a higher place than is accorded to others, but is to be regarded as a testimony to the genius which can clothe the articles required for the use of daily life with beauty that can please the eye, and instruct and elevate the mind. Valuable as this Exhibition has proved in many respects, it appears to the Commissioners that there is no direction in which its effects will be more sensibly and immediately perceived than in the improvement in the wants of various nations baving necessarily im- which it may be expected to produce in taste, and the pressed their several manufactures with different charac- impulse it has given to the arts of design; and a special

ncknowledgment is justly due to those who have afforded the best examples of art, whether pure or applied, and led the way in this interesting career of improvement.

It was remains for the Commissioners occe more to return to your Leading and your Colleges their confial thanks; and they must not unit to include in these ways assisted you in your blooms, particularly those who have seted with you as Associate or Experts, for the primition and pread have been as the configuration of the three controls of the configuration of the commission and pread have deep dispertices markets; and the Commission are well aware that these gentlemes have frequently been of the greatest service. In the loop frequently been of the greatest service, in the loop frequently been of the greatest service. In the loop frequently been of the greatest service, in the loop frequently been of the greatest service. In the loop frequently been of the greatest service, in the loop for the commission of the properties of the commission of the properties received.

It is the intention of the Commissioners to publish on only the masses of these to whom the Jurice have not only the masses of these to whom the Jurice have been considered in the Jurice have prepared on the state of release, set, and assuming the contraction of the Jurice has been prepared on the state of release, and as desired, in the contract of the Jurice has been prepared to the real and desired disjoined by the contract of the Jurice is not the set of Exporters to the Jurice is not the third to the contract of the Jurice is not the property of the Jurice is not t

It now becomes my pleasing duty on behalf of the Blogal Commissioners, to deliver my most sincere acknowledgements and thanks for the hearty co-operation and support which the Eakhlition has constantly received from Foreign Countries. The Foreign Commissioners, who have left their own constructs to superlinted the limitartical of their transport and the superline of the Eachholton, have ever the constant of the Commissioners of the Countries of the transport of the Countries of the date of the Countries of th

To the Society of Arts, which, by its exhibition of works of national industry prepared the way for this international Exhibition, the Boyal Commission and the public feet their acknowledgments are especially dae, and the Commission have to thank that body for having carried out her preliminary arrangements to an extent which justified me, as their President, in the application which I made to the Crown for the issue of a Royal Commission.

The Commission have also to acknowledge the valuable services afforded by the emineut scientific and professional men wha, on the Sectional Committees, aided most materially in founding a scientific basis on which to rear the Exhibitor.

To the Local Commissioners and members of Local Committees, but more especially to those who have undertaken the onerous duties of Secretaries, our best acknowledgments are also due. Without their zealous aid it would have been impossible to have obtained an efficient representation of the industrial products of their respective localities. And finally, we cannot forget that all the labours of those thus officially connected with the Exhibition would have been in vain, had it not been for the hearty goodwill and assistance of the whole body of Exhibitors, both Foreign and British. The zeal which they have displayed in affording a worthy illustration of the state of the industry of the nations to which they belong, can only be equalled by the successful efforts of their industrial skill. The Commission have always had support and encouragement from them during the progress of the undertaking, and they cannot forget how cheerfully they submitted to regulations essential for their general good, although sometimes producing personal inconvenience to themselves. If the Exhibition be successful in aiding the healthy progress of manufactures, we trust that their efforts will meet with a due reward.

In now taking leave of all those who have so materially aided us in their respective characters of Jurors and Associates, Foreign and Local Commissioners, Members and Secretaries of Local and Sectional Committees, Members of the Society of Arts, and Exhibitors, I cannot refrain from remarking with heartfelt pleasure, the singular harmony which has prevailed amongst the eminent men representing so many national interests-a harmony which cannot end with the event which produced it. Let us receive it as an auspicious omen for the future; and while we return our humble and hearty thanks to Almighty God for the blessing He has vouchsafed to our labours, let us all earnestly pray that that Divine Providence which has so benignantly watched over and shielded this illustration of Nature's productions, conceived by human intellect, and fashioned by human skill, may still protect us, and may grant that the interchange of knowledge, resulting from the meeting of enlightened people in friendly rivalry, may be dispersed for and wide over distant lands; and thus, by showing our mutual dependence upon each other, be a happy means of promoting unity among nations, and prace and goodwill among the various races of mankind.

ALBERT.

LIST OF JURY AWARDS.

GENERAL COUNCIL MEDALS.

HIS ROYAL HIGHNESS PRINCE ALBERT .	٠		For the original conception and successful prosecution of the idea of the Great Exhibition of 1831, Joint Medal with that granted for the Model Ledging House in Class VII.
CHAMBER OF COMMERCE, LYONS	-	٠	For the Collection which it exhibits, in which is shown the general progress made through their exertions in the Silk Manufactures of Lyons.
EAST INDIA COMPANY, THE HONOURABLE		٠.	For the very valuable and extensive collection illustrating the Natural Resources and Manufactures of India.
EGYPT, H.H. THE VICEROY OF			For the very valuable and extensive collection, sillustrating the Manufactures and Natural Resources of Egypt.
FRENCH MINISTER OF WAR			For the part taken by him in exhibiting the valuable collection of Haw Products from Algeria.
SPAIN, THE GOVERNMENT OF		٠	For the valuable and extensive collection of Raw Products, showing the Natural Resources of Spain.
TUNE, THE BET OF			For the very valuable and extensive collection illustrating the Manufactures and Natural Resources of Tunis.
TURRRY, THE GOVERNMENT OF			For the valuable and extensive collection of Raw Products, showing the Natural Resources of Turkey.

CLASS I.

[The Catalogue Numbers refer to the corresponding Numbers in the Official Descriptive and Illustrated Catalogue.]

	COUNCIL	MEDAL

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED,
France	65 1214 6 424 649	Berard and Co. Brockedon, W. Estivant Brothers Güttler, W. Kleist, Baron Von Krupp, Fried	Process for washing and parifying coals. Cumberland lead, condensed in blocks. Brass of superior quality produced by a novel process. Treatment of arevokal orcs, and the extraction Treatment of arevokal orcs, and the extraction iron of superior quality and manufacture. Cast steel of superior and noval quality.
United Kingdom	& 677 480	Pattinson, H. L	Process of separating silver from lead by erystallization.
United Kingdom	430	*PRIZE MEDAL. Abercarn and Gwythen Collieries	Process for blasting, &c.
United States		Company. (Awarded to Ebenezer Rogers.) Adirondae Manufacturing Company, New York.	Steel and Iron.
Belginm Nova Scotla United Kingdom	2	Amand, Joseph	Quality of Iron, Cast iron, Section sample of coal from South Staffordshire thick scans.
France	411 1671 424 411 427	Bagnall, J. and Sons Baudry, A. T. Bick ford, Smith, and Davey Bird, W. and Co. Blackwell, S.	Rod Iron. Quality of steel. Safety fuse. Collection illustrating the iron trade. Collection of iron ores, with descriptive catalogue

xxxvi .		JURY AWARDS-PRIZE	MEDAL. CLASS I.
NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom	83	Bowling Iron Company. The (Brad-	Quality of Iron.
	509	ford) (Cl. xxii.) Buccleuch, Tho Duke of	Apparatus for condensing the fumes of lead-
	494	Byers J	works. The manufacture of lead.
Belglum	377	Byers, J	Brass and brass tubes.
United Kingdom	115	Cocker, Samuel and Son (Sheffield)	Quality of steel.
France	1364 376	Colin, J. R.	Polished granite and serpentine.
France	21	Colin, J. R	Iron, sheet Iron, and steel. Iron and copper,
	& 120		
Franco	162 476	Derville and Co	Marbles from the Pyrenees. Crucibles
United Kingdom	412	Doveux, Ebbw Vale Company, The	Collection of manufactured Iron models, &c.
Austria	409	Egger, Ferdinand, Count von	Iron and steel.
	410 & 425		
Canada	5	Ferrier, Ilon. J.,	Quality of iron.
Austrin	420 229	Fischer, Auton	Steel and Iron; Iron wire.
	229	Gallicher and Co	Quality of iron (known as Berry Iron).
Bavaria	95	Gienanth Brothers	Iron and steel.
South Australia	3	Ferrier, Hon. J. Fischer, Auton . Gallicher and Co. Gandillot and Co. Gendillot and Co. Gienanth Brothers . Graham and Hallett	Specimens of copper from the mines of Burra Burra.
United Kingdom	210	Greaves, J. W. , . , ,	Specimens of slates, &c., from Festiplog.
France	531	Groult and Co	Cupper tubes, &c. Millstones.
United Kingdom	532	Greaves, J. W. Groult and Co. Gueavin Bouchon, and Co. Hird, Dawson, and Hardy (Low Moor	Quality of Iron.
, miles marganin ; ;		Company), (Cl. xxii.) Hosking, R	
Donata	472 632	Hosking, R.	Reversing apparatus for stamping. Steel.
Prusela	602		Wootz steel and manufacture.
India United Kingdom	109		
Grand Duchy of Hesse	477	Johnson and Mutthey Johnson nol Mutthey Junghaus and Venntor Konigabütte, Royal Iron Foundry at Kongaberg Silver Works Landau, S.	Collection, metallurgic, Geological maps.
Prustia . Sweden and Norway .	3	Konigshutte, Royal Iron Foundry at	Cadmium
Sweden and Norway .	34	Knugsberg Silver Works	Silver ores, illustrative. Lova millstones of Andersach.
Prussia	321 447	Landau, S	Lava milistones of Andermeh. Steel.
Spain	21	Landau, S. Lebrkind, Fnikenroth, and Co. Lenense Asturinu Company MacDonnid, Major C.	Iron and steel.
United Kingdom	20	Mac Donnid, Major C.	Chilection of turquoises. Zine.
Spain. United Kingdom Prussia	830	MacDonnid, Major C. Mainpane, The Royal Iron Foundry at Mnsafeld, The combined Mining Works of	Copper and copper smelting.
		Works of.	
France	627 84	Works af. McRn, J. M. F. McInijt, C. Milligan, J. Milligan, J. Milligan, J. Mincheur, F. and A. Mantreal Mining Company Morris, Jones, and Co	Apparatus for raising miners and unterials, Collection of grindstones, hones, &c.
	_	Milligan, J.	Series of rocks and minerals.
United Kingdom	418 366	Mills, R	Plus for opening and closing doors in mines. Capity of iron.
Conada	10	Mentreal Mining Company	Corner manufacture.
Belginm	44	Morris, Jones, and Co	Plate iron.
	6 24	Motale Iron and Engine Works	Iron, quality of. Safety lamps.
Belgium	"i	Mueselor, M. L. Nassau, The Government Engineers	Collection of mineral produce and metallurgy
	199		of Nassau. Quality of steel,
United Kingdom	199	Nnylor, Vickers, and Co. (Cl. xxti.). Neuhaus and Biosch	Fine iron wire
Switzeriand United States	166		Zine ores, iron (Franklinite) ores, smelting
United Kingdom	273	Company. Northumberiand and Durham Coal	process, &c. Collection exhibited.
Belglum	7	Nouvelle-Mantagne Ziue Mining	Zinc smelting and manufacture.
Nova Scotia	- 1	Company, The Nova Scotia, Central Committee in .	Collection of mineral products.
Belgium	372		Sheet iron.
United Kingdom	485	Oxland, R	The separation of wolfram and tin. Quality of iron,
Belgium	20	Oxinnel, R. Ponumerocul Smelting Company, The Ponomareff, Madame (Iron Works of	Sheet and other iron.
	1680	Khamounitsky).	Sonn lead.
Franco	371	Kemacle and Perard	Street Iron.
Prassia	452	Rochatz, C., and Co	Zinc and its preparations. Zinc and zinc plates.
Russia	11 1 to 19	Russia Imperial Manufactories	Zine and zine plates. Iron and copper.
Russin	417	Schwarzenberg, Prince.	
United Kingdom	411	Selby nud Johns.	Irou tubes and enamelled Irou. Illustrations of lead manufacture, &c.
Belgium	484 8	St. Hubert, Ed. de	Millstones.
Belgium	318	Khamounitsky). Poulet J. F. Reuncle and Primal Reuncle and Trimal Reuncle and Co. Russia, Imperial Manufactories Schwurzenferg, Prince Schwurzenferg, Prince Schwurzenferg, Prince Schwing, Prince Schwurzenferg, Prince Sch	Lend and zine,
			Sheet and bar iron.
Austria	167	Topper, Andreas Trenton Iron Company	Iron of fine quality, ores, &c.

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	Omects Rewarded.
United Kingdom	190	Turton and Sons ((1. xxii.)	Quality of steel,
Tuscany	2 to 11	Turton and Sons (Cl. XXII.) Tuscany, Royal Mines of Tuscany, Royal Technological Insti- tute of	Illustrative mineral and metallurgic series. Mercury ores.
Austria	423	Wöllersdorf Tin Plate Works	Sheet Iron, for tin plates,
=	408 405	Wöllersdorf Tin Plate Works. Vienna, Depot of Imperial Mines at. Zois, Widow, Carl	Iron and steel (cast) and elanabar. Quality of iron and steel.
	-	HONOURABLE MENTI	10X,
France	1051	Alluaud, , sen	China elays (Littoges).
ustria	415 462	Alluaud, , , sen	Red Iron. Apparatus for pumps, &c.
South Australia	462	Barous Runge Minlag Company The	Spharatus for pumps, ac.
United Kingdom	41	Barossa Range Mining Company, The Barrow, Richard (Outside, West)	Copper ores. Block of coal (Derbyshire).
	415		Iron and steel,
	417	Blddulph, J.	Tin plates, Iron and steel.
Prussia	403	Bring, Riller, and Leffsky	fron and steel.
Belgium	399	Boueher, T. Bouquel, Count (Kallich Foundry.).	Refractory clay.
Austria	414	Bouquol, Count (Kallich Foundry.).	
Portugal	1295 47	Branch Mine Brymbo Company, The (Outside, West), Burr, T. W. and G.	Samples of lead orc. Block of coal (North Wales).
	495	Borr, T. W. and G.	Specimens of lead ore.
_	400		Coal and ironatone.
France	448	Chapot and Selon	Lithographic stones. Native gold.
Canada	119	Chapot and Selon Chandiere Mining Company Cockerill, J. Collette-Douret, F. J.	Model of a lifting machine for miners,
_	5	Collette-Doucet, F. J.	Grindstones &c.
paln	29	Cordova, The Province of Crutwell, Allies, and Co	Marbles,
	403		Irou ores.
nited States Portugal,	191	Darling, W	Iron ores, &c.
	to 231		
Belgium	14	De Gaiffier d'Hestroy, The Baron .	Porceialn clay.
Portugal	110 & 111	Dejeant,	Lithographic stones.
Prusela	432	Dickert, Thomas	Maps.
	-	Douglas River Coal Company Dressler, J. H., sen.	Coal.
Prussia	419	Dressler, J. H., sen.	Iron ore.
Belgium	1597	Dupierry, Jun.	Whetstones, Collection of specimens (geological and miners
Prussia	10	Fallon-Piron, J. B.	Natitur marble.
	15	Dupierry, jun. Eleffe, — Fallon-Piron, J. B. Ferrare, F. and I, De. Fouchtwanger, Dr. L.	Plastle clay.
United States	469		Collection of minerals, fossils, and fresh-wat shells.
Austria	421	Fischer, Berth	Cast steel.
	47	Fischer, J. C. Fitzwilliam, The Earl (Outside, West) Filiratenhery, Prince	Steel in bars. Section of coal-beds (Barnsley),
Austria	412	Fürstenberg, Prince	Speciment of iron,
France	226	Fürstenberg, Frince Gaillard, —, sen. Garland, T. Gird, J. Graff, P. Grange, F.	Freuch millstones (hurrs).
Enlted Kingdom	488	Garland, T	Arsenic from tin ores.
Spain	23	Graff, P	Iron. Cobalt and ores.
	1	Grange, F.	Snathle iron ores.
Sardinis	-	Greek Government	Steatite.
United Kingdom	506	Grey, J.	Zine and zine ores.
Belginm Sweden and Norway .	16	Grey, J. Guilhume, J. A. Galdsmed-shyttan, The Mines of	Whetstones. Argentiferous lend.
Provin	454	Hambloch, J.	Iton ore.
Prosia	-		Series of minerals.
United Kingdom	22	Haywood, J. (Outside, West)	Collection of grindstones.
	23	Highley, S., jun.	Collection of sulphur, &c., Collection of building stones.
Austria	4:28	Hüber, P.	Iron and steel wice.
United Kingdom	487	Jordan, C.	Metels and alloys, specimens of,
—	91	Haywoot, J. (Outside, Weet) Highley, S., jun. Howard, T. Hiber, F. Jordan, C. King and Co. Kochmeister, Friedrich	Stourbridge clays.
Austria Belgium	5	Kochmelster, Friedrich	Nickel and cobalt. Whetatones.
Belgium	95	Lamberty Rrnthers	Whetstones.
France	1710	Lapeyrière, C	Quality of iron.
	290	Lariviere, C.	Ameres slates.
United Kingdom	125	Lee, Dr. J. Lee, W. Lobkowitz, Prince Ferdinand von	Samples of sand.
Tuited States	322	Lee, W	Iron ore. Garnets.
Canada	1	Loran, W. E.	Manganese and iron ores,
Cenada	324	Logan, W. E	Steel.
	& 326 2		tron, &c.
Nassau	31	Mndrid, The Royal Library of	Marbles.

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED,
Prussia	438	Mannheimer, Wolff	Amber.
	396		Quartzore conglomerats.
Canada	4	Marmore Iron Company	Irou, tec.
Frence	1314	Mary and Co	Lithographic stones.
France	316	Marmors Iron Company Marx and Co. Meinerzhagen, and Kreuser Brothers	Lead ores, &c., from the mines of the Count Julius of Lippe, and Mesers. Krouser Brothers.
	010		Julius of Linne and Mesers, Krouser Brothers
Austria	1	Misshook A	Lignites.
Granese	15	Wile -	Sperimens of steatite.
Greece	426	Miesbach, A. Milo, — Monkland Iron and Steel Company,	Coal, ores, clays, &c.
Curied Kinguom	420	Glasgow.	com, orce, carys, ac.
Datalone	9		Millstones.
Calend States	202	Morrell, Stewart, and Co.	Sheet iron,
Belgium United States United Kingdom	46	Norbie 1 C	Phosphatic fossils, &c.
cuited tringdom	34	Oskalan F (Outside West)	Block of coal from North Wales.
Delefure	4	Offennal P 1	Whetstones.
Belgium Prussia Belgium United Kingdom	62	Ohl V P Heim of	Lend tubes, &c.
Dalaium	2	One C I	Whetstones.
United Visualism	36	Policy I M	Phosphatic fossils, &c.
Donatoral Anguen	- 30	Polositic The Date of	Marbles.
Portugal		Paris I'.	Emeralds,
New Granada	23	Morrell, Srewart, and Co. Neelbe, J. C. Oskeley, E. (Outside, Wer) Parker, C. Parker,	Copper.
Russia	24	Parison, Apriller	Copper,
—	315	Pashkon, Alexander	Copper.
Belgium	343	Pastor, B., and Co	Fire-clays and bricks. Anthracits,
Belgium	74	Peale, C. W.	Anthracita, Iron
Beigium	101	Perard and Mineur	China clays.
United Kingdom	101	Phillips, W.	China clays.
	500	Phittips, Smith, and Co	Iron and tin plates.
Sardinia	. 3	Pianello, D	Slates,
Ruseia	112	Poland, Imperial Mines of,	Cadmium,
Portugal,	112	Portugal Royal Tobacco Contractors	Lithographic stones.
Austria	400	Radmeister Community	Iron.
	2	Rettig, C. A	Iron ores, &c.
France	1448	Roger, -, jun	French burrs (La Ferté).
France	314	Rousseau, A. J	Iron ores.
	416	Ruggles, G. H.	Sheets of mica.
Spala,	32	Saragossa, The Province of	Marbles.
Spala	429	Radinedster Community Retrig, C. A Roger, — jun. Rousseau, A. J. Rugglee, G. H. Saragossa, The Province of Scheell, Carl Schönlern, Frwcin, Connt von Schropp and Simon Schonsten Lie Michael Connt of	Iron wire.
	15	Schönhern, Frwein, Count von	Garnets.
Prostia	303	Schropp and Simon	Maps.
China	-		Collection illustrative of percelain manufacture.
China	991	Silva, Da, Manuel Antonio	Samples of shot,
	to		
	1014		en.
india		Singapore, Local Committee of	Tin ores,
unted Kingdom	410	Solly and Co.	Iron and steel.
	469	St. Austell Local Committee	Series illustrating tin.
	473	Swamsea Committee	Specimens of copper.
Austria	4	8t. Austell Local Committee Swampes Committee Sammik, J. F. Taylor, R. Temounet, G., and Dartet Temanat, J. Tessler, D. F. Thistleths wyte, H. F. Tombelle-Lomba, E. Tomslelle-Lomba, E. Tomslelle, G.	Cobalt ores, &c.
inited Kingdom	434	Taylor, R.	Model of mining machinery.
	394	Temsonnet, G., and Dartet	Fire-clays,
	14	Tennant, J	Collection of minerals, &c.
Prussia . United Kingdom	40	Tessler, D. F.	Amber.
United Kingdom	24	Thistlethwayte, H. F	Collection of precious stones.
Belgium	12	Tombelle-Lomba, E	Porcelain clay,
France	1508	Tousillon, C.,	Millstones.
		(Representative of M. Theil, Gerant	
Sweden and Norway .	36	Treschow,	Iron bars (quality).
		Treschow,	
United Kingdom	468		Series illustrating tln.
	9	Tunsberg Cobalt Works	Cobalt. &c.
Austria	13	Volderauer, Georg	Amenic, &c.
Austria	446		Iron and steel.
United Kingdom	431	Wales J	Model of coal-mine, &c.
Inited States	409	Ward W and I W	Copper orc.
Inited Kingdom	230	Wales, J. Ward, W. and J. W. Warlick's Patent Fuel Company	Patent fuel.
Canada	230	Wilson, Dr. J.	Magnetic iron ores, &c.
United States	416	Wingerworth Iron Company	Iron and steel,
	410	Wingerworth Iron Company	Millstones.
Wurtemburg	2	Zeller, F Zolesi, S	Slates,

CLASS II.

COUNCIL MEDAL,

		COUNCIL MEDAL,	
NATION.	No. in Catalogor.	NAME OF EXHIBITOR.	OBJECTS REWARDED,
ķ	1620	Cultural I II	Artificial altramarine,
Prance Tuscnny	24	Landard Count P do	Borneie neid, and method of preparing it.
United Kingdom	441	Guimet, J. B	Process for treating copper pyrites with commo
France	1682	Prat and Agard	salt. Salts of potash, and other products of sea-water
	-		
		PRIZE MFDAL.	
France	1049	Avignon, The Chamber of Commerce	Gnrancine.
		of.	
United Kingdom	45	Barnes, J. B.	Valerianates,
Austrin	312	Barnes, J. B. Batka, Wenrel Bischof and Rhodius	Metallic preparations, &c. White lead.
Netherlands	1	Bleekrode, Professor S., and Entho-	Oxido of zine.
			Oxido of zine.
United Kingdom	48	Blundeil, Spenco, and Co Bobée (Widow) and Lamira	Painters' colours.
France	1092	Bobée (Widow) and Lumira	Acetic acld and neetntes.
Sardinin	12	Bonjean, J	Ergotine.
France	376	Bouxwiller Mining Company, Thn .	Prussiate of potass, ninm, &c.
	27	Bramwell, T. and Co	Prussiate of potass. Succinio acid, and oxides of chromium and
Austrin	20	Bouxwiller Mining Company, Thn Bramwell, T. and Co. Brosche, F. X.	Succinic acid, and oxides of chromium and
United Kingdom	57		uranium.
United Kingdom	57	Brown, F	Oxide of zinc. Salts of ammonia.
Grand Duchy of Hesse	1	Brown and Co	Salts of numonia. I'llramarine.
United Kingdom	34	Buchner, W. Bullock, J. L. Burt, S. J.	Rare organic products,
United Kingdom	85	Burt, S. J.	Cantharniine.
Belgium	37	Burt, S. J. Cappellemans, Deby, and Co.	Pink sait, &c.
France	793	Cercenil L. P.	Dyed flocks.
Prussia	12	Cachina F F	Prussinte of potess
France	800	Colville, Mile, Annn	Prussiate of potass. Colours for porcelain painting.
	1156	Cappellemans, Dehy, and Co., Cerceuil, L. F. Cochius, E. E. Colville, Milo, Annn Coarred, W. Corridl, G.	Chemical preparations.
Tuscany	9:2	Corridi, G	Sentonine and other chemicals.
Tuscany	462		lodine, &c.
	807		i'ltramarine.
Prussin	458	Curtius, J.	Ultramarine.
United Kingdom	63	Curtius, J. Dauptaia, Gerton, and Co. Davenport, J. T. Davy, Mackmurdo, and Co. De Cavallion Dentith, W., and Co. Drouin and Brossier	Ultramarine.
-	111	Davenport, J. T.	Chemical producte.
	152	Davy, Mackmurdo, and Co	Glycerine, and various salts.
France	109	De Cavaillon	Salts of ammonia.
France	169	Dentith, W., and Co.	Salts and rolouring matters, and oxide of zino. Printers' colours, &c.
Sardinia	13	Drogin and Brossier	Quinine.
France	1229	Dufour, L. Fouché-Lepelletier	Chemical products.
Baynrin	12	Gademnn, H.	Ultramarino.
France	9:2	Fouché-Lepelletier Gademann, U. Gooffrey and Cooko Ulàbnei and Ellis Heinzen Brothers Henligsen, A. and W. Herbert, F. F., Baron von. Hills, F. C. Hopkin ned Williams Howards and Kent	Pharmaceutical products.
	10	Hähnel and Ellis	Sulphato of cupper.
Austria	26	Heinzen Brothers	
	24	Hemingway, A. and W.	Salts of Iron,
Austria	30	Herbert, F. P., Baron von	White lead, Glacial phosphoric acid, &o.
Prussin	683	Herrmann, O	Glacial phosphoric acld, &o.
United Kingdom	23	Hills, F. C	
	41	Hopkin and Williams	Chemical products.
	11	Howards and Kent	Alkaloids, and other preparations, Alum and pressintes.
_	13	Hurlet and Campeie Alum Company	Alum and prussiates.
W	86	Huskisson, J. W. and H	Chemical products.
Wartenburg United Kingdom	90	Jobet, F.	Quinine. Dried pharmaceutical herbs.
France	555	Vahlasan Parthan	Chamberland and death
France	13	Nunimann brotners	Chomical products.
United Kingdom	13	Hurlet and Cemptic Alum Company Hurlet and Camptic Alum Company Hurlet and Camptic Alum Company Jubet, F. Kent, J. H. Kublimans Brothers Kunhelm, Dr. Lonis Kurtz, Clement Augustus	Chomical products. Pink solt, and oxidn of uranium. Colouring matters.
France	591	Lefebre, T. and Co.	White lead.
	308	Lefebre, T. and Co.	White med.
Prussin United Kingdom	875	Leveux,	Ultramarino.
United Kingdom	107	MacFarlan, J. F. and Co.	Chemical products.
Prussin	464	Mathes and Weber	
Prussin	14	May and Baker	Chemicals; mercurial preparations.
France	916	Meissonier, Charles	Chemical products.
	925	Menier and Co	Pharmacoutical extracts.
_	640	Michel, A	Extracts; colouring woods.
Fnited Kingdom	17	Moberley, W.	Alum.
France United Kingdom	325	Morenu, A	Products of distilled bitumen.
United Kingdom	106	Morson, T. and Son	Organic products.
Prussia United Kingdom	329	Pauli, Otto	Phosphorus, &c.
united Kingdom	- 1	Pontifex and Wood	Tartaric and citric aclds, and other chemicals.

NATION.	No. in Catalogue,	NAME OF EXHIBITOR.	OBJECTS REWARDED.
Tuscany	25	Ridolfi, Prof. M.,	Artists colours for encaustic pointing.
Naceau	7 .	Röhr, F.	Ultramarine.
Russia	28	Saula,	Saits of lead, &c.
Saxony	10	Saxon China (Meissen) Manufactory, The Royal	Fine ultramarine,
Mecklenburgh-Strelitz	3	Scharenberg, A.,	Red lakes.
Russia	27	Schlippe, C	Prussiates; alum, &c.
United Kingdom	9	Schmersahl, Auguste Edward,	Ultranarine.
	61	Scott, L	Oxide of sine,
Wurtemburg	6	Siegle, II.	Red lakes.
United Kingdom	94	Smith, T. and H	Alolne and cautharadine.
France	1020	Soret	Oxlde of zinc.
United Kingdom	31	Spencer, J. A.	Chemical products,
arrows.	93	Souire, P.	Chemical and pharmaceutical products,
Prussia	460	Squire, P Stohmann and Wüstenfeld	Chemical preparations.
United Kingdom	119	Sturge, J. and E	Red obcarborus.
Belgium	26	Vicilie Montagne Zine Mining Com-	Oxide of zinc.
Austria	19	Wageumann, Seybel, and Co	Chloride of potassium,
United Kingdom	-	Wallich, Dr. N	For specimens of woods furnishing substance used in pharmacy.
	89	Ward, J	loding, &c.
	32	Watt, W	Indior. &c.
	103	Watte, J	Chemical and pharmaceutical products.
Prussia	681	Weiss, J. II	Red lokes.
	461	Wesenfeld and Co.	Sulplinte of soda.
_	334	Wiesmann, A. and Co.,	Products of distilled schist.
United Kingdom	6	Wilson, J. and Son	Abum.
man and a second	28	Winsor and Newton	Artists' colours
	7 n	Young, J	Stannate of soda; mineral oil; paraffine from coals, &c.
Frankfort-on-Maine .	3	Zimmer, C	Oninidine.
France	1536	Zuber, J. and Co	Ultramarine.

	HONOURABLE MENTION.				
Sardinia	7	Albani Brothers	Chemical products.		
France	1541	Anthelme, -	Alom.		
Prussia	826		Acotate of lead.		
	34				
Austria	313		White lend.		
Belgium	42	Bielbtreu, L	Alum, &c.		
Austria	21	Brasseur, E.	White lead,		
	435	Braun, G. J.	Stannate of soda.		
Franco	99	Brière, A. Brusghin, Alexander	Arsenical preparations.		
United Kingdom	4	Brusgnin, Alexander	Prussiate of potash,		
Citited Kingdom	3	Buckley, J. The Trustees of the late.	Copperas.		
Sardinin		Button, C.	Collection of chemicals.		
	11	Catloud, F.	Phloridzin,		
United Kingdom		Clifford, G	Process for restoring parchment inred by fire.		
	228	Cobbold, E. (Cl. 1.) , , , , ,	Peat products.		
France	1153	Coignet and Son.	Phosphorus.		
_	108	Collus, M. A. C.	Coal tar.		
United Kingdom	15	Cook, T. A.	Carbonate of soda.		
-	118	Copney, W.	Single crystals of salts.		
France	1180	Delignou, V.	Oil of schists.		
Prassia	7	Dubois, C. A.	Samples of cinnabar,		
United Kingdom	58	Ellam, Jones, and Co	Various plements.		
	227	Evans, G. (Cl. 1.)	Peat products.		
Belgium	38	Floretfe, Societe de	Chemical products.		
United Kingdom	55	Fowler, J. P.	Benzole acid.		
	44	Fox and Barrington	Various chemicals,		
France	1245	Gautler-Bouchard	Various colours.		
United Kingdom	75	Ilayes, P., and Co.	Resin oils.		
Austria	32	Herbert, Ignaz, Baron von	Red lead.		
Prusela	465	Hesse, Electoral Blue Colour Works	Cobalt and smalts, ultramarine.		
United Kingdom	60	of, Schwarzenfels, Johnson, J. R.	m		
Cinted Kingdom	102	Johnson, J. R.	Extracts, madder, &c.		
Austria	27	Kenting, T. Kinselberger and Co.	Matico, and other drugs.		
Austria	24		Various colours,		
France	581		L'itramarine, &c.		
United Kingdom	16	Lefevre, sen.	Oxide of zine.		
	16	Lindsay, G.	Copperns.		
		Lucas, Moritz	Samples of einnabar.		
Prussia	317	Maire and Co. Marquart, Dr. L. C.	Vinegar.		
United Kingdom	68	Marquart, Dr. L. C	Bisulphide of carbon, &c.		
t ancer Kingdom		Marchall, J.	Lichens.		
United Kingdom	2	Melinerythan Chemical Company .	Acetate of lead.		
I nited Kingdom	26	Miller, T. (Fine Art Court) (Cl. xxx.)	Various pigments.		
Hesse, Grand Duchy of	26	Mustial, Professor C	Lake colours and varuish.		
		Ochler, K.	Tar oil.		

NATION,	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED,
United Kingdom .	, 225 8 485	Oxland, Robert (Cl. 1.)	Peat products.
	113	Oyler, 8	Sperimens of lint.
	33		Purified rum.
	121	Pinto, Perez, and Co	· Acetate of lead.
Netherlands	. 2	Poortman and Visser	White lend.
United Kingdom .	. 108	Pound, M	Buil, a new astringent drug.
-	7	Reeves and Sons (Fine Art Court)	Various pigments.
_	6	Robertson and Co. (Fine Art Court) (Cl. xxx.)	Various pigments.
	240	Rogers, J. (Cl. 1.)	Pent products.
France	. 1452	Rosselet, C. P. II	Chemical preparation for restoring gold an silver embroideries.
United Kingdom .	. 3	Rowney and Co. (Fine Art Court) (Ci. xxx.)	Various pigments.
	59	Russell and Robertson	Chromate of lead.
Sardinia	. 10	Saluce, M	Pharmaceutical collection.
Spain	212	Sauto, Ambresio	Collection of pharmaceutical preparations.
Bavaria	. 14	Sattler, W	Various lakes.
	15	Schruck and Uhlich	Chramarine.
Austria	. 23	Setzer, Johann	Cadminar yellow, and ultramarine,
United Kingdom .	. 7	Spence and Dixon	Alum,
	20	Stevenson, W	Carbonate and bicarbonate of soda.
Netherlands	. 3	Stratingh and Co	White lead
United Kingdom .	. 7	Tennants, Clow, and Co	Various saits.
	21	Tulloch, A. T., Capt	Materials used in the manufacture of gunpow- der, &c.
Anstria	. 18	Weber, G. D	Cream of tartar.
United States	. 1 43	Watherell and Brother	Various salts.
United Kingdom .	47	Wood and Redford	Lichena.

		CLASS III.	
		COUNCIL MEDAL.	
NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	Objects Rewarded,
United States France		Borden, Gail, jun	The preparation called "meat biscuit." The Gruaux and household four, of very fin quality, obtained by his novel and economics process.
-	667	Grar, N., and Co	The sugar obtained from beet-root by the baryti
United Kingdom .	. 105	Lawson, Peter, and Son	process. Their admirably displayed, very complete, is structive, and selentifically arranged collection of the vegetable products of Scotland.
France	. 1348	Masson, E	Dried vegetables prepared by bls new an
_	1483	Serret, Hamoir, Duquesne, and Co	economical process. Best-root sugar, procured by a method, the resu of which is to save valuable substances pri viously lost in the manufacture, and conse quently to reduce materially the price of th sugar itself.
		PRIZE MEDAL,	
	1		1
United Kingdom . Ceylon	107	Albrecht, Greenhill, and Co	Sample of beans and winter outs. A very fine series of clasamon.
India	: -	Aska Sugar Factory, Madras Presi- dency.	Ganjam sugar.
United Kingdom .	. 143	Assam Company	Assortment of teas.
ladia	36	Astagram Sugar Company	Different kinds of sugar.
British Guiana .		Anderson, G., and Co	Sugar.
Spain	. 139n	Aviles, The Borough of	A Montanches ham. Wheat (Arnaout) from the Government of
Russia	. 29		Saratoff.
Cape of Good Hope	. 46	Bam, J. A	Soft wheat.
United States	. 246	Baroes, W	Maple sugar.
United Kingdom .	. 116	Batty and Feast	Pickes,
	. 52	Baup, H	Meats preserved by simple desiceation.
Switzeriand			
France	. 1073	Bazin,, sen	A new variety of wheat, and an important colle- tion of agricultural produce. Soft wheat from Genesses.

NATION.	No. in Caralogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom	\$9	Benson, W	A fine selected series of varieties of American and other tobacco, raw and manufactured.
Sardinia	18	Biondei, Gastan, and Co	Rice.
United Kingdom	162	Buck, Peter, and Son	Ontmeal and wheat-flour,
France	1126	Cabanes and Rambié	Flour (thirds).
Lubeck	121	Buck, Peter, and Son Catanes and Kambie Carstens, D. II. Chevat,, jus. Christie, D. Clarence, R. Claus and Caron Cleons, J. Colem and Caron	Excellent preserved meats. Preserved meats and vegetables.
France United Kingdom	159	Chevat, jua	Fiour (best whites).
		Christie, D.	White wheat.
Cape of Good Hope Belgium United Kingdom	54	Clarence, R.	Dried fraits,
Belgium	81	Claus and Caron	Cane sugar.
United Kingdom	36	Clescens, J.	Malaga raisins and Jordan almands.
	49	Copland, Barnes, and Co	Havannah cigars (Ugues Brand). Preserved meats and vegetables.
Russia		Corracks on the estates Petrofficais	Wheat, black and blue-eared, called Booigarks.
		and Novu-Spas-kaja (Azof Sea).	
France	465	Crospel-Delisse, T	Beet sugar.
Partugal	412 to	Da Fonseça Vaz, Pinto	Dried fruits.
France		Damainville,	Artificial honevenmb.
United States	245	Dean, L	Manle sugar
Van Diemen's Land .	-	Deane, Dray, and Deane	White wheat,
Spain	-	Dean, L	
			process in the plautation itself.
France	47	De Beauveys, Cb	A hive on the plan of fluber.
France		De Cabañas and Cahazal	Cigars of Havanush (Cabanas). Chocolate.
France			Sugar from Hayannah,
Spain	273		Cavendish tobacen.
-	363	Duffield, C	
India			A collection of rices, tens, spices, and cigars. Cane sugar from Velez, Malaga. Fino samples of milets (Panicum miliacum et Italiana)
Spain	176	Enriquez, J. N. Ershoff, Lieut,-General	Cane sugar from Velez, Malaga.
Russia	60	Ershoff, Lieut, General	et Italicum).
Tunis	- 1		A collection of varioties of dates.
		Etteib-Mehsen	Soft white wheat,
United Kingdom		Faulkner, R. and C.	Preserved fruits.
France	505	Ferr, A.	Rice, from the Landes of Bordeany.
	209	Fery, A	A series of fécules, and similar substances.
Canada	7	Fisher, Arthur Fortnum, Mason, and Co.	Mapie sugar.
United Kingdom	55 31	Fortnum, Mason, and Co Fry, Joseph Storrs, and Son	A fine collection of dried fruits. Series illustrating the manufacture of cocoa as
	12		Preserved meats.
Bradials.		Gamble, J. H	Vino di Arancio.
Sardinis		Garassini, P	Dried figs.
	418	County, 5, 2,	
	to 490		
Spain United States	126A	Gonzalez-Aiverá, Buenaventura	Cigars of Havannah (Ramas).
United States		Grant, J. H.	Cavendish tobacca.
Grenada		Grose, H	Nutmegs. Preserved meat and vegetables.
France	1202	Gunery, Designatelles, and Ca	Wheat (white soft); wheat flour,
Labuan		Hammond W P and Co	Sugar and ten from Siam, and spices.
South Australia		Heath and Burrows	Wheat (white soft).
United States	114	Grose, H Guibery, Deslandelles, and Ca. Hallet, R., and Sons Hazmeond, W. P., and Co. Heath and Burrows Hecker and Brother Heriot. E. T.	Genemee flour,
-	172c	Heriot, E. T.,	Carolina rice.
United Kingdom	7	Hills and Underwood	Mait vioegar.
France	1277	Jenoti, Prevost, Perraud, and Ca. Janus, E., and Brothers	Beet sugar. English cigars, manufactured from Havanna
_	43	James, B. and Co	tobacco. A collection of Havannah elgars, representing the state of the English market.
Canada	41	Iones D	White pear.
Canada		Jones, D	Gruaux and common flaur.
	150	Kidd and Podger	Figur.
United States	84	Kirtland, B. B	A collection of maize, thirty-four varieties.
Russia	32 40	Kidd and Podger Kirthand, B. B. Koucheleff, Count Lambert and Butler	A collection of corn and hops. English eigars, manufactured from Havanus
Jersey and Gnerusey .	. 2	Le Couteur, Colonel	A series of wheats,
Algeria	33	Lepellatier	Soft wheat,
Canada	40	Limoges, D.	White peas. Snaff.
United Partiguom		Lundy Font and Co	isingless, from the Polynomus plebrius.
Borneo		MacHenty, -	Coffee.
India Borneo United Kingdom	114	MacKillican James	White wheat.
Van Diemen's Land .	-	MacPhorson and Francis	Wheat.
France	1337		Macaroni, varmicelli, and hard wheat a
-	1339	Maille and Segond	Wine vinerar aromatized.
United Kingdom	79	Mannd, B.	Hybrid wheats.
Speig.	66	Mannd, B Medina del Campo, The Mayor of .	Wheat.

NATION.	No. in Catalogue,	NAME OF EXHIBITOR.	OBJECTS REWARDED.
Van Diemen's Land .	53, 54, & 55	Milligan, A. M	Biscuite.
United Kingdom	8 55	Milton, J. (Cl. 1x.)	Improved cottage bive.
	34	Monteiro, L. A	Chorolete
New South Wales	139	Moore, Edward Duke	Preserved milk and creum.
New Youth Wales	7	Newcastle, N. S. W., Fresh Mont Pre- serving Company.	Preserved boiled mutton.
United States	83		Collection of wheats
United States United Kingdom	62		Golding's hope.
	29		Macaruni, vermicelli &c.
United Kingdom	82 343	Payne, II.	Revitt wheat.
France	1203	Perrou, E. Portugal Royal Tobacco and Snuff	Chorolate. Cigars and souff.
	to 1207	Company.	Cigare aux soun,
Trinidad	~	Purdie, W	Nutmegs, cloves, black pepper, and elgars corns, prepared for the Spanish market.
United States	124	Raymond and Schuyler	Flour (thirds), Hybrid wheat,
United Kingdom	74	Raynbird, Hugh.	Hybrid wheat, Ham,
Canala . United Kingdom .	5:2	Richardson Brothers	Roll inbacco and spuff.
	59	Richardson, Timothy, and Sons	For Golding's hope, grown by Mr. Phillips, of
Austria	57	Richter, Anton, and Co	Beet sugar,
Austria China United Kingdom	15		A large assortment of tens of the finest quality.
Canada	126	Rothe and M Call. Robb, J. Robinson, P. Roussaneff.	Preserve meat.
Canada	263	Rehipson, P.	Caveulish tobacco
Russia	66	Rossanoff	Witeat flour,
France		Romsean Brothers	Beet sugar.
Russia	200	Rousseau Brothers Schooley and Hough	Hom (Cincinnati). Oats, grown from English seed.
Marie	42	Shabelsky, Colonel	Wheat (land Odessa).
Canada	44	Simpson, J. and Co	Wheat flour.
	64	Schooley and Hough Selivanoff, Shabelsky, Colonel Simpson, J. and Co. Smith, B. Snowden, R.	Hops.
United Kingdom	28	Snowden, R	Coffee prepared by his process of separating the tough membrane from between the folds of the seed or berry.
Russia	76	Spiglazoff, Alexis	Russian eighrettes, from Russian-grown tobacco
		Squair, R. Stein and Schröder	Oatmenl,
Grand Duchy of Hesse	81	Stein and Schröder	Hops.
Turkey	-	Sublime Porte, The	Hard wheat, and a very fine collection of Turkis tobacco; also honey.
United Kingdom	53	Travers and Co	A collection of spices.
France	1046	Travers and Co	Checolate.
Spain		Valencia, The Province of	Samples of rice.
United Kingdom	1500	Vezon Brothers	Gluten, granulated. Russian isingless.
Austria	62	Vienna, The Privileged Steam Flour	Flour.
France	733		Chocolate.
Canada	38	Watts, R. M. Webb, Richard	Polish outs.
United Kingdom	72	Webb Brothers and Co.	Talavera wheat.
Mauritius	695	Wittekep and Co	Mucaroni, vermicelli, &c.
	-	HONOCRABLE MENTI	ON.
Canada	67		Maple sugar.
	38	Bales, J. Beuham, W.A.	Cocos,
Belgium	78		Very fine points, flour
United Kingdom	41		An assortment of fine unmannfactured tobacco.
United States New South Wales	- 2	Bridge, John	Oil-cake. Spiced beef hams.
United Kingdom	16	Briears, J. Brocchleri, P	Blood, preparation of, for alimentary purposes.
	687		Beet sugar,
Canada . United Kingdom	-		Arrowroot.
United Kingdom	68		Oil-cake (cotton seed). Sardines.
France		Camba Mannal	Olives.
India.	-	Carew and Co.	Loaf sugar from Robilcund.
France Spain Prussia Spain France	468	Carstanien, A. F. Sons	'Cigars.
Spain	105		Dried ralsins.
	1558		Honey.
Algeria		Chapel, —	Canna arrowrest. Chocolate.
Prante	15	Christiani, C. H.	Beer (for ships' use).
Prussis	456	Chapel, —	Beer (for ships' use). Fine pearl barley, vermicelli, and similar prepara- tions.
	1570	Courtin Raouit	Wine vinegars.
United Kingdom	92	Cronghton, W. P.	Golden pod beam, Black offices, small and of great excellence.
Portugal			



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		Daviem, W. (Demerara), Daver, Thomas, and Sons, Daver, Thomas, and Sons, De Arvert, J. De Jonik, Marquis De Jonik, Marquis De Jonik, Marquis De Mattes, J. B. Despilat, Widow L. Dewar, T. Eurlaper, J. Eurlaper, J. Eurlaper, J. Eurlaper, J. Felecher, T. Fernar, W. J. Frieder, J. Frie	
British Guiana	12	Davison, W. (Demersra)	Plantain meal,
British Guiana Canada Spain Belgium Portugal Belgium Switzerland United Kiogdom	65	Dawes, Thomas, and Sons	Hops,
Sinnin	100	De Alvear, J	Dried plums.
Bahrlurn	61	Degree Louis	
Destruct	401a	De Loule, Marouis	Cyperus esculentus,
ioreigae	593	De Metter I D	Honey.
70 1 1	64	Dequidt, Widow L.	Hops from Poperinglie.
Beignum	64	Dequiat, widow L	A straw bechive.
Switzerland	71	Destraz, L	Preparations of mustard,
United Kingdom	119	Dewar, T.	Preparations of assistand.
Spain	106	Euriquez, J.	Dried figs.
Greece	14	Euborn, The Bishop of	Houry (Rhodomeli).
Ceonda	59	Fisher, J.	Seeds of camelino. Capillaire, and raspherry vinegar. Preserved salmon.
	127	Fletcher, J	Capillaire, and puspherry vinegar.
New Brunswick	-	Frager W 1	Preserved salmon.
New Brunswick Cape of Good Hope .		Fradricheon I E	Wheat flour,
United Kingdom	102	Chart C	Barley grown at Pitlochry (600 feet above to
t inted Kingdom	102	G10100, C	sen).
	133	000 1 - 10	Wood vinegar.
Canada France United Kingdom		Gillespie and Co	Sardines.
France	521	Gillet, A	Sandines.
United Kingdom	63	Golding, R	Golding's hops.
Bermuda	1	Gray, B. C. T., and Soo	Arrowcoot.
Bermuda	246	Gremailly	Galnotine de perdreaux.
	530	Gillesple and Co. Gillet, A. Golding, R. Gray, B. C. T., and Soo Gremalily, — Groult, jun. Hirshamann, Hirshendorf, and Ra-	Collection of feedles.
Possia.	79	Hirshmann Himbandorf and Da	Beet-root sugar,
Russia		vitch. Holliday, Tristram Hooper and Co. Hotchkies, W. Hussegira, The Estate of.	many source sufferes
		vicen.	Preserved salmon.
Nova Scotia		Holliday, Tristram	Malt,
New Zenland	39	Hooper and Co	Mair,
United States	342	Hotchkies, W	Wheat.
Cevlon		Huonsgiru, The Estate of	Cuffee.
Nova Scotia New Zenland United States Ceylon Canada Egypt	62	Jeffries, G. Illiano Pasha, H. H.	Clover seed.
Eavet	90, 91	Ilham Pesha, H. H.	Petit mais, samples of.
recht	8 92		
Cape of Good Hope .	52	Joubert, J. G. Juson, W. Karnoviteth, E. Kirkless, The Estate of Kitcheser, W. C. Khokkolkoff and Gregorjeff	Honey. Wheat flour.
United Kingdom	95	Juson, W.	What four
filited Kingdom		Justin, W	Rape-seed.
Russin	31	Karnoviteh, E.	Coffee.
Ceylon	- 5	Kirklees, The Estate of	Conec.
Russin	5	Kitchener, W. C	Honey. Dried green pers. Whent (hard).
Russia	63	Khokholkoff and Gregorjeff	Dried green pers.
	35	Klepatsky,	Wheat (hard).
France	1640	Laugier	Houey. Flour (thirds).
Alcorda	39	Lava and Co	Flour (thirds).
Verner.	297	Loblana A	Flour (household).
France	530	Khokholkoff and Gregorjeff Klepataky, — Laugier, — Lavya nad Co. Lee, James, and Co. Lee, James, and Co. Leenolt, A. F. Lerville, J. Levey, J. Lipecombr, F.	Oll-cake.
United States	303	Lee, James, and Co	Cho'en (a mixture of coffee and chocolate).
trance	591	bemon, A. E.	Chlores
	391	Lervilles, J.	Chicory. Tobacco for eigar-making.
Canala	73	Levey, J.	1 obsects for eight-making.
Van Diemen's Land .	297	Lipscombe, P	A ham.
Austria	58	Lobkowitz, Ferdinand, Prince von .	Beet mgar.
France	1334	Mabire, iun.	Wheat (English and Russiau).
	153	MacCapa, J.	Ontinent.
Caunda	61	MacGion T.	Timothy-grass seed.
De Maleon	3	Magnus, 8.	Coffee.
Cinited Kingdom Cannila St. Helcon St. Helcon France New Zesland France Spain United States	133	Marao R	Pimientos de Vico (Logrofio), or sweet capsicum
cj	922	Manage de Manage	Consolidated milk.
rrance	922	Mikron de Ligone	Barley,
Acw Zestand	. a. I	Martin, Hilgh	Chocolate.
France	925	Menter and Co	1 nocomic.
Spain	180	Molina, A	Honey from El Morai de Caistrava.
United States	8	Mooklar and Chiles	Cavendish tobacco.
India	-	Morris, Captain	Coffee.
United Kiondom		Mortlock, Miss	Honey.
India. United Kiogdom Cape of Good Hopo	36	Lobkowitz, Ferilanad, Prince von Mahre, — jun. MacCuna, T. MacCuna, T. MacCuna, T. MacCuna, T. Maryane, S. Marin, de Hapate Martin, de Hap	Cigars.
South Australia	4	Motor D F and M	Australian wheat and flour; preserved meats.
	ni l	Miller 1 19	Cigars.
Grand Duchy of Hesse	1 22	France, J. P	Turkish tobacco, from the Caucusian province
Grand Duchy of Hesse Hussla Austria Rutsia Npain United States United States United States United States France	75	Mustapha idaroff	Beet sugar.
Austria	56	Neuwall Brothers, Chevallers de	neet sugar.
Russia	338	Nikita Vsevolodowitch Vsevolojsky.	Caviare,
Spain	107	Olmo, José	Dried peaches.
I nited States	104	Oswego Starch Factory	Fecula of maize.
Hussia	54	Onnkovsky	Onts.
United States	305	Oyler and Anderson	Cavendish tobacco.
United Kingdom	22	Payne and Son	A collection of sauces and condiments.
t med Kingaon	948	Deller Brothess	Sardines
trance	948	Peliler Brothers	Sardines, and reast matten (preserved).
	956	Penenu, J	carmins, and reast matten (preserved).
Hamburgh United Kingdom	.5	l'eterson, John	Rape cake.
United Kingdom	66	Peterson, T.	Collection of oil cakes.
Deumark	1	Puggsard, H., and Co.	Barley.
Melto	1 4	Pulis G.	Fine white wheat,
Russia	49	Ratabinsky	Smolensko grita from huckwheat.
Russia	49	Raumiah Planete	Rariay
New Acassand	1686	Wennick, Lindone	Barley. Wino vinegars.
		Augment, -, jun.	Beet sugar.
Austria	55	Robert and Co	Dect sugar.
United Kingdom Denmark Maita Russia New Zealand France Austria France France	95 47 994	Nikha Newtodowich Wewodpity Olmo, José Omro, Shach Factory Olmo, José Owrop Shach Factory Olye and Madreron Fayne and Son Fayne	Barley. Preserved "petits pois."

NATION.	No, in Catalogue.	NAME OF ЕХИПП т ов.	OBJECTS REWARDED,
United Kingdom	47	Sales, Pollard, and Co	. English-made Yara eigars.
-	144	Snunders and Gatchell	Chicory.
	70	Sheppard, A	Wheat, malt, and barley, samples of
Russia	69	Sorokin, Catherine	Chicogy,
United Kingdom	138	St. Etienne, Madame D	Spinach, preserved by drying.
-	112	Sutton, J., and Sons	Naked barley,
-	77	Taylor, John, and Son	Malt.
United States	528	Thomas, James	Cavendish tobacco.
	268	Thomas and Co.	Cavendiali tobacco.
Austria	60	Tlumacz Beet-root Sugar Manufactors	Bret surar.
Van Diemen's Land .	47	Tooth, E	Malt
Canada	5:2	Trealiolme, E	Buckwheat, and its flour.
United Kingdom	71	Truro Local Committee, The	Samples of corn from Cornwall.
Greece	13	Tsitzimbakos, A	Honey (Hymettus),
Netherlands	63	Van der Linden, A	Cigars.
Belgium,	65	Van Meries, Madame	Hops from Poperinghe
	82	Vercauteren, J. L.	Linsred oil cake.
	91	Vercruysse, H. and D.	Rape cake.
France	1528	Violette, J. H. M.	Bisenits.
russia	332	Waid, F.	Potato sago.
Yan Diemen's Land .	51	Walker, J.	Fine flour.
United Kingdom	21	Warrinor, G.	Osmazone.
Prussia	20	Weill, C.	Preserved larks and fruits.
nited Kingdom	33	White, G. B.	English chocolate.
United States	397	White, M.	Muscovado sugar.
Russia	51	Zilfoogar-Beek lskander-Beck Ogli .	Paddy, called Chaltik.

CLASS IV.

COUNCIL MEDAL				
NATION.	No. in Catalogue.	Name of Exhibitor.	Objects Rewarded.	
United Kingdom .	. 106	Belfast Flax Improvement Society, The Royal	The persevering and successful efforts to improve the quality of the fibre of flax, as illustrated by the series of specimens exhibited.	
France	. 245	Granv, Jean Louis (de Manchamp) .	The origination of a new and valuable quality of wool, giving to the variety of Merino the best quality for combing, and possessing increased strength, brillingey, and fineness of fibre.	
	217	Grenet, l., F.	A new and improved mode of obtaining a pure, incolorous, and colourless gelatino from the refuse parts of animals, and valuable and diver- sified modes of applying the materials, as Illus- trated in the collection exhibited.	
United Kingdom .	. 48	Mercer, John (Cl. xviii.)	The process of modifying the fibre of cotton by the action of caustie alkall, whereby its physi- cul and chemical properties are altered and improved in a most remarkable manarr.	
France	. 1404	Popelin-Ducarre ,	The novel and economical mode of preparing vegetable charcoal from the small branches of trees, and from annual plants.	

PRIZE MEDAL.					
Egypt United Kingdom France India Portugal India Bussia France	49 1050 530 99 8	Abial, Hamid Adams, John. Alean and Linet Alean and Linet Collection of raw produce. File. Nill. File. Nill. File. Nill. File. Nill. Nil			
Cape of Good Hope France British Guisan . France . United Kingdom . France . United Kingdom . Austris . India . Belgian .	3 30a 1076 74, 76 1078 130 61 21 93	Averency, Deborne, and Co., Palm fibre. Cotton. Borg. 7. Cotton. Borg. 8. Cotton. Borg. 8. Cotton. Cetton and woods. Borg. 8. Cotton. Cetton and woods. Borg. 8. Cotton. Borg. 8. Cotto			

AIVI		SCRI AWARDS—I STAG		LANA
NATION.	No. In Caralogue,	NAME OF EXPIDITOR.	OBJECTS REWARDER.	
Butth Colors	71 74	Biair, D. Binadell, Mr. Bond, S. Boucherie, J. A. Bondon, i.	Cotton,	
British Guiana	/1, /2	Binadell Mr.	Collection of woods.	
India	37	Bond C	Cotton.	
Exames	1104	Boughanie I A	Wood, preserved.	
	1105	Bondon I	Silk.	
British Guiana	-	British Guissa, The Royal Agricul-	Colonial produce.	
France	782	Bronno-Broaski, Major Count de . Broussa, Ecole de Siriciculture, de . Brown, W . Brownrigg, — .	Silk.	
Turkey New Zealand	-	Broussa, Ecole de Siriciculture, de .	Silk	
New Zealand	16	Brown, W	Kauri gum.	
	107	Brownrigg, — Brünneck, von O. Burch, W. Bura, H. (Cl. in.) Bornett, Sir W. Bask, C. J.	Woods.	
Prussia	45 & 46	Brünneck, von O	Wool,	
United Kingdom	77	Burch, W	Collection of dye substances,	
-	68	Burn, H. (Cl 111.)	Cotton-seed oif,	
	7	Bornett, Sir W	Preserved woods.	
Cape of Good Hope .	60	Busk, C. J. Butterworth, Hon. LleutCol.		
Cape of Good Hope . India	150	Butterworth, Hon. LleutCol	Colonial produce.	
Spain		Calderon, J	Hemp, flax, and slik. Executial oils.	
Cape of Good Hope .	242A	Canales, J.	Essential cals,	
Cape of Good Hope .	-	Cape of Good Hope, The Agricultural Society of	Cape produce.	
Sandinia	27			
Sardinia	107	Castelle II	Gelatines.	
	114	Champanhet-Sarreas J.	Silk.	
Algeria Cape of Good Hope	17	Chuffart	Cottons,	
Cape of Good Hope .	13	Clarence R	Sheep's-tail oil.	
	105	Claussen, P.	Flax and flax cotton process of prepari-	ar it.
India	-	Clephorn, Dr.	Gambore,	- pr
	- 1	Casselle, II. Champanbet-Sergeas, J. Champanbet-Sergeas, J. Chaffart Clarence, R. Claussen, P. Cleyborn, Dr. Ceckburn, Mesers. (Moorshedabad)	Starch,	
United States	-	Cockerill	Wool,	
	301	Cockerill, —	Starch.	
South Australia	-	Colonization Assurance Corporatioa, per W. B. P. Wood. Collas, M. A. C	Collection of raw produce.	
France	801	Collas, M. A. C.	Essential oils, &c.	
France United Kingdom	117	Colman, J. and J. (Cl. nt.)	Starch.	
Algeria	22	Curtet, jnn	Collection of oils,	
United Kingdom	126	Curtis Brothers, and Co	Tanaing substances.	
India	- 1	Cutch, H. H. The Rajah of	Raw produce.	
Belgium	98	David and De Boe		
Belgium France Algeria Van Diemen's Land	1613	David and De Boe De Geinlay De Montigny, G Denison, Sr, W. T. Desmedt and Co. De Tillancourt Dorries, C. Drotin and Brossler Drotin and Brossler Ducci, A.	Cotton oll.	
Algeria	38	De Montigny, G.	Dyes.	
Van Diemen's Land .	104	Denison, Sir W. T	Collection of raw produce.	
Belgium	697	Desmedt and Co.	Elex.	
Belgium	81	De Tillancourt	Wool.	
United Kingdom Spain France Trance Trance Mauritus Algeria France India Austria Russia United States Prussia United Kingdom Austria	215	Dornea, C.	Silk.	
spain	163	Dotres and Co	Nilk.	
Trance	82	Dredit and Brossier Duesel, A., Duesel, A., Duesel, A., Duesel, E. Duesel, E. Duesel, E. Duesel, E. Duesel, E. Esperanan, E. Esp		
Parties	177	Ducci, A		
Mauritina	2	Dupost, E.	Silk.	
Aireria	23	Dupré de St. Maur	Cotton and madder.	
France	189	Duval, A.	Silk.	
India.	-	Elliot, W. (Viregeratem).	Cartimuudoo (resia).	
Austria	22	Hlliot, W. (Vizagapatam).	Starch gum.	
Russia	106	Esthopia, Government of	Flax.	
United States	188	Ewing, J. 11	Wool.	
Prussia	95	Fablan, C. G.	Piac-needic fibre and oil.	
United Kingdom	135	Fauatleroy, R. and Sons	Collection of woods and ivory.	
Austria	10	Figdor, Isaac, and Sons . ,	Wools,	
Russia	103	Filemonoff, Kosma	Hemp.	
India.		Fischer, G. T. (Salem),	ladigo obtained from "Wrightia," and	cotton.
an Diemen's Land .	82-89	Fineter (Maria Island)	Woods.	
Tuscany	43	Franceschiul, G	Silk,	
russia	27	Franceschini, G. Franceschini, G. Frankenfelde, The Royal Flock at Garnett, H. T. Gibelin and Son.	Wool.	
British Gwana	31, 32 846	Garnett, H. T	Starch, cassava.	
France	105	Gibelin and Son		
Belgium	1249	Gilta, J. L	Hemp. Wool.	
rance	1249	Girod (de l'Ain) le General	Oil of roses,	
adia	863	Godfrey, Messrs. (Ghazeepore)	Wool.	
Prussia	73	Graff, W.	Wool.	
Yan Diemen's Land Tuscany, Prussia British Guiana France Selgium France adia Prassla Austria	13	Gratz, Stelermark Silkworm Breeding	Silkworms, breed of.	
	784	Association at Guerin-Meneville and Robert	Silk.	
France	704	Gwalier, II.II. The Maharaja Rao	Fixed oil,	
Van Diemen's Land .	103	Hadden, Capt., W. C	Woods.	
Trussia	690	Halter, J. C.	Wheat starch,	
ndis.	·	Hammoud, W. P. and Co	Collection of Siam produce.	
inited States	1728	Sciadia, or Haiden, Capt., W. C. Haller, J. C. Haller, J. C. Hazmoud, W. P. and Co. Hampton, W. Hardy, A. Hardy, A. Hardy, F. Hardy, A.	Cotton.	
Algeria	28	Hardy, A	Cotton and cochiseal.	
	866	Harris, Lord (Governor)	Escential oils, &c.	
rance				
van Dremen's Land Prussin India United States Algeria France Friaidad United Klagdom	-6	Harrison, R. and J	Produce of Trinidad, Collection of woods,	

NATION.	No in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARRED.
Labuau	_	Hentig	Borneo cotton.
Spain	230	Hernandez, J.	Wool.
nited States	559	Hicks, George	"Tillandsia usnoides."
I'nited Kingdom	28	Hillas, F.,	Purified oils.
inited states		Hentig Hernandez, J. Hicks, George Hillas, F., Ilolmes, G. L. Hottzapffel and Co. Hood, R. V.	Cotton.
Van Diemen's Land	14	Holtzapffel and Co., ,	Collection of woods for turning.
Van Diemen's Land .	111	Hood, R. V	Woods,
	to 120		and a second
Colted States	156	Hotchkiss, H. G. and L. B Huffnagle, Dr. (Calcutta)	Oil of peppermint, Series of lacs, &c.
India. British Guians. France	74 4 8 0	liuffnagle, Dr. (Calcutta)	Cotton,
British Guiana	881	Hughes, P	Essential oil.
rrance	991	Hugues, jun. Hunter, Dr. (Madras)	Vegetable fibre and woods.
Austria	89	Hunyady von Ketheley, Count Joseph	Wools.
Austria	40		Vegetable fibres.
	26	Hutchinson and Co. Jacquet, H. and Co. Jacquet, W. and Co. Jame, Blanchi, and Duseigneur Jardine, D. Calcutta) Jenkins, Major F. Jennines, C. R.	Silk.
Tuscany	-	Jacger, W. and Co.	Silk.
France	1273	Jame, Blanchi, and Duscignour	Silk.
India.	-	Jardine, D. (Calcutta)	Silk.
	-	Jepkins, Major F.	Assam produco.
	-	Jenkins, Major F. Jennings, C. R. Jeypore, H. H. the Rajah of Jones, J. R. Jones, J. V. Jones, O. and Co. (Cl. 111.) Jonualsh Factory. Proprietors of	Silk.
	-	Jeypore, 11, H, the Rajah of	Attar of roses.
United States	172A	Jones J. R.	Cotton.
	172	Jones, J. V.	Cotton,
United Kingdom	128	Jones, O. and Co. (Cl. 111.)	Starch from rice.
India	-	Jones, O. and Co. (Cl. 111.) Jordah Factory, Proprietors of Joubert-Bonnaire and Co. Karnovitch. E.	indigo.
France	552	Joubert-Bonnaire and Co	Hemp.
India,	101	Karnovitch, E	Flax.
	117	Kaufmann, A	Woods.
India	-	Kerr, W. Key, Professor J. (Madras) Kimber, A. M., and Co.	Gutto percha,
	500	Key, Professor J. (Madras)	Fixed oils.
United States United Kingdom		Kimber, A. M., and Co	
United Kingdom	2	King, Emma.	Anatomised plants. Fixed oils.
India	-	Kishingurh, H. H. the Rajah of Kotah, H. H. the Rajah of	Collection of raw produce.
Donale	340	Kotan, II. II. the Rajan of	
Russia	100	Koudriaffzeff Jadenotisky, Basile .	Hemp.
Dannia	29	Krasheuenekoff	Wool.
Prossia	550	Lailter, E. H.	Flax.
	286	Laine Laroche, and Max-Richard .	Heinp.
Foliad States	330	Lak, D	Cotton.
United States France	1272		Silk *
Amatria	92	Lepeyre and Dolbeau	Wools,
France	905	Large and Lagrain	Dye colours.
Portugal	497	Leak F. M. C.	Collection of oils, fixed and volatil
	to 500		
France	576	Leclere Brothers Fefevre, Klizea Lepori, T. Lindenberg, J.	Hemp and flax,
	1312	Fefevre, Elizea	Wool.
Tuscany	47	Lepori, T	Silk.
Cape of Good Hope .	-	Lindenberg, J. Lisinsk Forest Institution. Loule, Marquis da	Vegetable wax,
Russia	83	Lisinsk Forest Institution	Birch oil, turpentine, &c.
Portugal	553	Loule, Marquis da	Collection of woods.
	to 578		Wool.
Prussia	24 42	Lähbert, R.	
New South Wales	43	Lüttwitz, Baron von Mac Arthur, Coi.	Collection of wools.
New South Wates	-	MacArthur, Col	
India	17:2n	Mackenzie Brothers (Bengal)	Cotton.
India		Macleod, W. W. MacNair, Messrs, MacNair, W. (Surdah) MacNaughten	Indigo,
muna,	=	MacNair, W. (Surdah)	
Van Diomen's Land .		MacNamhten	Woods.
Spain	186	Madrid, The Cabinet Botanical Gar-	Collection of Cuba woods.
Cape of Good Hope .	11	Manuel C.	
Spain	234	Manilla, The Economical Society of	Fibrous substances and woods.
Spain United Kingdom	114	den of Manuel, C. Manilla, The Economical Society of Markwick M. Martinez P.	"Spongio-pilina" fabric.
Spain	156	Martinez, P	Hemp,
United States	371	Maryland, The State of	
Turkey	-	Mighirditz Djezairgion	Silk.
Algeria	37		Oile.
Spain United States Turkey Algeria France United States	1356	Mero, C. D	Essential oils.
United States	164	Merriweather, J. B	Cotton.
	557	Mevissen, G	Flax.
Van Diemen's Land .	-	Milligan, J	Collection of raw produce.
United Kingdom	85		Collection of Irish wools.
Austria	91	Mittrowsky, Count Anton von	Wools,
	647	Molines, L	Silk.
Franco	2022		Silk.
Franco			
Franco	80	Montreal Central Commission	Collection of woods.
Austria Franco Spain Canada Algeria	80	Montreal Central Commission	Cotton and silk.
France Spain Canada Algeria New South Wales France Turkey	80	Montreal Central Commission	Collection of woods. Cotton and silk. Tallow, Dyes, Silk.

XIVIII		JURI AWARDS-PRIZE	MEDAL.
Nation,	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
	199		1
Spain	178	Murcia, The Province of	Silkworm gut and madder. Cotton.
United States Wurtemburg Prussin Turkey United States British Guiann	111	Natior, J. Nordlinger, Prof. Nordmann, G. L. Nouri Moustapha, Pasha	Collection of woods.
Prussin	30	Nordmann, G. L.	Wool.
Turkey		Nouri Moustapha, Pasha	Silk.
United States	104		Starch.
British Guiana	-	Outridge, J. Parlett, O'Halloran, and Co.	Collection of woods, Oils,
Turkey	-	Pariett, O Halloran, and Co	Nilk.
Algeria	42	Pelissier, C.	Cettons.
Bavaria	36	Pellouz, Brentano, and Co	Silk.
United States	201	Perkins and Brown	Wool,
Ceylon	32	Pieris, T. A.	Collection of oils and gums.
British Guinna Ceylon Turkey Algeria Bavaria United States Ceylon United States United States United States United States	106	Parlett, O'Halloran, and Co. Poulaky J. (Breussa) Pelinsier, C. Pellouz, Brentano, and Co. Perkins and Brown Pieris, T. A. Pope, J. Preston, J. and Co. Prins, C. C. Querful, Giovanni	Flax.
Netherlands	12	Pring C C	Polato starch.
Austria	84	Querlul, Giovanni	Silk.
France	10:0		Wool.
Netherlands Austria France Tuscany United Kingdom	116	Ravagli, P	Nilk. Collection of resins.
United Kingdom	75	Rea, I Reed and Meakins	llari woods.
		Rebow J. Gurdon	Wood
France	1426	Regard Brothers	Silk,
Spala	207	Rey and Co	Silk,
France	354 138	Richer, F.	Wool. Silk.
Spala	163	Binable Count	llemp.
France	362	Rouxel F.	Flax.
	1464	Reed and Meakins Reboor J. Gundon Reboor J. Gundon Rey and Geers Rey and G. Ricker, F. Rice, Peter Rice, Peter Russ and Co. Russ, I. Russ and Co. Russ, I. R	Silk.
	363	Rucz, L	Starches,
Prussia	34	Riifin, Alfred	Flax.
India	34	Sainte, Messrs. (Calcutta)	Cocon-nut oil.
Enited Kingdom	9	Sounders W. W.	Collection of produce. Collection of woods.
St. Domingo	-	Schomhurgk, Sir R	Collection of produce
Austria	95A	Schönberg Yarn Splaning-mill Schöneveld and Westerbaan	Hemp.
Netherlands	13 37		Starch.
St. Domingo St. Domingo Austria Netherlands Tuscany Turkey		Scott (Shemlan Mount Lebanon)	Silk.
	19	Scott, F. and Co.	Collection of woods,
United States	172r	Scott, —, (Shemlan, Mount Lebanon) Scott, E. and Co. Scabrook, W.	Cottons,
	& 3200 135		Bristles, &c.
Russia British Guiana	33 to 35	Semenoff, J. and Faleyeff	Starch (cassava).
Tonis	-	Shier, D. Sidi Mahmond Benyad	Collection of native produce.
Tunis	-	Smith, Captain (Assam)	Municet
India. Fnited Kingdom	68	Smith, Captain (Assam) Smith and Son	Lichen and cudbear.
India	382		Starch, Starries,
Austria	103	Steinhach, J. J.	Samples of oil.
Franco	1495	St. Ubery	Collection of woods, &c.
British Guiana	=	Stutehbury, J. S	Woods and oil.
New Zealand	637	Tao Nui	Collection of woods and flax.
Austria	1031	Tangler, Stefan	wood nare,
United States	211	Thomson Rev Z	Woods.
United Kingdom	121	Tucker, R. G. (Cl. III.)	British gum,
India	-	Tandler, Stefan Telasier du Cros, L. and E. Thomson, Rev. Z. Tucker, R. G. (Cl. III.) Tulloch, Lieut, Colonel (Commissary-Geograf) of Majora	Fixed oils, and collection of woods.
		General of Madras).	
Tuscany	-	General of Madras). Tuscany, Royal Technological Insti- tute of	Collection of woods.
Austria	96	Ullersdorf, Flan Retting Establish-	Flax, &c.
		meat.	
Spain	209	Vaiencia, The Agricultural Board of	Collection of raw produce.
Belgium	107	Vanhogsert, J. B	Flax and hemp. Cotton.
Belgium	489	Van Gesternyen, C.	Starch.
	103	Van Riet, P. J.	Hemp,
	114	Van Wieie, J. B.	Flax.
0-1 0-10	113	Van der Gon Netscher, A. D. Van Gesterniyen, C. Van Riet, P. J. Van Wieie, J. B. Verheest, P. J. Verheist, F. Werth, A. and Co.	Flax.
Prassia	102 333	Westly t and Co	Potate starch.
	87A	Verheis, F. Verheis, F. Werth, A., and Co. Verza Brothers Violette, J. H. M. Vixianagram, H. H. The Rajah of Vokhonsky, Prince	Silks.
France	1528	Violette, J. H. M.	Charcosl.
India	·	Vixianagram, II. H. The Rajah of .	Fixed oils.
Russia	103	Volkhonsky, Prince	Hemp and starch.
Cevlon		Watson, (Surdah)	SIIV
Ceylon	-	Weber, L. (Java)	Vegetable fibre.
Prassia	331	Welcker, A. C. Weston, W.	Potato starch.
Western Africa	106		Oils, &c.
Van Diemen's Land	91.93	White-	Fiax. Collection of woods.

NATION,	No. in Catalogue.	NAME OF EXHIBITOR.	OMEGTS REWARDED.
Inited Kingdom	47 42 - 49	Wight, Dr. Wood and Bedford. (Cl. tt.). Wright, L. W. and Co. Yin Kee (of Shanghae). Zavagil, P.	Collection of various specimens of cotton and woods. Lichens and dyes. Flax, and China-grass. Silk. Silk.

HONOUBABLE MENTION.						
Russia		94	Abdonrza-Maram Ogli Native cotton.			
		131	Abramoff, J			
France		749	Affourtit, G. L			
Van Diemen's Land		-	Akers, Licut., R.E Woods.			
United Kingdom .	٠	96	II. R. II. Prince Albert Cashmere wool.			
Spain		151	Algiers, Commission of Woods and Corks.			
Algeria		47	Forests,			
		59				
France		1538	Allem, II Albumen from eggs	L.		
Canada	:	100	Allon, J Tanning substances			
Canada	:	462	Allem, II. Allumen from eggs Allen, J. Tunning substances Almeida, Praenca Olive oils.			
rorragar , , ,		to 464				
		473	Almeida, Silva, and Co Olive oil.			
		to 477				
Spain		164	Almeria, The Province of Olive oil.			
China		-				
		12				
Russia		96	Babarikin M			
Austria		45A				
France	:	17	Balmet, A Silk.			
France Bahamas	:		Balmes, F., and Co., (Nassau). Collection of woods Balfour, Major (Madras). Collection of woods	and sponges.		
India	:		Balfour, Major (Madras) Collection of woods			
France	:	410				
	•	41	Barres Brothers Silk.			
Canada		70				
Canada		458, 495 A	Butalha, F. R Gum copal, oils, an	d orchilis.		
-		509,503A				
Prussia		471	Becker, F. A., Sapp, and Co Amadou.			
United States		176	Bell, E. B. Woods, Bener, Miss M. Cottons.			
Algeria	*	760	Benes, Miss M Cottons.			
France		1548				
Spain		1./2A	Bernoville, Larsonnier, and Chenest. Wool. Berenguer, J. B			
		6	Beretta, Daniele Silk.			
I'nited Kingdom	:	i	Bevington and Son (Cl. xvi.), Tanning substances			
Russia		248	Bezronka vnikoff Sokoloff, A Prepared horsehair			
		143	Bienert, D. and Son Wood,			
Belginm		93				
United States		131	Blakeslee, J., , , , Wool,			
France . United Kingdom .		1091	Blakestee, J., Wool. Bleuze, H., Starch, Bleth Hamilton and Bleth Feathers.			
United Kingdom .		60				
Algeria		376	Borde, J Oils. Beauty iller Mining Company The . Gine.			
France	٠	429				
D 1 1 -		73	Bonnal, V. and Co Silk. Bocken, H. and Co Starch.			
Belglum Rome		38				
Prussia	:	38	Bolgain Silk, Bolzani, A., M. Silk. Borzone, J. Silk.			
Sardinia	:	45	Borzone, J Silk.			
France	÷	774				
Austria		-	Bezzoni Brothers Silk.			
		-	Braine Charles Joseph Silk.			
United Klogdom .		134	Breadalbane, Marquis of Woods.			
Portugal		620	Bretes, M. F White wax.			
United Kingdom .		23	Brotherton and Co Olis, Brown and Polson (Cl. 111) Starch.			
		123				
United States		38				
France		559				
Prussia		128	Brunger, A. Flax. Bruos den and Shipton . Starch.			
Canada	٠	120				
Trinidad	:		Hurnett T Y C Cedrela wood.			
Prussia		827				
Van Diemen's Land	:	22				
France	1	81				
United Kingdom .	:	65	Calin, D. (Cl. xvii.) Animal black.			
Sardinia	:	23	Calvi, J Olls and linseed ca	ke.		
France	:	1136	Carriere, F Slik.			
New Zealand		25				
Tuscany		50				
United Kingdom .	٠	46	Cator, Nelson, and Co Flax and hemp.			

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	Objects Reward
etherlands	30	Catz and Co	Horsebair
ape of Good Hope	30	Canad I	Horsehair. Elephants' tusks.
ape of Good Hope .	- 9	Cawood, J. Cento, The Chamber of Commerce of	Flax.
lome ew Brunswick	- "	Cento, The Chamber of Commerce of	Vegetable wax.
rance nited Kingdom		Cento, The Chamber of Commerce of Chalmers, J	Collection of woods.
rance	794	Charmoniacan N	Silk
nited Klambon	179	Cheerebergmeh W (Cl vr. & vv.)	Collection of wools.
lussia	114	Clarke Morran and Co	Flag
		Classon, J. Claude, Louis Colgret and Son. Collinson, Rev. J. Colvin, J. R. Conrad, W. Concey, C. Coctols, Government of	Woods,
elgium. rance iew Zealand ndia, rance nited Kingdom	85	Claude Louis	Oil.
rance	1153	Coignet and Son.	Gelatines.
aw Zeeland	3	Collinson New 1	Flax.
utte		Colvin. J. R.	Woods
manco	1156	Conrad, W.	Oils.
nited Kingdom	70	Conney C	Starch.
lussia	118	Cooney, C	Woods.
		Coplestone, F. (Mangalore),	Oile
mus	165		Oils.
pain nited Kingdom	136	Cross. S.	Woods.
mited kingdom + +	470	Thomas D	Silk
Tance	1169	Darvien, Valmale, and Co.	Silk.
	46	Davitti I.	Silk.
nited Klandon	118	Davitti, L	Gelatine and glue,
nited Kingdom	110	Day, J. and W.	Woods.
lelgium	92	Corlora, Province of Cross, S. Darries, P. Darvies, Valmale, and Co. Duvitti, L. Dawson and Morris. Day, J. and W. Debband-Descrokx De Farrobe, Count.	Cabbage oil.
elgium	460	D. P	Olive oil.
oreaffer	& 470	De rational count	
Inland	31		Saffron.
rance	1178	De Lutzow	Silk.
rance	142	Deleuze, A	Wool.
ape of Good Hope .	50	Dellattre and Son	Gnano.
apeut Good Hope .	1466	De Pass, A. De Rnolx. D'Enfert Brothers	Oils
rance	496	De Rnolx	Gelatines.
ortugal	478	D'Enfert Brothers D'Albuquerque, Mello, J.	Olive oil.
ortugal	8 479	D'Atouquerque, mene, s	Onve on.
	757	De Barthelats, L.	Silk.
rance	231	De Barthelats, L	Hair (rabbits).
pain. uscany.	38	Delgado, D	Silk,
uscany.	86	Delia Ripa, L	Silk.
eigium	111	De Bartacians, L. Delgado, D. Della Ripa, L. De Mevius, C. De Potter, A. De Coninck, A. Degracove-Delforterie	Silk.
-	112	De Potter, A	Silk.
	90	De Coninck, A	Flax.
	90	Degraeve-Delforterie	Rape oil.
etherlands	157	De Ilnan, A	Textile fibres from Cuba.
etherlands	161	De la Sagra, R	Flax.
ortugal	483	De Ilana, A De la Sagra, R De Las Heras, P. De Linhares, Count	Olive oll.
ortugal	& 484	De Linnares, Count	Ouve on:
ortugal	404	De Catholine Monage, T. T.	Olive oil.
ortugal	460, 461,	De Catheiros Meneses, J. L	Onve on.
	463	De Manda	Olive oll.
		De Carvalho, M. L.	White wax.
nited Kingdom	138	De Carvatho, M. L	Woods.
	19	Dillon, Viscount	Flax.
mited States	139	The U D	Flax, hemp, and guano.
miles office	95	Dix, E. R.	Native cotton.
	172	De Maudo De Carvalho, M. L. Dillon, Viscount Dixon, J. Dix, F. R. Djidji adze, Prince Niko	Hemp and oil.
an Diemen's Land nited States lussia pain nited Kingdom elgium nited Kingdom	32		Silk.
arrest Kinguom	68	Dodgs, Mrs. Catherine	Potato starch
Intend Clauden	125	Dufaville, W.	Gelatino.
fritish Guiana	123	Dufaville, W	Resin and woods.
	47	Douglass W	Woods.
ape of Good Hope .	150	Dumbleton, H. Dussol Dominiek, G. Eckardstein, Baron Egan, J.	Silk.
nited States	150 21	Dussol	Lard oil,
minus diales	32	Polandetala Passa	Wools.
russia	74	Eckardstein, Baron	Woods,
rasce rasce rasce rasce rasce rasce russia anada unis raited Kingdom	137	Egan, J. Efinage Aly Elmajboor. English's Patent Camphine Company,	Tanning substances,
collect Kingdom	61	Eminge Aly Emayboor	Resins and oli of turpentine.
	61	linii,	nessus and on of thepenine.
rence.	1214	Estimant Beathans	Glue
nited States	18	Emory, T.	Lard oil,
rance nited States	330	Emory, T.	Potato starch.
	105	Estivant Brothers Emory, T. Eipenschield, L. Emston and Milligan	Woods
an Demen's Land ndla. rance ritish Guiana russia	103	Enston and Milligan Elliot, W. (Vizagapatam)	Collection of woods,
	1217	Elliot, W. (Vizagapatam)	Collection of woods,
eltish Culone	93 & 94	Farjon, II.	Woods,
Total Guinna	596	Faucet, T.	Woods. Horsehair, &c.
russes	163	Fudikar, H.	Cottons
nain	163	Finlaison, W.	Olive oil.
	510	Fernandez, M.	Olive oil. Orchilla.
ortugal		Ferreira, M. B. jun.	Orchilla. Blesched shell-lac.
nited States	535	Elliot, W. (Vizsgapatam). Farjon, II. Fauret, T. Fudikur, H. Finlation, W. Fernandea, M. Ferrelra, M. B. Jun. Feuchtwanger, L.	Dienctied shett-the.
ortugal	453	Ficalho, Marquis de	Flax. Starch from Evera.

NATION.	No. in Ostologue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
anada	78	Fisher, J. Fronty, J. Fronty, J. Fronty, J. Fronty, J. Fronty, J. Fronty, Laberman, and Co. Fronts, Laberman, and Co. Fronts, M. Fronts, M. Fronts, M. Fronts, M. Gentardemann, W. Gentardemann, G. Gentardemann,	Woods
rance	214	Fleury, J. F.	Turnentine
rmusia	315	Flockeshaus and Co	Word
inain	911	Flores California and Co.	Turnentine.
scitzerland		Forliardi T B	STIL
Caw Zonland	_	For W	Words
wited States	19	Proud P	Land oil
on Diemon's Land	910	Francisco Rev. P.	Woods
om South Wales	10	Personal W	Woods
ew south water	10	Gitte-busen W	Flor
axnay	102	Camping T	Wood
costa	123	Consolver Consuma	Dried forms
ortugue		Clarett Besthan	Olle
elect Viewley	15	Cillian and Co	Woods
niced Kingdom	120	Climbe St. Shaill	Wool
nited Claudem	141	Glass G M (C) mr)	Gelstines
inted Kingdom	141	Court I	Word
an Menter s Land .		Grant, J.,	Steenh
ermuna	1	Cally P	Viere
anada	507	Grice, F.	Whathers
nited States	537	Gordard, L	Wool and flax.
tussia	121	Congoretza, rarm of	Was
Ardinia	23	Guizo, M	wax.
and towns.		Hallet, R., and Sons Halcebe, — Hanniton, B. N. Hannay, Major Hannay, Major Hannay, Major Hannay, Major Hannay, Major Hannay, Major Henderson, R. Henderson, R. Henson, J. Herste Buchters Hey Hollockon, M.	Olive oil,
omn Australia	2	risher, it., and Sons	Course on,
onth Australia	27	Hatoche,	Cottons. Volatile oll.
ncua	-	tiamaten, B. N.	Youruse on,
		Hannay, Major	Raw produce.
seigium	94	Hansotte Delloye, H. G	trine,
Belgium	59	Heal and Sous	Feathers.
	80	Henderson, R	Wool.
anada	79	Henson, J	Woods,
Savaria	. 76	Henstell, J	Woods
rance	1624	Herse Brothers	Gelatines.
russia	26	Hey	Wool,
anada	453	Holbeche, M	Starch.
	& 454	Holbrook and Stanley Horsig, V. E. Horsiey, W. B. (Palamocottah) Hucku, The Province of Hulku, The Province of Hulk, Hugh Hurtell, M. Humbert and Co.	
nited States	208	Holhrook and Stanley	Lard oil.
russia	722	Hornig, C. E	Flax,
nited States	208	Horsley, W. B. (Palamcottah)	Oils.
opain	136, 226	Huelya, The Province of	Cochineal and wools.
	158	Huesca, The Province of	Flax and other fibres.
an Diemen's Land .	208	Bull, Hugh	Woods.
ociety lalands	-	Hurtell, M	Fibrous substances.
rance	1272	Humbert and Co	Gelatines.
ardinia	38	Imperatori Brothers	Silk.
tussia	259	Ivanoff, P.	Prepared horsehair.
nited Klordom	99	Jennings, H. C. (Cl. 11.)	Stanch
anada	109	Jetu, C. A.	Fixed olls (porpolse).
alted Kingdom	66	Jewesbury and Co	
Yew Zealand	21	Johnson J	Woods,
ardinia . tustia . nited Klngdom . anada . alted Klngdom . kw Zealand . weden and Norway .	21 21	Imperatori Brothers Ivanoff, P. Jennings, H. C. (Cl. 11.) Jetu, C. A. Jewesbury and Co. Johnson, J. Jahansson, J.	Flax.
Prussia	39	Klazewski	Silk.
Imaia	87	Karim Rachim Oeli	Madder.
nited States	253	Katteridge P O	Corn-bask fibre.
funda ounce	134	Koriskin and Mourikoff	Bristles.
	128	Variate C.C. and Sons	Starch,
100018	19	France 1 T	Stareh.
	552	Victor and Biobles	Flax.
	555	Konige and Durklets	Prepared charcoal.
	333	Kunmann protners	Feathers.
rance			
rance	283	Ladighiu, Madame	CIII.
rance lussis uscany	283 36	Lambruschini, R.	Silk.
rance lussis meany lussis	283 36 145	Ladighiu, Madame	Silk. Feathers.
rance	283 36 145 900	Lambruschini, R	Silk. Feathers. Wool.
rance lussis Cascany	283 36 145 900 467	Ladighiu, Madame Lanbruschini, R. Lapshin, John Laporte and Son Larcher, J.	Silk. Feathers. Wool, Olive oll.
rance tastia tastia tastany lussia rance ortugal	283 36 145 900 467 & 468	Kinnewaki Kerim Ikaghim Ogil Kerim Ikaghim Oli Koriakin and Moughtoff Kramsta, C. G. and Sons Kruse, A. T. Blecklers Kohiya and Brothers Lanighim, Madame Lanighim, Madame Lanighim, John	Silk. Frathers. Wool. Olive oil.
rance tussis Cuscany tussis rance 'ortugal igypt	283 36 145 900 467 & 468 134	Ladighiu, Madame Lambruschini, R. Lapshin, John Laporte and Son Larcher, J. Larkins, T. W.	Silk. Feathers. Wool. Olive oll. Cotton (Sea Island).
rance tussis tuscany tussia rance ortugal gypt rance	283 36 145 900 467 & 468 134 901	Ladighiu, Madame Lambruschini, R. Lapshin, John Laporte and Son Larcher, J. Larkins, T. W. Laroque Brothers and Jacquemet	Silk. Frathers. Wool, Olive oll. Cotton (Sea Island). Wool.
rance tussia tuscany tuscany tussia rance ortugal gypt rance pain	283 36 145 900 467 & 468 134 901 220	Ladighiu, Madame Lambruschini, R. Lapshin, John Laporte and Son Larcher, J. Larkins, T. W. Laroque Brothers and Jequemet Leal, R.	Silk. Frathers. Wool. Olive oll. Cotton (Sea Island). Wool. Silk.
rance useds useds useany ussta rance ortugal gypt rance pain	283 36 145 900 467 & 468 134 901 220 570	Ladighiu, Madame Lambruschini, R. Lapshin, John Laporte and Son Larcher, J. Larkins, T. W. Laroque Brothers and Jacquemet Leal, R. Lebleia, H.	Silk. Feathers. Wool. Olive oll. Cotton (Sea Island). Wool. Silk. Silk. Sarches.
rance tussis Lussis	283 36 145 900 467 & 468 134 901 220 570 1302	Ladighiu, Madame Lambruschini, R. Lambruschini, R. Lapothin, John Larpotte and Son Larrcher, J. Larkins, T. W. Larouse Brothers and Jacquemet Leni, R. Lebleis, H. Lecelerca, N.	Silk. Frestbers, Wool. Olive oll. Cotton (Sea Island). Wool. Starchos. Gelatines.
rance tussis tussis tussis 'arcany tussis 'rance 'rance 'gypt 'rance 'pain 'rance 'pain 'rance 'pain	283 36 145 900 467 & 468 134 901 220 570 1302 88	Ladighiu, Madame Lamburschial, B. Lasphin, John Lasphin, John Laryers and Son Larrier, J. Larkins, T. W. Larouse Brothers and Jacquemet Leal, R. Lableis, H. Lableis, H. Laceterqy, B.	Silk. Feathers. Wool. Olive oll. Cotton (Sea Island). Wool. Stirchos. Giclaines. Flax.
rance tutatis tutatis tutatis tutatis tutatis tutatis tutatis rance ortugal gypt rance pain rance pain rance tutatis t	283 36 145 900 467 & 468 134 901 220 570 1302 88 47	Ladighiu, Madame Lambruschial, B. Lambruschial, B. Laporte and Son Laporte and Son Larcher, J. Latkins, T. W. Larcouse Brothers and Jacquemet Leal, R. Lebleis, H. Lebleis, H. Leclercq, F.	Silk. Feathers. Wool, Olive oil. Cotton (Sea Island). Wool. Silk. Silk. Silarchos. Gelatines. Placed.
rance unsein unsein unsein unsein unsein unsein rance ortugal gypt rance pain rance leigium russin unsein u	283 36 145 900 467 & 468 154 901 220 570 1302 88 47	Ladiphia, Madame Lanbreachia, B. Laphia, B. Laphia, John Larcher, J. Larcher, J. Larkin, T. W. Laroue Brothers and Jequemet Letal, R. Lebleia, H. Leclercq, V. Leclercq, F. Leblena, B. Leclercq, F. Leblana, B. Leclercq, F.	Silk. Feathers, Wool, Olive oll. Cotton (Sca Island). Wool, Starches, Gelstines, Wool, Wool, Wool,
rance tussis tussis tussis rance orotugal gypt rance pain rance elgium rance ressis	283 36 145 900 467 & 468 134 901 220 570 1302 88 47 8	Lediphia, Madame Lanbreachiah, B. Laphia, John Laphia, John Laphia, John Larcher, J. Larkins, T. W. Larcue Brothers and Jecquemet Lableis, H. Ledercq, N. Ledercq, F. Lehman, R. Lecterron, F.	Silk. Frathers. Wool, Olive oil. Cotton (Sea Island). Wool, Silk. Starches. Gelatines. Flat. Wool, Starches.
rance tutels tutels tutels tutels tutels tutels tutels tutels rance orotugal gypt rance eligium. russia ew South Wales russee em South Wales russee em Fouth Wales russee em Fou	283 36 145 900 467 & 468 134 901 220 570 1302 88 47 8	Ledighia, Madame Lambruschiah, R. Lambruschiah, R. Laporte and Son Larcher, J. Larkin, T. W. Larcque Piethers and Jacquemet Leul, R. Ledelen, H. Ledelen, H. Ledelen, R. Leden, R. Ledennan, R. Learmonth, T. Learmonth, T. Learmonth, T. Learmonth, T. Learmonth, T. Learmonth, L.	Silk. Silk. Feathers. Wood. Olive oll. Cotton (Sea Island). Wood. Silk. Silk. Silkarches. Flax. Wood. Wood. Wood. Wood.
rance tusis tusis tusis tusis tusis rance orotugal cypt Tance pain rance leigium russin tusis tusis tusis trance tusis tusis tusis trance tusis tusis tusis tusis tusis tusis tusis tusis tusis	283 36 145 900 467 & 468 154 901 220 570 1502 88 47 8 500	Lediphia, Madame Lediphia, Madame Laporte and Son Laporte and Son Larkin, T. W. Larkin, T. W. Ledico, T. Ledi	Silk. Feathers. Wood, Olive oll. Cotton (Sea Island). Wood. Starches. Gelatines. Flax. Wood. Starches. Gelatines. Starches. Starches. Gelatines. Starches. Starches. Starches. Starches. Starches. Starches. Starches. Starches.
rance tussis tussis tussis tussis tussis tussis rance orotugal gypt rance pain rance elgium rance elgium rance hina mace hina nited Klugdom .	283 36 145 900 467 & 468 134 901 230 570 1302 88 47 88 590	Ladiphia, Madame Laphia, John Laporia and Son Laporia and Son Larkins, T. W. Larkins, T. W. Larkins, T. W. Lethia, W. Ledeiroi, W. Lede	Silk. Feathers. Wood, Ultic oil. Cotton (Sea Island). Silk. Starches. Getskinse. Getskinse. Wood. Wood. Wood. Silk. Silk. Silk. Collection of woola.
rance tussis baccany tussis rance ortugal gypt rance pain rance legium russis rance russes rance hila and russes rance rance and russes rance rance and russes rance rance and russis and	283 36 145 900 467 8 468 154 901 220 1570 1302 88 47 8 590 97	Ladjohn, Machane Ladjohn, Machane Lapotta, John Lapotta and Sen Latorte, T. W. Larkins, T. When and Jeoguemet Lenk, R. Lethins, T. W. Lethins, L. Linday, J. Linday, L. Linday	Silk. Feathers. Olive oil. Cutton (Sea Island). Wool. Soliches. Gelatines. Flating. Wool. Starch. Collection of wools. Flat.
rance units units units units units units units units units rance orotugal sypt rance pain rance elgium russia Wales rance hina nited Kingdom an Diemun's Land russia units a	283 36 145 900 467 8-468 134 901 1220 570 1302 88 47 8 8 590 - 97 174 25	Ladjohn, Machane Ladjohn, Machane Lapotta, John Lapotta and Son Laterker, J. Larkins, T. W. Larkens, T. W. Larcque Brothers and Jacquemet Levi, N. Levine, T. W. Levine, T. W. Levine, T. W. Levine, T. Levine, T. Levine, F. Levine, F. Levine, F. Levine, F. Lipsiant, L. Lipsiant, L. Lipsiant, L. Lipsiant, L. Lipsiant, L. Lipsiant, S. Lipsiant,	Silk. Feathers, Wook. Wook. Other oll. Cotton (Sea Island). Wook. Starches. Gelstines. Flat. Wook. Starches. Gelstines. Flat. Starches. Gelstines. Wook. Wook. Starches. Gelstines. Wook. Wook. Wook. Wook. Wook. Wook. Wook.
rance units	283 36 145 900 467 230 570 1302 88 47 8 590 177 174 25	Larkins, T. W. Laroque Brothers and Jacquemet Leal, R. Lebleis, H. Leelereq, N. Leelereq, F. Leelman, R. Lexmann, R. Lexmann, R.	Silk. Freshbers, Verablers, Ulive oil. Cettors (Sea Island). Wood. Silk. Starches. Friat. Wood. Wood. Starches. Friat. Wood. Wood. Wood. Wood. Wood. Wood. Wood. Wood.

NATION.	No. In Cutalogue.	NAME OF EXHIBITOR.	Omegy Rewarded
United Kingdom	117	London Druggists (Cl. n.)	Gums and resins.
Prussia	336	London Druggists (Cl. II.) Loosen, J. G. Mackay and Co. Mckay and Co. Mcharlane, A. Mc Dowell, — McWilliam, Dr. Marshall, J. (Cl. II.) Massan, G. Macway, J. Macway, J.	Glue.
Prussia	144	Mackay and Co	Silk.
	124	McFarlane, A	Gelatines.
India.	- 1	McDowell,	Teak wood.
India,	-	McWilliam, Dr	Oils.
United Kingdom	68	Marshall, J. (Cl. 1t.)	Dyes. Goldbealer's skin.
-	104	Marshall, E. S. (Cl. xxiii.)	Flax.
	54	Mason, G. Macvay, J. Mayne, D. (Cuddapah) Mailand, Captain (Madras) Mailtand, Gaptain (Madras) Mailtand Mines Maffre, F. P. Malingié, — Malvieux, C. T. Manns, le Chevaller Simone Matthuri G. B.	Tenning substances.
New Zealand ludia	-	Mayne, D. (Cuddapah)	
muia		Mairland Captain (Madras)	Collection of woods.
Cape of Good Hope .	1	Unitland Mines	Coral,
Algeria	35	Maffre, E. F.	Oile.
France	322	Malingie,	Wool,
Austria	102	Malvieux, C. T	Rape oll.
Sardinia	15	Maneu, le Chevaller Simone	Oifa, Silk,
Austria	77	Mattiuzzi, G. B.	Gelatines, &c.
Russia	81	Marimanoff and Armakoons	Woods.
India	5	Marquart, Captain	Madder.
Spain	144 31	Mutesing, II.	Olive oll.
Vatual Vinction	197	Willer D and W (Cl. 181)	Starch.
Cape of Good Hope Algeria France Austria Sardinia Austria Russia Jadia Jadia Sardinia Judia Judia Judia Sardinia Judia Sardinia Judia Sardinia Judia Russia Judia Russia	19	Manns, Ic Chevaller Sinone Martinari, G. Marimanoff and Armakoons Marimanoff and Armakoons Marimanoff and Armakoons Martinari, C. Medina, S. Mieler, D. and W. (Cl. 111.) Mitchel, Colonel Sir T. Mitchel, Colonel Sir C. Mitc	Flor
New Zooland		Mitford, G. M	Kanri gum.
Pareis	126	Mirza, Akhoondoff, Shah	
	110	Milokrashetchnoi, K	Flax.
United Kingdom	125A	Multer, F	Geletine and glue.
Von Diemen's Land .	18	Murray, W	Starch, &c.
Cape of Good Hope .	44	Marriero Mission at Gauthendral Meren, F., Moren, S., M	Woods, Cochineal.
Spalu	150	Meron, E	Silk.
Spain	45	Mordinl, C. G.	Woole.
Spain	925 167	Montesinos, C. S	Olive oil.
Meeklenburg-Schwerin	167	Montesinos, C. S.	Charcoal.
Meckienourk-senwern	- 0	Manuar F D (Alverre)	Cottons.
India France	1363	Mountme and Bousemet	Silk. Woods.
	933	Mont-ilac-Amand	Woods,
Van Diemen's Land .	237	Meppen, F. D. (Mysore)	Whalebone,
United Kingdom	137	Murray, Sir W	Woods,
	127	Narishkin, L. K	Woods (spasoned),
United Kingdom	20	Newton, C. II.	Feathers.
	57	Nightingsile, W. and C.	Silk.
France	937	Nagariele, J. L.	Collection of woods.
India	551	Ogilvie, Cuptain (Masulipatam) Ollerdissen, P	Flor
I-russia	001	Onslow A. P. (Ganiam)	Collection of woods.
Tuecany	31	Orsetti, C. T.	Oils.
Denmark	44	Owen, Joseph	Oils.
Tuscany	. 33	Pacini, D	Oils,
Portugal	530, 531	Palmella, Duke de	Remp.
	& 532		Woods.
Canada	. 76	Parisault, J	Woods,
	.77	Parisanii, F	Wool.
United States France	235	Parker and Brown	Wool.
France	1381	Co.	
A Andre	1.0		Wool.
Austria	. 84		Red coral.
Greece Kingdom :	12	Paylides, B	Sponges.
United Kingdom	132	Peet, T.	Cork.
United States	115	Pell, R. J.	
	106	Peters, T. C.,	Wool.
Tuscany	. 40	Petrucel, C	
Russia	. 124	Philibert, L. and F	
Algiers	. 43	Piglia, J.	Olive oll.
Tuscany	471	Parwagus and Casella (Cl. XXIII.) Pavlldes, B. Peet, T. Pell, R. J. Peters, T. C. Petrusci, C. Philibert, L. and F. Pinto, J. B.	
	& 472	Water Parks, I. P.	Animal charcost,
	629	Plant Count G	Siller.
Tuscany	960	Pitony V	Gelatine.
Reitleh Gulenn	102	Pontifer G.	Woods.
Canada	125	Prendergast, J.	Gums, &c.
France	1406	Pradier, J.	Silk.
Tuscany. France British Gulana. Canada France Prussia		Prussian Royal Horse Depot (Trep	Wool.
United Kingdom Maita Russia Van Diemen's Land France United Sintes Barbadoes	. 109	tow on the nega). Packridge, F. Polis, G. Popolf, Alexander Quinn, — Raucher, L., Jun. Hayner, Ell Reade, A.	Goldbealer's skin. Cottons, silks.
Malta	144	Polis, G., Popoff, Alexander	Feathers &c.
Russia	144	Ouinn.	Collection of woods,
Yan Diemen's Land	1423	Raucher, L., jun.	. Animal charconi.
Lighted States		Rayner, Ell	
Borhodoes	: -	Reade, A.	. Samples of cotton.

NATION.	No. ta Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED
Russia	139	Rehroff, A. Reffselli, P., and Son Heidan, E. Reynolds, Captain Reckitt and Son (Cl. III.) Heitz, Breia, and Co. Riyand, G. Riyand, G.	Silk.
Torones	69	Reffielli, P., and Son	Specimens of coral.
France	1430	Heidan, E.	Silk.
India		Reynolds, Captain	Vegetable fibre.
India United Kingdom Cape of Good Hope	125	Reckitt and Son (Cl. DL)	Starch.
Cane of Good Hone		Reitz, Breda, and Co	Wool.
France New Zealand Russia Prussia	987	Rivand, G. Robertson, J. Roterman, C. Rotherbild Baron S Von	Wool
New Zealand	. 4	Robertson, J.	Flox.
Consist	71	Roterman, C	Starch.
Prussia		Roterman, C. Rothschild, Baron S. Von.	Wool.
Prussia Van Diemen's Land	293	Rothschild, Baron S. Von Rout, W. Rock, L. Royer, J. C. A. Romer, C. Rotsch nud Reichel, Rurchi Brothers	Wax.
	1446	Roeck, L.	Silk,
		Royer, J. C. A.	Gelatines.
Pruesta	337	Romer, C.	
Ametria	. 58	Rotsch and Reichel.	Woods, teasles.
Cuecany	32	Ruschi Brothers	Oils.
Imala	140	Rayko, N.	Silk.
Inited Kingdom	76	Sadler, L.	Cochincal.
Pruesia	1470	Sambue, P.	Sille.
nited Kingdom	21A	Rusen Brothers. Rayko, N. Sadler, L. Sambue, P. Samuels, D. Savi, Professor P. Sarcieni, Chevaller A. Sancken, A. von	Woods,
rance nited Kingdom uncany.	51	Savi, Professor P.	Silk.
uncally	. 31	Saracini, Chevalier A.	Oile
		Saucken, A. von.	Wood
Tuesday		Saucken, A. von.	Cottun.
ortugus,			Wool
bossis		Schloss Trikaten, N. N.	WooL
Prussia		Schwerin, Count von	Silk.
contril	37	Schols, A	Gnano.
ape or wood Hope	110	Schwerin, Count von Scholn, A. Searight, J. Seghers, B.	Animal charcoal, ivory-black, &c.
rignim	78	Sculgaglin and Carminatl	Animal enarcoul, ivory-black, &c.
Austria Ape of Good Hope Belgium Austria	. 78	Sculgaglin and Carminatl	Silk,
	81	Seechi, Francesco	Olive oil
Spain Thins United States Sardinia New Zealand Van Diemen's Land	. 171	Seville, The Province of	
hina	197	Shanghae, The Consul at	Vegetable wax, Wood,
nited States	. 197	Sibley, S.	Wood, Silk
antinia	. 25	Siningue, I ne candu at Sihiey, S. Sinigaglia Brothers Smith, J. A. Smith, J. Leutenant Smits, P. Sommer, Charles Solyman, Essaddy	
ew Zealand	. 14	Smith, J. A	Orchilla weed.
an Diemen's Land	295	Smith, Lleutenant	Gum (wattle-tree),
		Smits, P	Animal chargoal,
axony	1	Sommer, Charles	
unis	. 73, 75	Solyman, Essaddy	Sponges.
	73, 75 150, 151 126		
nited Kingdom .	. 126	Shand and Muckart (Cl. 111.)	Starch.
-	154	Shand and Muekart (Cl. 111.). Stenhouse, A. (Cl. 111.). Stevens and Thompson Strubbe and Baey Steiner, G., and Sons Sweden, H. M. the Queen of Swinborne, T. C. and G.	Storch,
South Australia .		Stevens and Thompson	Wools,
delgium	. 97	Strubbe and Baey	. Tauning substances.
Belgium	. 87	Steiner, ti., and Sons	Silk.
sweden		Sweden, H. M. the Queen of	Silk.
weden	119	Swinborne, T. C. and G	Gelatine.
ndia		Tan Kim Seng	Fibre,
ape of Good Hope	. 3	Tan Kim Seng	Tunning bark.
azuny	. 4		Sponges, Wool,
russia	, 23		Wool,
Persia	: :	Thompson	Silk,
ape of Good Hope saxuny Prassia Persia Bahamss ndia Russia Inited Kingdom		Thompson, J. T. Thompson, J. T. Thompson, Mesers. (Calcutta)	Hemp.
ndia.	.1 -	Thompson, Mesers. (Calcutta)	Vegetable fibres.
tussia	119	Tiffis, Government of	Woods,
nited Kingdom	544	Thompson, Mesers. (Calcutta) Tiflis, Government of Tilley, Lieutenant Tordeux Trent, E. W. Tyrrell	Anatomised plants,
rance	699	Tordeux	Charcoai, prepared.
	41	Trent, E. W.	
ew Zenland	28	Tyrrell	Flax.
	1498		Wook
nain	210	Trenor, T	Silk.
nited States	494	Trucsdale, Jacobs, and Co.	Cotton.
nited Kingdom		Tucker, E. (Cl. ut.)	Starch.
ermuda		Tneker, E. (Cl. ut.) Tueker, R. and Co. Feehtritz, von L. Valgoma, F. A.	Coral and madrepores.
terroria	21	Fechtritz, von L.	Starch.
nein	28	Valgoma, F. A.	Flax.
h	142	Valladolid, Province of	Modder.
ape of Good Hope	142		Wool,
whe or cood Hobs		Van Breds, D. J.	Silk.
ranco	1520	Verdet and Co	Starch.
	1520	Vezon Brothers	Cotton.
pain	. 162	Villars, J. B.	Ruch
	1.00	villars, Don	Silk.
ranco	. 1526	Vincent, J.	Starch
etneriands	. 15	Visser, Nolet, and Co	War.
*******	.17	Visser, E. E.	Wool.
lussia	. 122	Vassal.	n oot.
elgium	. 52	Vanden Abeele, L	Flax.
	84	Vanderstracten, F	Oil.
	74	Van Bunnen, Madame C	Starch.
			Starch.
umia	108	Verdan and Co	Animal charcoal.

NATION.	No. ia Cutalogue,	NAME OF EXHIBITOR.	OBJECTS REWARDED.
Belgium	. 213	Vereruysse, F	Finx, &c.
rance	1048	Warmont, V. E.	Wool.
Inited Kingdom .	. 120	Watt and Son	Glue.
Prussia	. 434	Wächter, J	Scum of sugar.
Austria	. 93	Wallis, O., Count von	Woods,
axony	. 2	Watteyne, J.	Flax.
Prossia	. 31	Winkler, F.	Sponges.
New Zealand	. 34	Whytlaw and Son	Flax.
ndia		Wight, Dr. (Coimbatore.)	Collection of woods,
nited Kingdom .	124	Wotherspoon, R. (Cl. in.)	Sago starch.
Russia	. 129	Yonghash, Mahomet Khan	Wool,
anners.	72	Yurghenson	Starch.
	108	Zakharoff, S.,	Flax.
Charles .	136	Zolotoreff, J.	Bristles.
Spain	. 168	Zayas, J.	Olive oil.

CLASS V.

COUNCIL MEDAL.

~		CODECIN MINAL	
NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom Belgium	119	Appold, J. G	A centrifugal pump, with curved vanes, Pair of 140 horse power vibrating-cylluder en gines, for river navigation; a locomotive en gine; an oscillating-cylinder-3-horse power lan- engine; tubular boiler; a vertical-cylluder 16 horse power land engine. (The award is mad for tha whole.)
United Kingdom	512	Crampton, T. R	Two passenger locomotive engines.
	618	Dunn, T.	A railway traversing frame.
France	220 8	Fromont and Son	A double turbine, Two pair of compact marine engines, of ligh
United Kingdom	1	Penn, John, and Son	construction, for small vessels.
		PRIZE MEDAL.	
United Kingdom .	510	Adams, W. B	Light locomotive engine and double railway ca
unica mingaoni i			riage.
-	44	Armstrong, W. G.	Hydraulic cranes.
_	i	Atherton, Charles	The application of an eccentric to working e-
	643	Balnes, W	Railway switches and chairs.
	412	Bank Quay Foundry Company (War-	Great hydraulic press.
_	602	Barlow, W. H.	Wrought-iron permenent way.
	646	Beecroft, Butler, and Co	Railway wheels and axles.
France	761	Beranger, J., and Co	Weighing machines.
United Kingdom .	448	Cheavin, S	Filtering pump.
France	1151	Clair, P	A dynamometer and indicator; and a model section of a locomotive.
United Kingdom	. 39	Clayton, Shuttleworth, and Co	An 8-horse power vertical oscillating cylinde engine.
	95	Collinge, C., and Co.	A 5-horse power direct-action steam-engine.
	645	Cwm Avon Iron Company	Oscillating-cylinder direct-action steam-engine Railway bars.
=	16	Davles, J. and G	A patent revolving elliptic steam-engine, wit an ingenious governor, equilibrium valves, an feed valves.
-	774	Davidson, J., and Co	Scales and weighing machines.
	772	Day and Millward	Weighing muchines.
_	552	De Berge, C.	Railway buffers.
_	647	Derwent Iron Company	Large plates of rolled fron for sway-beams of e- gines and ship-huilding purposes, and a rai way bar 66 feet long.
-	638	Ebbw Vale Company	Railway bars.
	12	Edwards, T.	5-horse power direct-acting steam-engine.
France	830	Enfer. E.	Blowing mechine.
United Kingdom	509		Tank locomotive engine; traversing screw-jack
Netherlands	76	Enthoven, K	Iron erane for lifting and weighing.
France	507	Flaud, H. P.	5-horse power vertical-cylinder direct-acting hig pressure engine, for working at high velociti

NATION.			No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom			406	Fourdrinier, E. N.	Safety cage for mines,
and the same of			401	Fox, Henderson, and Co	Derrick erane.
_			506	Great Western Railway Company (Swindon).	Passenger engine.
_			541	Haddan, J. C. Hawthern, R. and W.	Papler-maché carriage.
_			536	Hawthorn, R. and W.	Locomotive passeoger engine.
-			532	Henson, H. H	Railway goods-waggoo,
			201	Hosking, R.	Treble-beat pump valve,
			682	Jackson, P. R.	Railway tires; bydraulic press.
			411	James and Co	Weighing erane.
-			534	Kitson, Thompson, and Hewitson .	Locomotive tank engine.
_			507	Lee, J	Wheels, axles, and railway breaks,
France			1310	Letestu,	Fire-engine.
Uoited Kingdom	*	•	300	Lloyd, G	Blowing machine.
Belgium	٠		120	Marcinelle and Couillet Smelting Com-	Mine ventilator.
France			924	Mauzaiso, J. N	Friction-clotch.
United Klogdom	:		401	Merryweather, M.	Fire-engine.
-	-	-	539	McConoell, J. E.	Corrugated iron railway carriage.
			434	M'Nicholl and Vernon	Steam traversing crane.
			649	Mersey iron Company	Patent rolled iroo for abipbuilding.
Personal			41	Nasmyth, J.	4-borse power direct-acting engine.
France			944	Parent,	Scales.
I nited Kingdom		i	543	Pateot Shaft and Axletree Company.	Railway carriage and other axles.
Canada			181	Perry, G., and Brothers	Fire-engine.
Prussin			473	Plepenstock and Co	Disc wheels and hollow axles.
United Kingdom	:	0	784	Pooley, II., and Son	Weighing muchines.
			40	Pope, W., and Son	4-horse power oscillating-cylinder direct-actin steam-enrine.
France	٠		967	Pouyer (Quertier Fila)	Apparatus by which any number of movers ma be concerted or disconnected at pleasure.
United Kingdom			640	Ransomes and May	Water erane; patent compressed trensils an
Austria			105	Sehmid, H. D	Weighing machine; parabolic governor for steam-engine.
United Kingdom			410	Shand and Mason	Fire-engine.
C miles reinggroup	•	•	46 A 203	Siemens, C. W.	Chronometric governor.
			14	Simpson and Shipton	10-horse power reciprocating engine.
			3	Smith, F. P.	A series of screw modals, showing the progres
_			555	Spencer, J. and Son	of screw propulsion. Bailey's patent volute springs.
_			636		Railway wheels and axles,
_			490	Thorneycroft, G. E., and Co	Hydraulic lifting tack.
_			6	Watt, James, and Co.	Pair of horizontal cylinder steam-engines fo
					serew-propellers.
-			530	Williams, C. C.	Railway carriage.
_			637	Wordsell, G., and Co	Railway axle, wheel-tire, and axle-box.
			600	Young, C. D., and C.	Simultaneously-acting gates for railway crossings

CLASS VA

				PRIZE MEDAL.
NATION.			No. in Catalogue.	NAME OF EXHIDITOR, OBJECTS REWARDED.
United Kingdom			802	Andrews, R A neat puny carriage.
Franco	•	*	50	Belvallette Brothers A Stanhope or sporting phaeion, of excelle design, and well finished.
United Kingdom	٠.		811	Briggs, G. and Co A town chariot, admirably carried out as to go
_			814	Browne, W
United States .	٠	٠	466	Childs, C A slide-top baggy or phaeton; cummelled leath of apron of very superior quality. The who well got up and neatly finished.
United Kingdom	١.		828	Davies, D A basterna brougham; a very good piece
France	٠		490	Dunnime, J. A
United Kingdom		٠	862 872	Hallmarke, Aldehert, and Hallmarke. A green barouche; a very good entriage. A park phaeton, very ocatly finished, and conditions.
-			874	Hooper, G. N A green brougham, got up in the neatest mann

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED,
Belginm	. 118	Jones Brothers	A cab placton: a well-finished carriage,
United Kingdom .	938	Peters and Sons	A park step-pieco baronche, highly finished, as with good taste,
	950	Robinson and Co	A park phacton, very neat, and an exceller piece of work.
	956	Rock and Son	A patent disrophs, very ingenious as regards to shifting, and well shaped.
	968	Slik and Brown	A full-sized park phaeton, elaborately finishe a very superior specimen of workmanship as art.
Belginm	. 122	Van Aken, P. and Son	A cabriolet chaise, neatly got up.
United Kingdom .	. 997	Word, J.	A bath chair, with patent noiseless wheels, i whole well shaped, well arranged, of excells form, and well finished.
United States	. 361	Watson, G. W.	A sporting waggon, very neatly finished in a
United Kingdom .	. 996	Wyburn, Meller, and Turner	An elegant dress charlot, in all respects ve highly finished,

CLASS VI.

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom .	82	Bariow, A	Jacquard icoms with two cylinders, simultaneously raising and lowering the suspended wires.
France	1557	Call and Co	Vacuum apparatus, for the mannfacture of sugar.
Inited Kingdom .		Donisthorpe, G. E	Double wool-combing machine.
	130	Donkin, B. and Co.	Paper machinery,
United States		Dick, D	Various engineers' tools and presses.
nited Kingdom .	200 & 403	Foirbairn, W. and Sons	Riveting machine and a corn-mill.
Prussia	59	Heckmann, C	Vacuum apparatus, for the manufacture of sugar.
France	873	Hermann, G	A set of chocolate machines.
United Kingdom .	i	Hibbert, Platt, and Sons	cleaning, preparation, and spinning of cotton, showing the whole process, to the weaving in- clusive.
_	218	Hick, B. and Son	tools, improved mandrils, portable forges.
_	75	Lawson, S. and Sons	Numerous machines employed for the preparation
-			of fiax.
	10 & 46	Mason, J	Woolleu carding machine, also slubbing and
France	228	Maudslay, Sons, and Field	Coining press, acting by an eccentric.
	632	Mercier, A. and Co	Machinery for cardine and spinning wools.
United Kingdom .	236	Nasmyth, J	Steam hammer.
	77	Parker, C. E. and C.	Power-loom for weaving salicioth,
_	602	Pontifex and Wood	Vacuum apparatus for the manufacture of sugar, in copper and brass,
_	85	Reed, T. S. and Co	New power-loom for weaving fringes without
Franco	1438	Risler, G. A.,	paring cotton for spinning.
United Kingdom .	. 204	Sharp, Brothers and Co	Large double laths for railway wheels, stotting machine, and other engineers' machine tools also a beautifully constructed ring and tra yeller throatis.
Prussia	476	i'hlhorn, H	Colning press,
United Kingdom .		Whitworth, J. and Co	A large collection of engineers' machine tools of all kinds, screw stocks, standard gauges, and a kultting machine. Also his machine for mea- suring less than the millionth part of an inch.

PRIZE MEDAL.							
France United Kingdom	: :	399 448 90	Acklin			Jacquard, employing paper instead of earth Cigarette machine.	
France		48 422 400	Berry, B. and Sons			Machinery for monafocturing worsted, Circular hosiery frames.	

NATION.	No. in Catalogue	NAME OF EXHIBITOR.		OBJECTS REWARDED,
United Kingdom	406	Birch, J.	i	Machine for cutting such and roof bars,
	94	Birch, J		Bobbin-net Inco machine, with Jacquard.
	138	Black, J Biodget, S. C. Boland, A Bonardel Brothers		Paper-folding machine.
'nited States	551	Biodget, S. C.	. 13	Sewing machine.
ratice	428	Boland, A		Kneading machine.
russia	- 53	Bonardel Brothers	. .	Jacquard, and punching machine for Jacquar curds.
rance	417	Borie Brothers		Machino for making hollow bricks.
	15	Baranowski, J. J.		Machine for printing and numbering tickels.
Inited Kingdom	144 27	Borie Brothers Baranowski, J. J. Brewer, C. and W. Calvert, F. A.	:	Rollers of wire-cloth for paper-makers. Wood burring and cotton-eleaning machiner and cylinders
-	135	Church and Goddard		Machine for cutting eard boards, and printing
-	86	Claussen, P.		Circular inud-loom for hosiery.
_	78 35	Crawhall, J.	· II.	Machino for manufacturing hemp ropes.
Cussenw	59	Crawhall, J. Crichton, D. Cuyere, Mrs.	•	New taking up motion for a loom, Weavers' recds.
Tuscany	140	Davenport, J. L.		
mice migeon	926	Debedy A		Small lathe with calf adjusting about
	45	Dalgely, A	٠.	Poole made by mechiness
_	76	De la Rue and Co. (Cl. xve.)	: 1	various machines for manufacturing silk. Small lathe, with self-adjusting chuck. Reeds made by machinery. Envelope machine.
rance	491	De la Rue and Co. (Cl. xvii.). Dandoy-Mailliard, Lnoq, and Co.		Rollers for spinning machinery,
witzerland	61	Darler, H.		
rance	823	Dorey, J. F.		
rance nited States	476	Darler, H		Card clothing,
	1607			Machine for making pails
nited Kingdom	84	Frost, J. Furness, W.		Improved silk machinery.
	401	Furness, W	٠.	Machines for tenoning, morticing, planing, an
untala.	100	Contra Promo Hilloria	П	moulding wood.
nstria	208	Gambs, P. The Heirs of Garforth, W. J. and J.	• 13	Jacquard eylinder.
miteu Kinguom	208	Garterth, W. J. and J.	• 1	Steam-riveting machine,
nited Kingdom	102	Hanting Pollets and Johnson	•	Turning lathe, Machinery for making printing-types,
ranca	864	Harding, Pullein, and Johnson Hording-Cocker	1	Heckles.
nited States	256	Havden W		Drawing regulator for cotton.
nited Kingdom	14	Higgins and Sons	٠.	Cotton machinery and long line flar machine
_	232	Hayden, W. Higgins and Sons Holtzapffel and Co.		Cotton machinery, and long line flox machine Amateur foot lathe, with overhead motion; alid rest and eccentric chacks, &c., for ornaments
	20	Hornby and Kenworthy		turning, with various apparatus and tools. Sizing and dressing machine, and self-actin hacking-off motion to a warping machine.
France	269	Huck	٠.	Appearatus for grinding and preparing ailmentar
nlied Kingdom	122	Huc, J. B. Ingram, II. Jacquin, J. J. Johnson, R. and Brothers. Jolkins, C. T. Kenworthy and Bullough Lawrence, J. sen. Leevils and Son Lecvils and Son Loweil Machine Shop Manlove. Alliett, and Servir		Press for manufacturing hooks and eyes, cutting and hending them at the same time. Applegath's vertical printing machine.
rance	546	Jacquin, J. J.		
nited Kingdom	212	Johnson, R. and Brothers		
	52	Judkins, C. T.	. ! '	Heald machine and improved heald.
	21	Kenworthy and Bullough	. 116	Stopping motion to a power loom.
	604	Lawrence, J., sen	٠	Refrigerator, store cask, &o, Fulling mochine for cloth,
rance	2×3 55	Lacroix and Son	٠١.	rulling mochine for cloth.
Inited Kingdom	209	Lamb P and Con-	٠.	Type-founding machine.
nited States	447	Lewis, F. and Sons	٠.	Wheel-cutting engine and roving spindle. Self-acting lathe and power loom.
nited States	454	Manlove, Alliott, and Seyrig		Centrifogul washing and drying machine,
	206	Muir. W.	. " !	Small lathe and various tools.
rance	330	Mareschal, J.		
	645	Mirosele Brothers		Card eluthing.
nited States	460	Morey, C	. 1	Eastmon's stone-entting machines,
rance	664	Nicolas, P.	. 13	Machine for engraving metal cylinders.
nited Kingdom	158	Napier and Son	- 1	letter-press printing machinery.
_	40	Perry, John		Wool-comb.
	456	Preston, F.	. 1	Spindles and flyers, Ornamental sawing machine,
	74	Manlove, Alliott, and Seyrig, Mair, W. Mareshal, J. Mironde Brothers Mironde Brothers Nicolas, P. Nicolas, P. Napier and Son Perry, John Proston, F. Prostor, F. Proster and Hodley Parr, Curitis, and Madeley	11	Sculching, heckling, and other flax machines.
_	6	Plammer, R Parr, Curtis, and Madeley	•	Various machines for carding and spinning co- ton; three self-acting mules; also various es gineers' machine tools.
-	128	Rémond, A		Envelope machine.
	640	Ransomes and May (Cl. v.)		Leggatt's Queen press, with self-acting apparatu
-	418		. '	Large steam sugar-cane mill.
rance	1454	Roswag, A, and Son		Wire-cloth for paper-makers.
nited Kingdom	222	Ryder, W.		
ranco	1474	Sautrouil, jun.		Machine for planing and moulding wood.
	1475	Schwerber, J		Forging machine.
_	1001	Schnesder and Legrand	- 13	Shearing naschine, Card clothing.
Intied Kingdom	1003	Serive Brothers	- 1	tara ciotning,
mies semgaom	220		٠.	Various power looms. Self-acting slide lathe.
-	230	Shepherd, Hill, and Spink	110	Self-acting slide lathe, drilling and plants

IVIII JURY AWARDS-COUNCIL AND PRIZE MEDALS-HONOURABLE MENTION, [CLASS VII,

NATION.		No, in Catalogue.	NAME OF EXIMBITOR. OBJECTS REWARDED,	
Belgium		134	Société du Placaix Soft bobbin frame.	
France		1021	Stamin and Co Splaning frame.	
United Klandom .		238	Stewart, D. Y. and Co Mould making machine for cast-iron pip	CH.
United States		84	Starr, C. Bookbinding machine,	
Inited Kingdom .		51	Taylor, J	
	•	136	Taylor, W	shade
Prussia		5.7	Thomas, ii, Shearing machine for woolien goods,	
United Kingdom		630	Tizani, W. I., Model of a brewery.	
France		1508	Tennillan, C Dressing machine for millstones.	
Belgium		128	Troupia Brothers Shearing finishing machine.	
France		717	Varrall, Middleton, and Elwell Machinery for manufacturing paper.	
United Kingdom .		442	Westrup, W, and Co Corn mill.	
Officed Kingdom .		112	Wilson, G Paper nad mill-board cutting machines.	
United States		443	Wood-planing, tonguing, and grooving me	ichine.

		CLASS VII.	
		COUNCIL MEDAL.	
NATION.	No. in Catalogue,	NAME OF EXBIBITOR.	OBJECTS REWARDED.
United Kingdom .		II.R.H. Prince Albert. (Joint Medal to that granted for the original conception and suc- cessful prosecution of the Exhl- bition of 1851.)	Model lodging-house.
=		Fox, Headerson and Cn	Great Building; for the execution. Great Building; for the design.
		PRIZE MEDAL.	
United Kingdom .	. 10	Brown, Sir S., Captain, R.N.,	Models of slips and railways.
	152 90	Bunnett, J., and Co. Carrington, F.A. (Main Avenne West.)	Patent shutters and water-closet. Topographical models of portions of England.
Netherlands	, 90	Dutch Railway Company	Model of rallway drawbridges,
United Kingdom .	. 9	Fiach and Willey	Model of a wrought-iron bridge over the Wye.
	53	Heinke, C. E.	Diving apparama.
	91	Ibbetson, Captain, L. L. B (Main Avenue West.)	Model of the Isle of Wight.
United States	. 511	iron Bridge Company, New York .	Model of Ryder's patent iron bridge.
United Kingdom .		James, J.	Model of Britannia bridge.
Switzerland	65	Lauf, J. F.	Net of boring tools.
	257	Leemann, J	Model of Strasburg cathedrai.
United Kingdom .	. 24	Morton, S. and H	Model of patent slip for ships of the large
France	659	Minlet and Sen	Excellent and powerful horing tools.
United Kingdom	16	Pratt. Major	Design for tidal steps.
Carred Kinguom .	180	Hose, J. T.	Design for a timber viaduct of great spin.
	220	Salter, S	Models of bridges.
	1 200	(Main Avenue West.)	program or arradian
Name and Address of the Owner, where the Owner, which is the Owner, where the Owner, which is the Owner	1	Siehe, A	Diving apparatus,
	163	Smith, W. H.,	Model of light floating breakwater : for the ide
no.	28	Stunrt, W.	Model of Plymouth breakwater.
France	. 1044	Travers, P. L	Model of observatory, dome, and roof, at Pari
United Kingdom .	. 105	Vignoles, C	Suspension bridge; for model.
	157	Wilkins, W. C.	Revolving floating light.
-	113	Wilson, T. 11	Gate-bolts and slides for doors.

HONOURABLE MENTION.

	E-A-CHA	- 1	95	Bremner and Sons .			٠	Model of apparatus for working in situations
			114	Dobson, J				exposed to the sea. Model of Newcastle railway-station roofs.
	-		31	Hurwood, G				Apparatus for shutting ships' lights and scut-
								tles.
			62	Lowe, Alice and Co.				Srink traps,
	and		244	Michel, G				
United	Kingdom .		170	Newnham, T. G.				Models of roofs and windows,

CLASS VIII.

COUNCIL MEDAL.

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED,
United Kingdom	-	Admiralty	Hydrographic charts, and models of the ship
France	126	Departement des Cartes de la Marine	constructed by them, Hydrographic surveys, and maps of Francial Algeria, Africa, and Corsica.
nited Kingdom	159	Depôt de la Guerre à Paris	Great topographical map of France. Geological surveys and mars of the Unite
	136	Great Britain (Cl. 1.) Duke of Northumberland	Kingdom. For having caused a large number of mode of life-boats to be designed, with the victo obtaining the best form of boat for tipreservation of life and property in cases shipwreek.
rance	128	Ecole des Miues à Paris Ordnance Department of England .	Geological map of France. Illustrations of the Great Ordnance Surveys of Great Britain, for the copper-plate atching
Austria	363	Military Geographical Iustitute,	and electrotype process. Survey and detailed maps of the country in ar around Vienna, and of Italy.
United Kingdom	150	Sir William Spow Harris	arouse Vienna, and of Italy. System of lightning conductors attached to the masts and halls of ships, which have been fo several years in general use in the Navy, as means of preserving life and property from the effects of lightning.
		PRIZE MEDAL	
Belgium	143	Ancion and Co	Complete and varied collection of arms, an
Cnited Kingdom	185	Ansell, C. (Cl. v)	merit in a manufacturing and commerci point of view. A gunning punt on a new principle, for foulir
rance	1053	Barbotin, Captain	purposes.
nited Kingdom	1.36	Beeching, J.	Improved capstan for managing chain cables. Design of a life-boat, which was recommende for the prize of 100 guineas, to be awarded be the Duke of Northumberland for the best life boat.
Belglum	150	Bernimolin, N., and Brother Berthon, The Rav. E. L	Collection of sporting and trade gues, Models of patent perpetual log for indicatin the speed and leeway of ships, and of h patent clinometer for slawing the list (or is clinatins) and trim of ships; and also of collagaible life-boat, of a portable and usefi description.
rance	58	Bertonnet,	Sporting guns and arms. Lock for best guns.
United Kingdom	206 334	Brazier, J., and Son	Lock for best guns. Chain cables.
==	29	Brown, Sir S., Captain, R.N Carte, A. G.	Self-acting life-bnoy, an instrument, by which aince 1838, nearly 400 persons' lives have been naved.
France	126	Collin, C. E	Map engraving. Illustrations of the art of ship-building for th commercial marine, almost all showing th greatest and most important improvements i strength, symmotry, and efficiency; an mostly coming from the establishments with
			the invisilation of the Port of London.
rance	1057	Claudin, F	Guns, rifles, and platols.
nited States Inited Kingdom	449 223	Derton, W	Models of merchant-vessels. Double and single guns and pistols.
	55	Dent, E. J., (Cl. x.)	Successful attempt to construct a compass the should not be disturbed by the motion of the ship at sea, nor by the firing of guess on board
France	473	Delvigne, G	Apparatus for saving life from shipwreek, projectile discharged by means of a howitzer This invention involves a new principle, the of a portion of the line to be carried out bein contained in the projectile.
	-	De Rénémeuil	His improvements in the shading of maps by printing different colours at the same time.
Colord Wiendow	166 30	Devisme,	Sporting guns and arms. Modeis of puddles and acrew steam-vessels.
Inited Kingdom	302	Ditchburn, T. J	Models of paddles and screw steam-vessels. Tents.
übeck	5		Donble gun rifle, and pistels.
nited Kingdom	1612	Fox, Alfred	Fine specimens of nets, seine, &c., for plichards. Pistols, form and execution; sporting guns, &c.
rance	1012	Gauvain, J	a recore, routh and execution; sporting guns, ac-

NATION,	No. in Catalogue,	NAME OF EXHIBITOR.	OBJECTS REWARDED,
France	1611	Gastinne-Renette	Sporting guns and arms.
United Kingdom	59	Greener, W	Guns, barrels perfectly forged and finished Harpoon guns, fur whale fishery, and fur savin
_	131	Green, Messrs	life from shipwreck. Specimen model of a fine merchant vessel de signed and built by them fur the East Indi
			trade.
	1 =	Groom, J. J	Specimens of deep-sea fishing-lines and books. His improvements and perfection in punt guns.
	136	Hinks, Henry	Design of a life-boat. Also recommended for
			the prize of 100 guiness, to be awarded by the Duke of Northumberland.
France	1628	Houiller-Bianchard, H	Pair of pistols and apparatus.
Belgium'. United Kingdom	139	Jansen, A. Jeffery, Walsh, and Co.	Collection of sporting and ornameotal guns. Specimens showing the advantages of marin
Cuited Kingdom	100	Senery, Wann, and Co	glue, as a substitute for pitch and for oth purposes conoccted with ship-building. Ao anchor, bent on a line, to fire from a Mani
_	21	Jerningham, Captain, R.N	Ao anchor, bent on a line, to fire from a Manh mortar a sufficient distance to afford the mear of hauling a life-boat through the surf.
	226	Lang, J	Pouble and single guns and pistols,
France	385	Labure,	Iron Life-boat.
United Kingdom	195		Bunyant mottresses, &c.
rance	1083	Legoff, Coptain	An excellent system of stapping chain cobles. Target ride, with accessories of every kind, Double and single barrels, of damasque work
	151	Lardinois, N. C.	Target rifle, with accessories of every kind.
France	145		manship. Numerous collection of sporting and trade guos
France	1364	Lepage Moutier.	Sporting guns; ornamental arms; swords ar side-arms of De Luynes; damasque of r markable navelty.
United Kingdom	22	Monby, Capt. G. W. (Representa- tives of).	markanic navety. Mortar apparatus, for shipwreck purposes. The object of this instrument is that of saving it from shipwreck, by means of fiting a projectile, with a line attached, over a vessel who
_	149	More, C. J. and Co	on shore. Models of sailing and steam vessels, both padd
		,	and screw; ditto of ynchts, designed and bui
	267 158	Mortimer, T. E	Guns, rifles, and pistols, A compass used for registering the hourly devi
			tion of the needle, and for detecting errors the steerage of a ship.
United Kingdom	260	Needling Henry	Guus, ritles, and pistols,
Canco mingram	270	Needbam, Henry	Guns, rifles, and pistols,
-	136		A good specimen of a life-boot.
Belgium	146	Plomdeur, N.	Best guns, rifles, and pistois.
United States United Kingdom	244	Pook, S. M	Models of ships of war. Swurds and other side-orms ortistically embe
			lished.
Belginm	141 290	Renkin Brothers	Numerous collection of sporting and trade gur Deck-seat to form raft. This sect can be read tormed into a safety raft, capable of sustaining
	240	Plahania Westley	eight people. Best guns and sporting guns.
	2:35	Richards, Westley	Guns, pistols, and rifles, and barrels of damasqu
	291	Rigmaiden, Lleut. J., R.N	
	193	Robinsons and Russeli	stonding rigging of ships. Models of steam boats, designed and built i
France	991	Rneher, M	them, Distilling and cooking galley.
nited Kingdom	336 294	Rodger, Lient. W., R N	Models of improvements in form of anchors, Models of vessels belunging to their Club.
_	-	Saunders, J. E. (Cl. xxix.)	Model of o welled smack for fishing, fitted wi auxillory screw propeller. A novel applic tion to vessels of this description.
	-	Semmens, J. and T. W	Model of Mounts Bay fishing-boat, A fice of
France	1475A	Schneider,	Specimen and plans of steam-boat "L'Ocean for the river Rhone, which vessel has ottain great speed and rendered much service to t commerce on that river.
Switzerland United Kingdom	68 125	Smith, S	Target rifle, Model of a spring machine, for modelling shi of any form or dimensions; an incentions at
	1		of any form or dimensions; an ingenious as ready means of setting up a design in model
_	302	Smith, Thomas and William	Specimen model of fine merchant vessels; d signed and built by them for the East Ind trade,
France	1478	Sochel	Distilling poperatus.
nited Kingdom	1:36	Sochel. Tensdel, Wm.	For a good specimen of a life-boat,
Belgium	155	Tourey,	An ornamental double gun, guns and arms.

NATION.	No. in Catalogue,	NAME OF EXHIUTYOR,				OBJECTS REWASDED.
United Kingdom	222	Trulock and Son				Gons, pistols, and rifles, and barrels of good
-	183	Tutt, G. (Cl. xxtx.)	٠		٠	Model of a Hastings fishing lugger; a very find description of boat for the purpose.
_	36	White, J			٠	Models of vessels for merchant service, not yachts; designed and built by him.
****	SGA	White, T. J. and R		٠	٠	Models of fine sailing and steam vessels are yachts.
	56	Wigram, M., and Sons		٠	•	Models of salling and steam vessels, both paddle and screw; designed and built for various mer chants' services.
	200	Wilkinson and Son	٠			Guns, ritles, pistois, and swords; swords highly ornamented.
Spain	264	Zulonge, E	٠		٠	Fire-arms and swords,
			-		_	
		HONOFRABLE	м	E 2	· T	ION.
France	418	Berger, F				Fowling-pieces.
_	1346	Beringer, B	٠	٠	٠	Sporting guns and arms.
	1075	Bernard, Albert		٠	٠	Double and single barrels; good damasque work manship.
United States	321	Colt, Samuel	٠	٠	٠	Revulving rifles and pistols,
France	1582	Delscour, —		٠	٠	Swords and sabres, mounted and ornameuted. Tyroican target ritle,
Austria	154	Falisse and Trapmann	:	:	:	Specimens of military fire-arms; collection e
Switzerland	265	Fischer, E				American rifle.
United Kingdom	255					Gnus, rifles, and pistols.
B. (1975)	278	tirainger, William		٠	٠	Locks for guns.
Bavaria	90 691	Helenlein, C. V.		٠	٠	Rifle, Compass.
Switzerland	5	Leannet F		•	:	Rifle,
Austria	116	Jeannet, F. Keldners, A. C., Nephew	:	:	i	Pistols, mounted in curved Ivory stocks, wit
Bavaria	21	Kuchenrester, J. A		٠	٠	Pistuls.
United Kingdom	217	Manton and Sou		٠	٠	Guns, rifles, and pistols. Collection of ornamental and sporting guns.
Belgium	248	Matherbe, L	:	*	:	Swords, side-arms, of all kinds; sword-blades.
United States	317	Palmer W. R	•	•	:	Target ride.
Prassia	491	Moie, Robert Palmer, W. R. Pi-ter, W. and G. Potts, T. H.	:	÷		Ritle for pointed ball.
United Kingdom	207	Potts, T. H.	٠			Guns, pistols, and riflet.
	249 16×1					Guns, rifles, and pistois. Pistole,
France	328	Prelat, Rubbins and Lawrence	•	٠	:	Military rifles.
	489				•	Numerous collection of swords and side-arms.
Mecklenburg-Schwerin	2	Schmidt, J			÷	Double gun, rifle, and pistols.
Belgium	152	Schmidt, J. Tiniot, J. M. Thonet, J.		٠		Double gun.
United Kingdom	144 247	Thonet, J. Tipping and Lawden	:	:	:	Double gun. Guns, pistols, and rifles, and collection of trad
Switzerland	69	Vanned, J. Weber and Schulthels				Target rifle,
Frankfort-on-the-Maint	6	Weber and Schulthels			٠	Two rifles,
United Kingdom	203	Witton and Daw	٠	٠	•	Guns and rifles.
	Company and	MONEY A	WA	R	DS.	
	_		-	Ť	-	1
United Kingdom	-	Birnie, Alex	•		•	A complete set of fishing-nets, lines, and hooks for deep-sea fishing, 507.
_	-	Bothway, Joseph	٠	•	٠	Models of his improvements in the construction of blocks, combining strength and other ad- vantages with much less weight, 50%.
	174	Dempster, H	٠	•	٠	An Ingenious system of signals for merchan
-	159	Harvey, David	٠	٠	٠	A model of the "Vletoria and Albert" yach executed by him, being a fine specimen of workmanship, 401.

IXII JURY AWARDS-COUNCIL AND PRIZE MEDALS-HONOURABLE MENTION. [CLASS IX.

CLASS IX.

	No. in		OBJECTS REWARDED.
NATION,	Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom	15	Bushy, W	Two or four horse plough, horse-hoe on the ridge ribbing corn drill, and eart.
	135	Crosskill, W	Norwegian harrow, meal mill, cart, clod-crushe and corse-bruiser.
_	142	Garrett and Scns	Horse-bos, general purpose drill, four-row turns drill oo the flat, improved hand-barrow dri for grass seeds, steam angine and thrashle machine.
_	233	Hornsby and Sons	drill on the ridge, oll-cake bruiser, steam-e
United States		M'Cormick, C. H	Resping machine.
7.5		PRIZE MEDAL	
United Kingdom	132	Ball, W.	Two-horse plough.
Cutted Mingroom .	128		Steam-engine and linseed and corn crusher.
	217	Bentall, E. H.	Cultivator dynamometer,
-	237		Improved American churn and turnip cutter,
	37	Barrell, C. Claes, P. Clayton, Shuttleworth, and Co.	Gorse bruiser.
Belgiom United Kingdom	163	Claes, P.	Corn drill and roller,
United Kingdom	242	Clayton, Shuttleworth, and Co	Steam engine.
	47		Tile machine.
_	216	Coleman, R	Cultivator expanding harrow,
_	143	Comios, J	Horse-boe,
	205	Cornes, James	Chaff cutter,
_	96	Comios, J	Cart.
Belgium	510		Plough.
	166	Duchene, J. J.	Churn.
United Kingdom	129	Gibson, M	Clod crusher.
_	150	Gray and Sons	Cart.
_	241	Hensman and Son	Thrashing machine, four-horse plough, corn dri
=	240	Holmes and Sons	Thrashing machine. Two-horse XX plough, four-horse plough, hor rake.
_	414	Hurwood, G. (Cl. vi.)	Meal mill.
Netherlands	74	Jenken, W	Plough,
France	1239		Churn,
United Kingdom	124A	Newington, Dr. S. (as Inventor) Nicholson, W. N. Odeurs, J. M.	Top-dressing machine.
	50	Nicholson, W. N	Oif-cake bruiser,
Belgium	160	Odeurs, J. M.	Plough.
nited States	404		Plough,
United Kingdom		Reeves, T. R. and J,	Drop drill.
	108	Reeves, I. R. and J.	Water drill and liquid-manure distributor.
	228	Samuelson, B	Turnip cutter.
-	228	Scragg, T.	Tila machine.
_	231	Sanutrion, B. Seragg, T. Smith and Co. Stanley, W. P. Taibot Brothers. Taxford and Sons	Haymaker, chaff cutter, horse rake. Linsced and barley crusher.
France	1028	Stanley, W. P.	Plough.
United Kiogdom	271	Toy ford and Your	Steam engine.
carred arroguoga	220		
	151		Light and heavy harrows.
	23)	Williams, W. Whitehead, J. Vachou, Son, and Co.	Tile machine,
France		Various Con and Co	A seed and corn separator.

28A Fowler, J. .

CLASS X.

		COUNCIL MEDA	
	_	COCACID MEDIC	
NATION,	No. in Catalogue	NAME OF EXHIBITOR.	OBJECTS REWARDEO.
nited Kingdom	434	Bain, A	Electric telegraph.
nited States	433 463	Bakewell, F. Bond, Wm. and Son	Copying electric telegraph. The invention of a new mode of observing astr
	46.3	bond, wm. and Son	
rance	1108	Bourdon, E	The invention of metallic baremeters, and for h
nited Kingdom	429	Brett, J.	Printing telegraph
	144	Brooke, C	The invention of a means of self-registeris natural phenomena, by photography.
rance	301 443	Buron	Photographs on paper. Good telescopes, the object-glass being of reservetal.
nited Kingdom	22	Chance, Brothers and Co. (Cl. xxiv.)	A disc of flint glass, 29 Inches diameter.
	296	Claudet, A. F	inventious based upon experiments in the pra- tice of photography; and non-inverted pi- tures.
switzerland	75	Daguet, F	Superiority of glass for optical purposes, gos specific gravity, clear; crown-glass as clear flint.
France	160	Deleuii, 1 J	Balance air-pump; and for the invention of arrangement to keep the charcoal points
United Kingdom	145	Dollond, G	
	140	D. 1000, C	Atmospheric recorder, by means of which the readings of the barometer, those of the the mometer evaporator, fall of rain, direction the wind, its strength, electric state of the ai
France	1197	D.1. 010.4	
rrance	1197	Dubosq-Soleil, J	A very ingenious believent, on a new constru- tion, by Silberman; the invention of an app
			ratus for fixing the charcoal points for electr light; a saccharometer of delicate structus and much ingenuity, and an elegant and nov instrument, by Brevais, for exhibiting the ph
'nited Kingdom	210A	Dunin, Count E	namena of polarized light. Extraordinary application of mechanism to h
France	1609	Froment, G.	steel expanding figure of a man. The goo-iness of the work of his theodolites, as
Puscany	57	Gonnella, Professor T	divided meter. Planimeter, a machine for measuring plane sur
nited Kingdom	331	Griffith, Rev. J.	faces. Barometer, with a vacuum capable of comple
_	498		restoration by an air-trap at the top. The convenient and ingenious application
	440	Henley, W. T	magnetic electricity to the purpose of electricity to the
etherlands	87	Logeman, W. M	Excellence of the magnets shown by him.
ranco	610		
			of workmanship,
nited Kingdom	674	Newman, J	The originality, excellence, and perfection of hair-pumps, and self-registering tide gauge.
	334	Oertling, L	Very delicate large and small balances.
rance	1683	Quennessen	A platina alembie, to hold 250 piuts, all in or piece, without solder or seam, a.e.
United Kingdom	254	Ross, A	
			large equatorial.
Prussia	299 310A	Ross and Thomson. (Cl. xxx.) . Siemens and Halske	Great improvements in photography. Electric telegraph.
Cnited Kingdom	253	Smith and Beck	Excellence of their microscopes.
France	386	Taurines	Dynamometer exhibited and manufactured b
'nited Kingdom	26	Vidi	The invention of the aneroid barometer.
		PRIZE MEDAL	
nited Kingdom	368	Ackland, W.	Dividing engine.
United States	201 395A	Allan, T. Bache, A. D.	Electric telegraph.
Austria	135	Backs, W. Baumann, T.	
Prussia	76		Comparateur.
France	414	Beyard, H	Talbotypes. Theodolites and sextants.
France	1549	Bertaud, jun. Beyerle, G.	Slices of crystals.
	765		Cylindrical leases.



lxiv	lxiv JURY AWARDS—PRIZE MEDAL, [Class X						
Nation.	No. in Catalogue.	NAME OF EXHIBITOR.	Objects Rewarded.				
United Kingdom	372	Blunt, Henry	Model of Erntesthenes; part of moon,				
France	434	Blunt, Henry Bourgogne, J.	Microscopic preparations,				
United States	137	Bourgogne, J. Brady, M. B	Daguerreotypes.				
France	670						
	432		Their series of electric telegraphs. Solar compass. Surveying instruments. Scales for calculating the corrections for a transit				
United States United Kingdom	187	Burt, W. A	Solar compass. Surveying instruments.				
	123		Scales for calculating the corrections for a transit instrument. Safety lamp.				
France	1155	Chard Collot Brothers Cotton, Wm. Crichton, J.	Bolance,				
United Kingdom	-	Cotton, Wm.	Corn-weighing machine.				
	452	Crichton, J.	Drawing instruments and sextants.				
. —	333	De Grave, Short, and Fanner	Weighling-machines, assay and other balances.				
	76 317	De la Rue and Co. (Cl. xvn.)	Iridiscent films. Process of relief mapping.				
Mecklenhurg Schwerin	317	Dolberg, A.	Balanco				
United Kingdom	344	Denton, J. B. Dolberg, A. Dover, J. Electric Telegraph Company. Elliot and Sons.	Balance.				
	-	Fleetric Telegraph Company	Series of electric telegraphs,				
	320	Elliott and Sons.	Drawing instruments,				
Pruseia	274	Engel, F.	Wave surface,				
Daniel States	146 25	Ericinon, J.	Sea-lead; pyrometer, &c. Universal astronomical instrument.				
United Winedown	195	Facy, R	Orrery.				
France	501	Fastré, J. T.	Thermometers.				
France	836	Flacheron-Hayard	Tallyotypes				
	220	Foncalt, P.	Printing machine for the blind.				
	1239	Galy-Cazalat.	Manometer, upon the hydraulic principle.				
United Kingdom	457 85	Griffin, John Joseph	Chemical apparatus. Drawing Instruments.				
United Kingdom	861	Users P. P.	Planimeter,				
France	207	Honnemen and Malone	Talbotypes.				
- International Property of the Property of th	249	Hett. A					
	152	Hewitson, J.	Tide-gauge,				
Denmark	47	Hjorth, S.					
Denmark	220	Elliet and Scon. Engel, F. Erlewan, J. Erlewan, J. Erlewan, J. Erlewan, J. Erley, R.	Praying instruments.				
Cuited Kingdom	401	Horne, Thornthwalte, and Wood. Highes, W. Johnson and Matthey (Cl. 1, Johnson, W., and A. K. Jürgensen and Sons Kilhurn, W. E. Kinzellasch, T. Kilhurn, W. E. Kinzellasch, T. Kinglit and Sons K. Kawrense, M. M. Laeston, Dr. H. B. (Cl. 1,) Llevyl, LtCol. J. A. Labre, J. F. and Co.	Good work in photograph apparatus. Topography for the blind.				
	477	Johnson and Matthew (Cl. 1)					
	198	Johnson, W. and A. K.					
Denmark	17	Jürgensen and Sons					
United Kingdom	294	Kilburn, W. E.	Photographs,				
Wurtemburg United Kingdom	26 453	Kinzellach, T	Dialitic telescope.				
Personal	194	Knight and Sons	Chemical apparatus, Large relief globe,				
Prussia	151	Lawrence M M	Daguerreoty pc.				
United Kingdom	8	Leeson, Dr. H. B. (Cl. 1.)					
	322	Lloyd, LtCol. J. A	Storm indicator, or typhodeletor.				
Prussia	83	Lutime, J. F., and Co. Mars, J. Marchesl, G. B.					
France	656 139	Macs, J.	Prism of zine glass. Instruments for the blind,				
United Kingdom	9	Marcheel, G. B. Mitchell, Rov. W. (Cl. 1.) Nachet . Nasmyth, J. Negretti and Zambra .	Models of crystals,				
France	1370	Nachet	Microscopes.				
France	688	Nasmyth, J.	Moon maps.				
	160A	Negretti and Zambra					
	212	Newton and Son					
Prussia	77		Fine lines on glass.				
United Kingdom	318	Oerining, A	Balance. Helicograph.				
Franco	369	Perrose, F. C.	Dividing engine.				
Franco	92	Phillips W If (Cl v)	Fire annihilator.				
	269		Elliptic compass.				
Franco	1679						
Austria	362 254A	Pretsch, Paul	Photographs.				
Belgium	504	Read P	Solid eye-piece. Balance.				
France	999	Sacré, E	Photographia appendus				
	252	Schoell, C. A.	Model of Mount Sentle.				
Grand Duchy of Hesse	77	Schroder, J	Plotographic apparatus. Model of Mount Sentle. Descriptive models of joining in wood, crystals, &c.				
Prussia	483	Seel, H., jun. Shadbolt, G.					
United Kingdom	677A	Shadholt, G.	Microscope condenser. Fine astronomical instruments and sextants.				
India	711	Smith Cant	t'om-weighing machino,				
United States	95	Smith, Capt.	Detector compass.				
India	148	Shmus, W. Smith, Capt, St. John, John R. Staffel, J. A.	Calculating muching; machine for weighing area				
			clous metals, &c.				
Saxony	15	Stochrer, E	Electric telegraph,				
United Kingdom	390 667	Stochrer, E. Thomas, C. X. Topping, C. M. Van Schendel, P.	Calculating machine.				
Releium	173	Van Salvandel P	Microscopic proparations. A model of descriptive geometry - perspective.				
Belgium Unlted Kingdom	257	Vnn Selsendel, P. Varley and Son					
	719	Vedy, F.	Sextants and reflecting circles.				
United Kingdom	430	Vedy, F. Walker, C. V.	Graphite batteries, &c.				



NATION.	No. In Catalogue.	NAME OF EXHIBITOR.	Ordects Rewarded.
United Kingdom	664	Ward, W. B	, Botanical cases.
	26	Watkins and Hill (Cl. v.)	. Dry-pile apparatus, galvanometer, &c.
Switzerland	414 84	Westmoreland, J	. Electrical machine. Planimeter.
United Kingdom	451	Wettli, C. Whipple, J. A	. Daguerreotype of the moon.
	- 2	HONOURABLE MEN	TION.
	1		7
Frankfort-on-Maine .	. 7	Albert, J. W.	. Photngraphs.
Prusia	349	Ausfeld, A. Barrett, R. M. Barton, II. W.	Planimeter. Sextants.
United Kingdom	708	Barrett, R. M	
North autom to	83	Barton, II. W	. Military sketching. Balance.
Netherlands	762	Becker, C	
France	130	Becker, C. Bernard, D. F. Burg, Citevalier A. de	. Optical instruments. Dynamometer.
Austria	130	Bosch, E.	
Prosis	2/4	Chadlarn Brothers.	Good and cheap matruments.
France	1729	Chevalier, C.	Microscopes,
Belgium	183	Dehennunit, J. B.	Aprimometer.
nited Kingdom	436	Dering G E	Electric telegraph.
content strong ground	438	Dering, G. E. Edwards, J. B. Fisher, T. Gavard, A.	
inited States	263	Kuchuse W	. Chemical apparatus; electrotypes Mathematics simplified.
France		Garard A	Pantographs.
Cnited Kingdom	100	Gerard, A.	. Trigonometer,
France	262	Henri M	. Spectacles applied to all distances of the eye.
rance Inited Kingdom	300	Henri, M. Hill and Adamson (Cl. XXX.)	Talbotype groups.
Russia	163		Drawing Instruments.
France	548	Jamin. Kern, J. King, T. D. Kusche, J.	Prisms and leaves.
France	83	Kern J.	Drawing instruments.
inited Kingdom	287	King, T. D.	Polarising microscope atand.
Austria	135	Kusche, J.	Balance.
l'uited Kingdom	291A		, Microscople apparatus,
France	1690	Lalanne, L. Laur, J. A. Leonard, S. W.	. A calculating-tule, constructed un new principl
P TOTAL DESIGNATION OF THE PARTY OF THE PART	567	Laur, J. A.	Planimeter graphique.
United Kingdom	306	Leonard, S. W.	. Microscopic drawings.
Sweden and Norway .	15	Littman, E.	, Balance,
Prussia	81	Lüttig, C	. Drawing instruments.
France	620	Mauromble	Coloured daguerreotypes.
	409	Marratt, J. S	. Telescopes.
witzerland	95	Lüttig, C. Mauromble Marratt, J. S. Massett, L. Mayall J. E.	, Cleap orrery.
'nited States	491	Mayatl, J. F. Moltoni and Siegler Nietzehmann and Vaccanni	Photographs,
France	649	Molteni and Siegler	. Reflecting circles, &c.
Prussia	706	Nietzchmann and Vaccanni	. Drawing instruments.
Denmark	20	Nissen, J	Air-pamp, balances.
United Kingdom	411	Phillips, J.	. Rain-gauge, anemometer.
	248	Pritchard, Andrew	, Microscope, Balance
Prussia	86	Reimann, L.	
Bavaria	34	Reifler, C	Drawing Instruments. Drawing Instruments.
France	1455	nonget de Line, I. A	Drawing instruments, Planimeter.
Switzerland	50	Sang, J.	. Calculating machine.
witzerining,	181	Schroedter, E. Stampfer, Prof.	. Calculating macmine Throdolites.
Prussia		Standard Hard	
Austria	482	Stampter, Front Suess, W., Thierry, J. Tree and Co. Viberg, A. P. Vogel, C. F. Werthefmer, D. J.	. Surveying instruments Thermo-electric battery.
Pressure	1038	This is	Daguerreotypes.
France	324	Terre and Co	Fine ivery and metal scales.
Sweden and Norway .	14	Tree and Co.	. Balance.
Austria	739	Variable C. P.	Photographs.
United Kingdom	397	Werthelmer, D. J.	Calculating machine.
curren remignous	-597	retinemer, r.d	· Cuttameral management

CLASS XA.

COUNCIL MEDAL.

NATION,	No. in Catalogue.	NAME OF EXHIBITOR.	Onfects Rewanded.
Bavaria	23	Bochin, T	Important scientific improvements of the finte. and the successful application of his principles
France	173	Ducroquet, P. A	to other wind instruments. Application of the pneumatic lever to a church urgan.

United Kingdom and France, France, United Kingdom	Peculiar mechanical actions applied to piano- fortes and harps.
	Invention in argan building, of a new method of connecting the great organ with the swell ar- gan, by means of a pedal and of a new stop called the keraniaphon.
556 Hill and Co	Invention of a stop of great power, and a mode of slutting the stops by means of keys.
Franco 1725 Snx, A	Invention of several classes of wind instruments
735 Vuillaume, J. B.	In wood and metal. Modes of making violins, in such a manner that they are matured and perfected lammediately on the completion of the manufacture, thus avoiding the necessity of keeping them for considerable periods to dovelop their excel- lencies.
Taited Kingdom . 200 Willis, II	Application to organs of an Improved exhausting valvo to the pneumatic lever, the application of pneumatic levers in a compound form, and the invention of a movement in connection therewith for facilitating the drawing of stops aither singly or in connection.
United Kingdom	avoiding the necessity of keeping them considerable periods to develop their of lencies. Application to organs of an improved exhan- valve to the pneumatic levers, the applier of pneumatic levers in a compound from the invention of a movement in comes- therewish for facilitating the drawing of

PRIZE MEDAL.					
Tuited Kingdom	487	Addison, R			" A Royal Albert" transposing pianoforte.
mance		Bernardel, sen.	٠		Violina.
18000 1 1 1 1 1 1	424	Besson, G.			Various metal musical instruments,
'nited Kingdom	519	Betts, Arthur	٠		Two violins.
axony	25	Breitkonf and Härtel			A grand pianoforto.
nited Kingdom	518	Broadwood, John, and Sons .	٠		Successful improvements in planoforte making.
miet Kingoom	735	Bryceson, II.	٠	:	A church barrel organ,
rance	442	Buffet, A.	•	•	Obees, clarionets, fintes, and a "corne-Inglese."
nited Kingdom	547	Callcott, J.	*	- 1	Invention of a French horn, without loose crook
nited States	438	Chickering, J.	•	٠.	A square pianoforte, and the Jnry think high
					of his grand planoforte.
'nited Kingdom	168	Collard and Collard			Pianos, and successful application of seven improvements in pianoforte making.
rance	1172	Debain, A	٠		A mechanical pianotorte.
uscany	58	Ducel, A. and M			An organ with a "Baristata" stop.
nited States	481	Eisenbrant, C. II			Clarionet and flutes.
nited Kingdom	509	Forster, S. A			A violencello, violin, and viola.
rance	1231	Franche, C.	٠		A new repetition action in a planeforte.
paln	272	Gallegos, J.			A "Guitarra Harpa."
russia	818	Gebruhr, C. J.			A pianoforte.
inited States	442	Gemunder, G			A "Joseph Guarnerius" violin (chiefly), as for three other violins, and a viola,
rance	454	Godfroy, C., sen			Flutes.
assau	8	Heckel, J. A			A bassoon of n new and improved construction
nited Kingdom	615	Heeps, Jonana Harriet			Hearing apparatus, made of gutta percha.
Vartemburg	24	Helwert, J	٠	٠	A bassoon with 19 keys, of an improved co-
nited Kingdom	500	Hopkinson, J. and J			A horizontal grand planeforte, with new pater action.
-	486	Hund, F., and Son		•	A cottage pinnoforte, in the form of a lyre, terms the "lyra" pinnoforte,
elginm	176	Jastrzebski, F			An apright pisnoforte.
ranca	1274	Jauliu, J. Jenkins, W., and Sons	٠		A panorgue, and his improvements in free reed
nited Kingdom	481	Jenkins, W., and Sons			An expanding pieno for yachts, &c.
-	467	Kirkman and Son	٠	٠	A semi-grand piano, and an oblique piece plane.
everia	100	Knocke, A			His mechanical improvements in kettle drums.
nited Kingdom	540	Kölder, J.,			A slide trombone, and the application of he patent valves to other metal wind instrument
	100	Lambert and Co			A cottage pinnoforte.
	673	Macfarlace, George.	1	:	An improved cornet-à-piston.
elgium	175	Mahillon, C.	1	:	Clarionets, and a trombone and ophleleide.
nited States	50	Meyer, C.	1	*	Two pianofortes,
rance	1665	Montal, C.		:	Four cottage pianofortes.
nited States	374	Nuns, R., and Clarke	÷	:	A 7-octave sunare pianoforte and a new tunis
nited Kingdom	520	Ontes, J. P.			of Alolian reeds, Improvements as applied in cornets.
rance	943	Pape, J. II		:	Certoin improvements in pisnofortes.
nited Kingdom	5614	Pask John		:	Clarionets and brass instruments.
	587	Purdy and Fendt	٠	٠	A double base (chiedy), and for four violine, an two violencellos.
rance	1687	Roller and Blanchet			Three pianofortes,
	536	Rudall, Rose, and Co	:	:	A Carte's Bochm patent flute.
urtemburg	23	Schiedmayer and Sons			A square pianoforte, in malogany.
ruseia	707	Schulze, J. F., and Sons			

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.		OBJECTS REWARDED,
United Kingdom	469	Southwell, William	-	A grand pianoforte.
	470	Stodart, Wm., and Son		A square pianoforte. Oboes and a "corno-Inglese."
rance oited Kingdom	1510	Triebert, F	:	A newly-constructed baseon, and improvement
ones magazza : ·	526	Wheatstone and Co		in drums. A povel invention of a portable harmonium.
=	499	Wormum, R	:	An improved piccolo pianoforte,
		HONOURABLE MEX	STI	
	1719	Ajevandre and Son		Two harmoniums à percussion.
France	404	Aucher and Son	:	Two unright pianofortes.
Belgium	174	Benden, F., and Co.,		Three cabinet pianofortes.
United Kingdom	553	Bishop, James C.		A cabinet organ, containing composition pedal
France	1555	Bréton,		A clarionet oo Boehm's principle.
I'nited Kingdom	546	Card, W.	. !	Flutes.
New South Wales'	5	Clinch, J	•	A set of bagpipes, made by George Sherre Sydney.
France	1163	Courtois, Aotolon	. !	
United Kingdom	554	Dawson, C	•	As organ, called an Antophon; the tunes bein produced by means of perforated sheets of mill-board.
France	475	Detyr, N. and Co		Two opright pianofortes.
Austria	141p	Deutschmann, J		A seraphine.
Wurtemburg	20	Dicudonne and Blädel		A grand pisneforte, with double action.
United Kingdom	505 543	Dodd, E	:	Violin, violoncello, double hass, and harp string Violin, viola, and violoncello bows; and silv strings for the violin, violoncello, and harp.
Wartemburg	21	Doerner, F		
rance				Harps,
ndia				
rance	814	Gautrot and Co	٠	A pianofurte with Æollan attachment.
nited States nited Kingdom	435 503	Gilbert and Co	:	
morgana pona	468	Greaves, E	:	A tuning apparatus (in addition to 50% in money
***	510	Heaps, J. K.:		A violoncello,
France	1268	Iterz, II.		Four pianofortes, A square pianoforte,
United States	438 185	Hews, G		The quality and cheapness of a violin,
Canada	189	Higgins, P	:	
Switzerland	87	Hini and Hübert		A grand planeforte. Violin, violoncello, double bass, harp, and guite
Austria	151	Indri, A	٠	Violin, violoncello, double bass, parp, and guite strings.
United Kingdom	533	Jones, B		An improved grand triple-string Welsh harp.
France	1633	Kleiniasper		A cottage pianoforte.
Naxony	536	Klemus, G. and A		A violin ornameuted with mother-of-pearl. A bombardon.
France		Labbaye, —		A semi-grand pianeforte.
France	1711	Martin, -	:	A reverberating organ.
	633		- 1	
	1365			Two portable melodiums.
Bavaria	35	Pfaff, M.		A bemberden ophicleide.
United States Wurtemburg	90 25	Pirson, J	:	A patent square pisnoforte. A pair of orchestra kettle drams, tuned on a ne
Wurtemburg	2.3		•	pian.
Austria	153 559	Riedt, J. F. (Widow of) Rolson, T. J. F	:	A chromatic horn. An enharmooic organ, levented by T. Perron Thumpson, Esq., M.P.
Hamburgh	14	Rühms, H		An upright pianuforte.
-	13	Schröder, C. II		A grand planoforte.
France	1482	Simon and Henry		Yielin and violencello bows.
Prussia	893	Sommer, F	٠	A sommerophone. Three cottage pianofortes.
France	1699	Soufleta,		A double bassoon.
			•	
United Klogdom	494	Towns and Packer		A semi-grand transposing planeforte. A double bass, made of bird's-eye maple.
Malta	1	Tonna, J		A double bass, made ut bird s-eye mapie. Flutes.
France	358	Tulou,		
Austria	155	Uhlmano, J	-	F, E, and A clarionets, oboe, and corne-ba- setto.
Belgium	181	Vogelsangs, J. F		A grand piano,
United Kingdom	561	Walker, J. W	- 1	An organ, adapted for a hall or music-room.
Prussia	361	Wehrle and Steaert		A self-acting organ, manufactured by F. Wehrb Black Furess, Baden.
			1	Black Furest, Baden.
United States	533	Westermann and Co	:	A grand pianoforte, made of resewood. His invention of a "piano-violino," in addition

IXVIII JURY AWARDS-COUNCIL AND PRIZE MEDALS-HONOURABLE MENTION, ICLASS XII

MONEY AWARDS					
NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	ORIECTS REWARDED,		
United Kingdom	469	Greiner, G. F	For the expenses incurred in making his new and useful method of bringing into unison the strings of each choir of the planoforte, also for his invention of a new and mechanical con-		
United States	533	Wood, J. S	trivance for pianos, £50. For the expenses incurred in constructing the ingenious mechanical contrivance in his piano-violin, £50.		

CLASS XR

COUNCIL MED 11

COUNCIL MEDAL.				
NATION.	No. ia Catalogue,	NAME OF EXHIBITION.	OMECTS REWARDED,	
United Klagdom	55	Dent, E. J	Large-turret clock, on account of the combina- tion of strength and accuracy of time-keeping attained in it, which are also accomplished by a cheaper mode of construction than in other turret-clocks of high character.	
France	275	Japy Brothers	Clock and watch movements made by machi- nery, much cheaper than any other movement and equally good,	
Switzerland	94	Lutz, C	Watch-balance springs, which were submitted by the Jury in the test of stretching out and heating, without affecting their form.	
France	736	Wagner, J. (Nephess)	Clock with a continuous motion for driving tele scopes, and for his collection of turret-clocks which on the whole display great fertility or invention.	

	1	invention.
2,5		PRIZE MEDAL.
Switzerland	22 53	Andemars, L
France	441	Brocot, A
Switzerland	9	Du Bois, F. William Astronomical clock.
France	1589	Deteuche and Houdin Good collection of clocks
United Kingdom	57	Fredslam, C Chronometers and watches
Switzerland	8	Grandjean, II Pocket chronometers,
Switzeriams	24	Gros Claude, C. II. Two watches,
France	516	Gannery, V Astronomical clock.
United Kingdom	97	Gowland, James Clock esensement.
France	525	Gourdin, J Small turret-clock,
United Kingdom	7	Hutton, J Chronometers.
Cinted Kingdom	32	Jackson, W. H. and S Watches, solid key.
Denmark	17	Jurgensen and Sons Chronometer.
United Kingdom	12	Loseby, E. T Compensated balance.
Switzerland	25	Leconlire, A
INTERCTION I I I	96	Mercier, S Watches.
United Kingdom	68	McDowall, Charles Escapement (clock),
France	601	Montandon Brothers Watch msin-springs.
Switzerland	92	Patek, Philippe, and Co Chronometers, watches, &c.
Inited Kingdom	35	Parkinson and Frodsham Chronometers and watches.
Prussia	312	Richard, Louis Chronometer.
France	944	Reydor Brothers, and Colin Chesp house-clocks.
	1425	Redier, A Cheap watch-abrume
_	1685	Ricussee, N Watch, with printing seconds-hand.
United Kingdom		Roberts, R
· mare in good i i	193	Roskell, J Collection of models and watches.
	124	Rotherham and Sons Collection of watches.
P	700	Properties and some Chareton of watches.

HONOURABLE MENTION.

United Kingdom	525	Anbert and Klaftenberger , , Watches,
France	407	Ballly-Comte and Son Cheap turret-clocks.
Switzerland	74	Baron and Uhlmann Chronometers and watches,
	31	Bock, H Watches.

NATION.	No. In Catalogue,	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom , France . United Kingdom Switzerland	94 450 128 34 78 23	Barraud and Lund Boltou, T. Chavia, (elder Brother) Cousens and Whiteside Cosarcoider, F. Editroth, D. H. Favre, Braudt Favre, II. A. Leroy and Son	Compensation-balance and watches, Cheap watches Cheap turret-clocks, Nuop-match. Chronometers and watches. Wittel in penclicase. Watch in penclicase. Such the forest periodical teeth, Machine for earting opining second-bands for marking minute perions of time. Carriage clocks and watches.
Switzerland	292	Laumain, C	Pocket-chronometers. Chronometers and watches.
France	350 128	Shepherd, C	Cheap clock-alarums. Electric elock-escapement.
		MONEY AWARD	
Switzerland	. 101	Retor, F	To enable him to carry on further experiments to test the inochronism of spirals, his invention of a new and ingenious free spring-escape- ment being particularly adapted for that pur- pose, 250.

CLASS Xc.

PRIZE MEDAL.						
NATION.			No in Catalogor,	Name of Exhibitor. Objects Rewarded.		
United Kingdom			619	Arnott, Dr. J Mode of applying cold as a novel therapeutical agent.		
Franco	•	٠	13	Auroux, Dr. L		
United Kingdom	٠	٠	631A	Avery, John illuminating apparatus for exploring long and narrow canals.		
_			676	Bigg, H. and Son Collection.		
Franco			79	Burnt Brothers Herniary bandages.		
Tuscany	٠	٠	-	Calamai, Prof. L A series of models in wax, representing the anatomy of the torpedo.		
United Kingdom			570A	Caplin, Madame R. A Corsets.		
			570	Caplin, J Gymnastic apparatus, and orthorachidle instruments.		
France			1145	Charrière, J. F Collection.		
United Kingdom			682	Coxeter, J Collection.		
			274A	Evans, W Artificial leg.		
			643A	Evans and Co Collection.		
_			631	Ferguson and Sons Collection.		
			·	Gordon, J Anatomical model in Ivory.		
-			286	Gowing, Thos. Wm Veterinary Instruments.		
			565	Grossmith and Designdins . Artificial eyes.		
			729	Hutchinson, Dr. Spirometer.		
Switzerland ,	٠		106	Juned, T. Apparatus for hemospatic.		
France	•	•	1333	Lüer, A		
United Kingdom			654	Machell, Thomas Saw, or esteotome.		
United States .			39	Palmer, B, F Artificial leg.		
Portugal			633	Polycarpo, A A case of surgical instruments.		
United Kingdom			62)	Rein, F. C Acoustic Instruments for the deaf.		
=			642 624	Simpson, II. Collection. Simpson, G. Anatomical model of the human figure. This figure consists of pieces that may be detached at pieceare, and is calculated to stand the heat of twoical climate.		
France			1505	Thier Teterelle.		
United Kingdom		:	625	Towne, J Anatomical models in wax.		
			631A	Weiss and Son Collection.		

CLASS XI.

		PRIZE MEDAL.	
NATION.	No. In Catalogue.	NAME OF EXHIBITOR.	Osusces Rewarder.
United States	2	Amoskeng Manufacturing Company.	An assortment of drillings, tickings, sheeting and cotton flannel.
Switzerland	111	Anderegg, T	Cambric muslims of unusually fine yarns
United Kingdom . ,	16	Anderson, D. and J. Brook, Jones, and Brothers	Ginghans, Two to nine-cord sewing thread.
	44	Brook, Jones, and Brothers	Turkish bath towel,
France	156	Daudville, A.	Excellence of manufacture in harness winds
	189		curtains, and piece mustins Grey culicoes.
Belgium Franca	148	Pubar Delespaul	Cotton trouscrings.
	494	De Bast, C	Shirt-fronts, loom-made, in imitation of needl
			work,
Switzerland	122	Fehr, J. C	Jacquard muslins. Novelty of design and beauty of manufacture.
			eoloured and figured muslins,
Inited Kingdom	8	Finlayson, P., and Co	Beauty of design, and superiority of execution in fast-coloured sprigged lappets.
	53	Gardner and Bazley	Fine varns,
France	256	Hartmann and Son	Figured cottons. Shirtings and long cloths.
inited Kingdom	54	Horrockses, Miller, and Co	Fine varue.
	48	Johnson, J	Quiltings and tollet govers.
rance	1631	Jourdain, X	Muslin,
Prussia	185	Lamberts, A. Christ. Son	Cotton kalmucks and beavers, Ginghams; design suited to French and Germs
			taste.
witzerland	130	Leumann Brothers	Specimens of Turkey red.
ortugal	707 to 712	Lisbon Weaving Company	Cotton blankets and shawls.
uited Kingdom	6	McBride and Co	Cotton diaper, woven by power.
	59	Mair, J., Son, and Co	Cheap window curtains, by a new arrangement of the Jacquard loos.
	49	Major and Gill	Loom-made double coutils and nankeens, for corrects.
rance	715	Mallett (of Vantroyen and Mallett)	Yarns. Furniture dimities.
uited Kingdom	37	Martin, W., and Son	Toilet quilts and hed-covers.
witzerland	131	Nuf, M	Toilet quilts and bed-covers.
rance	379	Nnf, M. Nef, J. J. Ourscamp, The Company of (Pelgne	Spotted muslins, Bleached madarollams,
	62	Delacourt, Manager). Owtram, R., and Co	
nited Kingdom	42	Pansa and Hauschild	Figured and chequered cambries. Four-thread and other numbers of knittin
			eottons.
nited Kingdom	11	Paterson, Jamieson, and Co	lmitation of Madras handkerchiefa. Tartan and book muslin.
witzerland	168	Ranchle and Co.	lmitation of Madras bandkerchiefs; those wit
			blue grounds especially good.
nited Kingdom	14 90	Symington, H. H., and Co	Harness window curtains, Cotton table cloths.
axony	711	Thumer and Topffer	Levantines.
Nortemburg	29	Weigle, J. J.	Waiscontings (with relation to cost).
inited States	352	Weigle, J. J. Willimentle Duck Manufacturing Company.	Cotton sailcoth.
1, 110,		HONOURABLE MENT)	ON.
initzerland	112	Bänziger and Co	Ginghams and striped and checked goods.
-	117	Breitenstein and Co.	Glavhams and striped and checked guests.
inited Kingdom	32	Clarke, I. P	Taste and ingenuity in winding and making u
Belgium	192	De Cuyper, J. F. Dixon, P., and Sons Jansen and Lühdorff	
Bavaria	19	Dixon, P., and Sons	Gioghams and striped and checked goods. Ginghams and striped and checked goods.
-	43		Glughams and striped and elecked goods.
United Kingdom	23		Ginghams and striped and checked goods.
******	20	McGibbon, E	Ginghams and striped and checked goods. Ginghams and striped and checked goods.

CLASS XII.

NATION.	No. in Catalogue,	NAME OF EXHIBITION.	OBJECTS REWARDED.
	-		
nited Kingdom .		Akroyd, J., and Son	Damasks, including also the award for carde Ganappe yarus.
reace	182	Aksenoff, J.	Woollen cloths.
rance	400	Albinet, jun. Apperley, J. and D.	Blankets, Black cloth,
nited Kingdom	12	Apperley, J. and D	Woollen eloths
	276	Astorian Company, Huddersfield	Articles made of bare for.
rauce	1062	Barot, P., and Sons	Fancy, black, and satin, doeskins; also fine piece
nited Kingdom	105	Burnlent and Hirst	Woollen cloths. Woollen cloths.
	109	Beardsell, Isaac, and Co	Woollen cloths.
-	95	Beancit, I, and A	Woollen cloths of new materials.
rance		Receipt Malet and Walbraume	Fine flannels.
XOUY		Bernhard, W. Berteche, Chesnon, and Co.	Woollen cloths.
rance	1082	Herteche, Chesnon, and Co	Fancy doeskins.
	336	Bietry and Son	Cashmere cloths.
-	1550	Billiet and Huot	Thin piece-dyed black for exportation,
elgium	195	Biolicy, F., and Son	Figured goods,
nited Kingdom	165	Bottomley, M., and Son	Merinot.
rance	491	Berteche, Chennea, and Co. Bierry and Son . Billiet and Huot Bildity. F. and Son Bottonley, M., and Son Bostonley, M., and Son Boschez Publier Braun Brothers Brooke, J., and Son Brown, J. and H., and Co. Brown, M.	Woollen cloths.
nited Kingdom		Brooke, J., and Sons	Woollen cloths.
mice ranguom	160	Brown, J. and H., and Co.	Scotch twends, he.
	123	Brown, W.	Damasks made of wool, silk, and cotton.
russia	816	Bruhm and Nügler	Cloths, of worsted weft and silk warp.
rance	82	Cnillet Franqueville	Merinos.
nited Kingdom		Carr, T. and W.	Woollen cloths, also beavers.
rance	1559	Chatelain and Foron	Flannels, Woollen cloths,
		Chennesiere, T.	Woothen yarns,
nissia		Clarenbach and Son	Woolien cloths.
	998	Crombie, J., and Co.	Sentch twoods,
rance	132	Croutelle (Nepliew)	Yarus.
	157	David Brothers, and Co	Merinos and cloths, mixed with organzine an spun silk.
	138	David-Labbe and Co	Merino falicies (lowness of price). Fine scarlets.
ulted Kingdom	214	Davies, R. S., and Sons	Merinos.
rance	471	Dauphinot-Perard	Flannels, swanskins, &c.
elgium	142	Davies, R. S., and Sons Dauplanot-Perard Deheselle, A. J. Delattre and Son Defesse Brothers Dicksons and Lings	
ranco	144	Delfosse Brothers	Merinos.
nited Kingdom		Dicksons and Laings	Woollen fabrics.
elgium.	196	Dubois, G., and Co.	Trouser cloths.
elgium	25.9	Farly, Edward	Witney blankets.
	268	Early, J., and Co	Witney blankets. Carded and Genappe yarns.
-	130A	Leroyd, W., and Son	Woollen cloths.
	351	Fyres, W., and Sons	Woollen cloths.
usein		Fleider, A. U	Manhata with colton warn
nited Kingdom	143	Dicksons and Latings Dubols, Gr., and Co. Farly, Edward Early, J., and Co. Icroyd, W., and Son Eyres, W., and Son Fielder, A. G. Firth, E., and Sons, Foster, J., and Son.	Worsted stuff goods, including also the award it
rance	484	Fortin-Bouteliler	Felt cloths for pianos.
rance	229		Spanish stripes,
suada		Gaushle, W	Blankets. Woollen cloths
russia	100	Geissler, C. S.	
	50	Gevers and Schmidt	Woollen cloths. Flannels exhibited by Johnson, Sewell, and Co.
nited States	411	Gilbert and Stevens	
nited hiagdom		Gott and Sons	
usea	180	Guttenbon, an and J	fabries, and Cashmere-de-laines.
nited Kingdom	67	Gray, S	Woollen cloths.
xony	124	Grossmann, C. G.	Woollen cluths.
	101	Grüner, F. W.	Merinos.
ruseia	357	Huas, L. F., and Sons	Woolien cioths. Firmiture damasks and woolien velvet.
	259	Gray, S. Grossmann, C. G. Grüner, F. W. Huas, L. F., and Sons Huas, P. npl Sons	Firmiture damnsks and woollen velvet. Woollen cloths.
nited Kingdom	99		
nited Kingdom		Hagues, Cook, and Wormald	including award for Sounish stripes.
	25	Hargreave and Nusseys	Woollen clothe from new materials. Doeskins, ensineers, &c.
60 H	207	Helme, W	Doeskins, envimeres, &c. Woollen clotles,
russia	367	Hendrichs, F.	Woollen cloths.
nited Kingdom	34	Henry, A. and S, and Co	Woollen cloths.
stony		Herrmann, W	Cashmere and merino yarns.
rance	1269	Heury, A. and S. and Co. Herranana, W. Hindeniang, sen. Hösel, R. and Co. Hoober, C., and Co.	Dougarke
nited Kingdom	166	Holdsworth J and Co.	
	210		Fine cloths, also clastic cloths for gloving.

NATION.	No. in Untalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom	17	Stancomb, W. and J., jun.	Trouser goods,
	41/6	Stowell and Surden	Mohair yarns,
	167	Sugden, J., and Brothers	Genappe, mobair, and poplin yarns, includin also award for fabrics of English wool, con bined with cotton.
****	75	Sykes, D., and Co.	Woollen cloths.
-	34	Sykes, J., and Son	Woollen cloths,
Russia	187		Woollen cloths,
inted Kingdom , .	32		Woollen cloths.
	116	Tolson and Sous	Trouser goods and vestings.
=	147	Townend Brothers	Genappe, mohair, and poplin yarns. Fabrics of worsted, alpace, and mohair, shot wit cotton, silk, and linen.
Torona .	4	Tweedale, J., and Sons	Flannet.
iaxony	190	Vogel, W.	Dumaaks.
nited Kingdom	. 87	Voluer, -	Woodlen Inbrica,
attet Kinguom	79	Walker, Joseph, and Sons, Lindley, Huddersfield. Walker, J., and Sons, Millshaw,	Mohair cloths, Woolien cloths,
		Leels,	
Prussia	720	Weisstlag, E. F.	Merinos, and brocaded "satins de Chine."
United Kingdom	245	Wilkinson, John	Felt cloth for ship's sheathing and other pur poses.
axony	91	Wilson, J. J. and W	Railway wrappers and Windermere rugs.
nited Kingdom	117	Wrigley, J. and T. C., and Co.	Chambard fabrics, merinos, &c. Woollen cloths.
		Xhoffray and Co.	Woollen yarns,
		Xhoffray and Co York and Sheepslanks	Woollen cloths,
etherlands	34		A fancy blanket,
axony	92	Ziegler and Haussmann	Merinos,
		Bottomicy, Wilkinson, and Co	Satin-faced figured goods of worsted and cotton
United Kingdom	165		
United Kingdom			(Exhibited by Mr. Jacob Beyrens.)
France	1103	Bouchart Florin	(Exhibited by Mr. Jacob Beyrens.) Orleans cloth,
France	1103	Bourhart Florin	(Exhibited by Mr. Jacob Beyrens.) Orleans cloth. Blankets.
Inited Kingdom	1103 1122 151 1138	Bouchart Florin Buffault and Truchon Clough, R.	(Exhibited by Mr. Jacob Beyrens.) Orleans cloth. Blankets. Merino made of English long wool. Merino yarus.
Inited Kingdom	1103 1122 151 1138 149	Bouchart Florin Buffault and Truchon Clough, R. Cauvet, — Craven, J., and Son.	(Exhibited by Mr. Jacob Beyrens.) Orlean cloth. Blankets. Merinos made of English long wool. Merino yarus. Orleans cloth of worsted and cotton.
Inited Kingdom	1103 1122 151 1138 149 152	Bouchart Florin Buffault and Truchon Clough, R. Cauvet, — Craven, J., and Son Dalby, James	(Exhibited by Mr. Jacob Beyrens.) Orleans cloth. Blankes, Merinos male of English long wool. Merino yarus. Orleans cloth of worsted and cotton. Figured fabrics of worsted and alpace, wit cotton and silk warps.
France	1103 1122 151 1138 149	Bourhart Florin Buffault and Truchon Clough, R. Cauvet, Cravet, J., and Son Dalby, James Drummond, James .	(Exhibited by Mr. Jacob Beyrens.) Orleans cloth. Blankets. Blankets. Merinos made of English long wool. Merino yarns. Orleans cloth of worsted and cotton, Figured fabries of worsted and alpacs, wire cotton and silk warps. Figured fabries of worsted and alpaca, wire cotton and silk warps.
rance	1103 1122 151 1138 149 152 150 221 210	Boarhart Florin Buffult and Truehon Clough, R. Cauvet, Craven, J., and Son Dalby, James Fournlyal, Altmayer, and Co.	(Exhibited by Mr. Jacob Beyrens.) Orleans cloth. Blankers. Merinos made of English long wood. Nerinos made of English long wood. Orleans cloth of worsted and cutton. Figured fabries of worsted and adaptace, wit cotton and silk warps. Figured fabries of worsted and alpaca, wit cotton and silk warps. The worst worst warps. We collean cloth warps.
France Inited Kingdom France Inited Kingdom France Custria Gustria	1103 1122 151 1138 149 152 150 221 210 65	Boarhart Florin Buffault and Truehon Clough, R. Cauvet, Craven, J., and Son Dalby, James Drummond, James Fournival, Altmayer, and Co. Ginzel, B. C. Green, R. F. and Son	(Exhibited by Mr. Jacob Beyrens,) (Frience cloth, Merino male of English long woul, Merino male of English long woul, Merino warns. Oriense cloth of worsted and octon, Figured fabrics of worsted and alpaca, wit Figured fabrics of worsted and alpaca, wit octon and sili warps. Yarns. Yarns. Woollen cluths.
France	1103 1122 151 1138 149 152 150 221 210 65 860	Bouchart Floria Buffuult and Truehon Clough, R. Craves, J. and Son Dulty, James Drummond, James Fournival, Altimayer, and Co. Ginzel, R. C. Gillett, and Son Guillett and Watesa	(Exhibited by Mr. Jacob Beyrene,) Offense cloth, Merinos male of English long woul, Merino yarns, for worsted and cetten, Figured fabrics of worsted and alpace, wit rotton and silk warps. Figured fabrics of worsted and alpace, wit Yarns, with warps. Woollen cloths, Offense cloth, Offense cloth,
rance	1103 1122 151 1138 149 152 150 221 210 65 660 1264	Bourhart Florin Boffuelt and Truehon Canvet, Craven, J. and Son. Dalby, James Drummond, James Pourbul, Altmayer, and Co. Ginzet, R. C. Green, R. F. and Sons Guilbert and Matena	(Exhibited by Mr. Jacob Beyrens,) Histonic volumes, and the state of t
rance	1103 1122 151 1138 149 152 150 221 210 65 860 1264 145	Boucher Floria Boffult and Trustein Clough, R. Canvet, J. and Bon. Drusmonoul, James Drusmonoul, James Pourrival, Altmayer, and Co. Ginzel, R. C. Green, R. F. and Sons Guyon, E. and Sons Guyon, E. and Sons Guyon, E. and Sons Guyon, E. and Stein Guyon, E. and Stein Guyon, E. and Stein	(Exhibited by Mr. Jacob Beyrma). Therease cloth. Merines made of English long wool. Merine years. were several and orton. Figured fabries of wested and subset, wit crotton and sill ways. Figured fabries of wested and alpace, wit years. Woollee cloth. Woollee cloth. Christopher was a subset of the Christopher was a subset of Woollee cloth. Christopher was a subset of Albert of the Arman of Albert
rance inited Kingdom rance rance inited Kingdom rance inited Kingdom rance alted Kingdom	1103 1122 151 1138 149 152 150 221 210 65 660 1264	Boucher Floria Boffult and Trustein Clough, R. Canvet, J. and Bon. Drusmonoul, James Drusmonoul, James Pourrival, Altmayer, and Co. Ginzel, R. C. Green, R. F. and Sons Guyon, E. and Sons Guyon, E. and Sons Guyon, E. and Sons Guyon, E. and Stein Guyon, E. and Stein Guyon, E. and Stein	(Exhibited by Mr. Jacob Beyrens,) (Friense cloth, Merinos male of English long woul, Merinos male of English long woul, Merino yarns. Oriense sloth of worsted and cotton, Figure 1 fabric of worsted and alpaca, wit yeuton and with worsted, Figure 1 fabric of worsted and alpaca, wit yeuton and with worsted, Woulder cloths, Oriense cloth, Oriense cloth, Oriense cloths, Oriense cloths, Oriense cloths, Oriense cloths, Oriense cloths, With the cloths, Oriense cloths, Oriense cloths, Oriense cloths, With the cloths, Oriense cloths, Oriense cloths, Oriense cloths, Oriense cloths, Oriense cloths, Oriense cloths, With well were treasured and the lower cloths.
rance Inited Kingdom rance Inited Kingdom rance Inited Kingdom Inited Kingdom Inited Kingdom Inited Kingdom Inited Kingdom Inited Kingdom	1103 1122 151 1138 149 152 150 221 210 65 860 1264 145	Bouchart Florin Bofful and Trurchon Clough, R. Crawet, Crawet, Crawet, Drummond, James Drummond, James Drummond, James Drummond, James Ginzel, R. C. Green, R. F. and Sons Guyen, R. Harris and Florin Hooling and Fride Hooling and Fride Holder, B. T. and D.	(Exhibited by Mr. Jacob Beyrman) Binshete. Merimon anale of English long wool. Merimon anale of English long wool. Orleans chold where and extens, Orleans chold we wered and cettor. The control of
France Inited Kingdom France Inited Kingdom Inited Kingdom France Austria Inited Kingdom	1103 1122 151 1138 149 152 150 221 210 65 860 1264 145	Bouchart Florin Bofful and Trurchon Clough, R. Crawet, Crawet, Crawet, Drummond, James Drummond, James Drummond, James Drummond, James Ginzel, R. C. Green, R. F. and Sons Guyen, R. Harris and Florin Hooling and Fride Hooling and Fride Holder, B. T. and D.	(Exhibited by Mr. Jacob Beyrman) Binakers. Binakers. Grant Binakers. Woulder add binakers. Grant Binakers. Binakers. Grant Grant Bangder add binakers. Grant Grant Bangder add binakers. Binakers. Binakers. Grant Grant Bangder add binakers.
rance inted Kingdom rance inted Kingdom rance inted Kingdom rance tustris inted Kingdom rance catted Kingdom rance atted Kingdom rance rated Kingdom	1103 1122 151 1138 149 152 150 221 210 65 66 1264 145 128	Bouchart Florin Bofful and Trurchon Clough, R. Crawet, Crawet, Crawet, Drummond, James Drummond, James Drummond, James Drummond, James Ginzel, R. C. Green, R. F. and Sons Guyen, R. Harris and Florin Hooling and Fride Hooling and Fride Holder, B. T. and D.	(Exhibited by Mr. Jacob Boyems) Blankers, Mrrison smale of English long wool, Mrrison smale of English long wool, Oriesan feltod for worsted and octoon, Figured falseles of wested and adjaces, wit cotton and silk warps, Woollen challs, Chrison for the chall of the challenge of the Blankers, Mr. of the Angola rabbit Damacks. Circ out of the Angola rabbit Crisons cotto of worsted and cotton, Crisons cotto of worsted and cotton,
France inited Kingdom france inited Kingdom france inited Kingdom	1103 1122 151 1138 149 152 150 221 210 65 660 1264 145 128 	Bouchart Florin Bofful and Trurchon Clough, R. Crawet, Crawet, Crawet, Drummond, James Drummond, James Drummond, James Drummond, James Ginzel, R. C. Green, R. F. and Sons Guyen, R. Harris and Florin Hooling and Fride Hooling and Fride Holder, B. T. and D.	(Exhibited by Mr. Jacob Beyrens) Blankete. Merinos maile of English long wool. Merinos maile of English long wool. Orleans cloth of worsted and octon. Volenas cloth of worsted and cotton. Volenas cloth of worsted and alpace, with the control of t
France inited Kingdom france inited Kingdom france inited Kingdom	1103 1122 151 1138 149 152 150 221 210 65 860 1264 145 128 218 218 497 131	Bouchart Florin Bofful and Trurchon Clough, R. Crawet, Crawet, Crawet, Drummond, James Drummond, James Drummond, James Drummond, James Ginzel, R. C. Green, R. F. and Sons Guyen, R. Harris and Florin Hooling and Fride Hooling and Fride Holder, B. T. and D.	(Exhibited by Mr. Jacob Beyrman) Blankers. Merimus mail of English long wowl. Merimus mail of English long wowl. Orleans chief of worsted and cottom. Colleans chief of worsted and cottom. Colleans chief worsted and alpare, wir cotton and silk warps. Years. Years. Years. A line of the worsted and alpare, wir Colleans chief. Blanker. A line of mole with we'll spun from the down, of Blanker. Damanker. Damanker. Colleans chief. Colleans chief. Worsten and with we'll spun from the down, of Blanker. Blanker. Colleans chief. Worsten and Colleans chief. Worsten and Colleans. Woolline skiefs.
France	1103 1122 151 1138 149 210 65 660 660 1244 145 128 -161 168 218 497 131	Bourlant Florin Enfiniti and Trutchen Enfiniti and Trutchen Convert, I. Conver	(Exhibited by Mr. Jacob Beyrma). Binactes. Binactes. Binactes. Graph of the property of the
France Inteed Kingdom France Inteed Kingdom France Austria Inteed Kingdom Catteed Kingdom Catteed Kingdom Catteed Kingdom Latteed Kingdom Latt	1103 1122 151 1138 149 152 150 221 210 65 860 1244 145 128 -61 161 163 163 163 163 163 163 163 163 1	Bourlant Florin Enfiniti and Trutchen Enfiniti and Trutchen Convert, I. Conver	(Exhibited by Mr. Jacob Beyrman) Blankete. Merines made of English long wool. Merines made of English long wool. Orleans flould of worsted and octon. For the matter the worsted and adjaces, wit Fraginal fairly of vestred and alpaces, wit Fraginal fairly of the fraginal fairly of t
France Inited Kingdom France Inited Kingdom France Lustria Inited Kingdom	1103 1122 151 1138 149 159 221 210 65 860 1264 145 128 218 497 131 88	Bestehart Florin Birffuld and Truebun Clough, R. Clough, R. Clough, R. Clough, R. Clough, R. Convan, J., and Son Bolly, James Dorminoud, Altenayer, and Co. Geres, R. F. Geres, R. F. Geres, R. F. Watsan Guyen, R. Barris and Yelen Barris and Yelen Miner, John, and Co. Scheppen, R. Costpopen, R. Toylor, J. Scheppen, R. Toylor, J., and Sons Waller, W. Waller, W. Waller, W. Waller, L. Wa	(Exhibited by Mr. Jacob Beyrman) Blankers. Merimon smale of English long wool. Merimon smale of English long wool. Merimon smale of English long wool. Ochana chold of worsted and obtain, cotton and silk warps. Formed fasters of worsted and alpace, wit cotton and silk warps. Yarra. Varia. A company of the company of the company of the company bear of the company of the company of the company bear of the company of the company of the company of the company bear of the company of the company of the company bear of the company of the company of the company bear of the company of the company of the company bear of the company of the company of the company bear of the company of the company of the company bear of the company of the company of the company bear of the company of the company of the company bear of the company of the company of the company bear of the company of the compa
France inted Kingdom France inted Kingdom France inted Kingdom	1103 1122 151 1138 149 152 150 221 210 65 860 1244 145 128 -61 161 163 163 163 163 163 163 163 163 1	Bourlant Florin Enfiniti and Trutchen Enfiniti and Trutchen Convert, I. Conver	(Exhibited by Mr. Jacob Beyrman) Blankete. Merines made of English long wool. Merines made of English long wool. Orleans flould of worsted and octon. For the matter the worsted and adjaces, wit Fraginal fairly of vestred and alpaces, wit Fraginal fairly of the fraginal fairly of t

United Kingdom . . 237 Bamford, J. Fine light gauze flannels.

CLASS XIII.

		PRIZE MEDAL.	
NATION.	No. in Catalogue.	NAME OF EXHIUTTOR.	OBJECTS REWARDED,
United Kingdom .	. 48	Alsop, Robins, and Co	Sewing silks.
	360	Andrese, C	Velvet ribbons,
France	. 1064	Balay, Jules	Ribbons made of silk in the gum.
	1065	Andreae, C	Assortment of vestings and figured velvets, and terry.
=	21 41	Barth, Messing, and Pilchon Barres Brothers	Black silk plush for hats. Their perfection of trams for talle and organizane 16, 18, 20, 22, 26, and 28, detaier, for satin am plush.
Switzerland	. 153	Bauman and Streuli	Plain and armure silks, and glace gros-de-Naples
rance	1079	Bellon, Joseph, and Co	Black satius and taffetas,
Andrews .	10<5	Bertrand, Gayet, and Dumontat	Chine and figured silk shawls, searfs, and cravate
Switzerland	157	Bischoff, Christopher and John	Black tafferas, gros-de-Rhin, and some good black satins and ribbous.
France	197	Bonneton, J.	Black satius and black taffetas, Organzine for plush and satin,
	1110	Bouvard and Lancon	A few specimens of their looms, which exhibit
Sardinia	. 24	Berne Michael	manufacturing talent of a high order. Organization satius.
iardinia . United Kingdom .	49	Bridgett, Thomas, and Co	Sewing silks, purse twist, and sarsnet ribbons,
France	1117		Black wilk plush, principally made by power
France	. 39	Brockleburst, J. and T., and Sons .	Persona, serges, sarsacts, gros-de Naples hand kerobiefs.
France	. 1118	Brosse and Co	Coloured velvets.
nited Kingdom .	1120	Brough, J. and J., and Co.	Sewing silks.
France	. 1120	Brunet, Leromte, Gulchard, and Co.	Chine and embroidered silk, gauzes, gresulines and erepes for drasser, stawls, collars, scarf- and crownts
	1125	Buisson and Co	Gauze rildous.
United Kingdom .	. 31	Campbell, Harrison, and Lloyd	Maire antique, figured and brocaded silks.
rance	. 1134	Carquillat (Weaver of Lyons)	Woven portrait of Pope Pius IX, and ditto of the Due d'Aumale's visit to his workshop also of the Queen.
inited Kingdom .	. 30	Carter, Vavaseur, and Riz	Figured silks and moire antique.
	23	Casey and Phillips	Plain black radgimore and other plain silks.
France			Fine six-thread grenndine and organzine for satin
Name on	1143	Champagne and Rougier	An assortment of rich figured silks.
******	796	Chartros and Son	Organzine, for tulle, for ribbons, and for plust and satin.
Sardinia	. 39	Chichizola, J., and Co.,	Plain velvets, and figured silks.
Prance	1154	Colliard and Comte	
United Kingdom .	70	Colliard and Comte. Cope, Hammerton, and Co. Cornell, Lyell, and Webster	Figured ribbons,
France	96	Cornell, Lyell, and Webster	Ribbons, Gaza a bloter, from 10 to 220 threads per inch.
inited Kingdom .	72	Coventry Ribbons' Committee	As excellent specimen of the skill of the partic
	66	Cox. R. S, and Co	As assurament of fancy ribbons.
witzerland	40	Critchley, Brinsley, and Co	Figured silks, haadkerchiefs, and cravats.
Paneriand	152	De Bary, T., and Bischoff	Figured ribbons. Pinin and figured velvets, and velvet ribbons.
rassia	1193	Critchley, Brinsley, and Co. Critchley, Brinsley, and Co. De Bary, T., and Bischoff. Diergardt, F. Donat, Andrè	Vestings and silks for cravats, in plain, figured
	11193		and broche satin, and grenadine. Black silk plush.
-	175	Donat and Co	Organzines.
and the same of	1225	Dumaine, X.	Vestiag and garment silks.
stratani		Fontsine, F Freyvogel and Heussler . Gaboln, George . Gludre, L., and Co	Figured ribbons.
Prassla	119	Gabala, George	Nilks la damasks, and brocatelle for furniture.
rance	1247	Gindre, L., and Co	White and coloured satins. Black and coloured velvets.
United Kingdom .	1245	Glrard, Nephew, and Co	Black moire satins and velvets.
mice magrous :	36	Grout and Co.	
	52	Grosvenor, W. and Co	Furniture silks.
sardinie		Guidet and Co	Plain velvets, figured velvets, imitation of white lace an velvet ground.
inited Klagdom .	· 42	Hadwes, John, and Soas	Spun silk-yara.
rance		Harrop, Taylor, and Pearson	An assertment of black and shot plais silks. Satins in white, black, and colours, of all qualities
Agetria	260	Hell, George. Herne, Auguste Hill, James, and Ce. Hochn and Baumann Holdforth and Son	Assertment of brocatelles,
Austria rance Inited Kingdom	537	Herme, Auguste	Organzine.
nited Kingdom	. 25	Hill, James, and Co. ,	Plain and figured silks.
		Hochn and Baumann	Lustrings,
nited Kingdom .	. 1623	Holdforth and Son	Spun silk-yarns in all numbers.
inited Kingdom .	. 61	Houldsworth, James, and Co	Phin, figured, and printed sitk gauzes; also illu- sian tulle. Farniture silks.
France		Ibrahim Aga Jame, Blanchi, and Dussigneur	Specimens of figured velvets,
france	1087	Jame, Blanchi, and Dussigneur	Grenndine and organzines.
United Kingdom .		Keith and Co	Furniture silks.

NATION.	No. in Cutalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
Russia	203	Kolokolnikoff, Paul	Specimens of gold and silver brocade, chenili
	353	Kondrasheff	A variety of silks in brocada damask, portraits in Jacouard.
France	819	Langevin and Co	Span silks.
	1292	Laneyre and Dolhean	Damask reps, figured and Chine silk shawls.
-	1293	Larcher, Faure, and Co Lemann, J., and Son	Specimens of ribbons.
Austria	265	Lemsan, J., and Son	Brocatelle embroidered in gold and silver, als
United Kingdom	21	Le Mare and Sons	broche gold on chenille and veivet grounds. Black and coloured veivets, satins, moire, an glace siks.
France	1619	Le Mire and Son	Figured silks, with their newest styles in lamps
	-	Lyons Chamber of Commerce	Assortment of fancy silks.
p-1-0	612	Martin and Casimir	Black silk plush. Assortment of black silk plush.
	1319	Massing Brothers, Hubert, and Co. Mathevon and Bouvard	Specimens of rich siks.
	1657		Organzine, both white and reilow,
Prussia	530	Menghius Brothers	Plain and fancy velvets, and velvet ribbons.
Austria	346	Messat, Ant.	
	247	Morriso, Charles	Figured and chine ribbons.
Sardinia	43	Molinari, A	Plain velvets, and rich figured velvet for fu niture.
France	1360	Montessuy and Chomer	Crépes, crèpe lisse, crépe acrophane, and gaux of many kinds.
Turkey	-	Mustapha, Aga Hadgi	Crapes.
Switzerland	153	Nacf and Schwarzenbach	Lustrings and gros-de-Rhin,
Spaio	214	Ordufa, V	Damasks, velvets, and other siiks.
Tuscany	3+	Poldebard, N.	Organzines and trams.
Russio	205	Poliskoff and Zamiatin	Gold brocads and glassett.
France	1403	Ponson, C	Plain silks. Assortment of rich figured silks, and a wove
	1402	Potton, Rambaud, and Co	picture of Her Majesty, Prince Albert, as
-	1435	Reynier (Cousins)	Velvets, gauzes, satins, and taffeta bandke chiefs; collars, slawls, and scarfs, in excelle taste.
Austria	268	Reichardt, F	Plain, figured, and moire silks, for black as coloured satin.
France	1432	Repiquet and Stivent	Fancy vests in velvet plush.
Switzerland	1.52		Plain satin ribbons.
Sardinia	30	Rignon, F., and Co	Organzine for sating.
United Kingdom	24 5	Rignon, F., and Co. Robinson, J. and W., and Co. Robinson, I. and R., and Co.	A variety of satins, serges, velvets, plush, &c. Velvet vestings, black armotinositks, and satin
-	6	Rebinson J and T	Black and coloured velvets.
Switzerland	153	Robinson, J. and T	Half-florence, florence, and marceline.
United Kingdom	3	Sanderson and Reid	Figured vestings,
Rusia	372	Sapognikoff, Heirs of	Specimens of gold and silver brocade, and othe textures.
Switzerland	152	Sarasin and Co	Specimens of figured ribbons.
Austria	152 80	Saranin, J. F	Specimens of figured ribbons. Organzine, 28 derniers for satin, and grenadin
Daniel Control			48 demiers in four threads,
Prussia	534 37	Scheibler and Co. Spitalfields School of Design	Plain and fancy velvets, and velvet ribbons. Pigured and brocaded niks.
	270		Brocatelles.
Switzerland	153	Schwarzenbach, F. J.	Gros-de-Rhin, and Poult-de-socé.
United Kingdom	15	Scamer, Thomas	Moire antique, and plain velvets.
Prussia	514	Simons, J., Heirs of	A variety of velvets figured silks, erayats, han
Sardinia	40	Soley, Bd	kerchiefs, scarfs, vestings, gauzes, &c. Rich-figured silks, armures, and a royale grous for furniture, and some gauze disphase for the
Switzerland	152	Soller and Co	same purpose. Specimens of figured ribbons.
France	1420	Soubeyrand, Louis	Organzine.
Switzerland	153	Stapfer, J.	Plain coloured, striped, and checked gros-d Naples.
-	153	Staub Brothers	Figured silks.
-	159	Sulger and Stueckelberger	Fleured ribbons.
France	1030	Teillard, C. E	Plain glace silks, armures, moire antiques, an rep silks.
	1704	Vatin and Co	An assortment of fancy silk gauzes, dresses, an shawis.
Anstria	87A	Verza Brothers	Trams.
France	1524	Vignat Brothers	Chine ribbons, and some figured ribbons.
Prussia	535	Vom Bruck, H., Sons	An assertment of plain velvets, and velve
			ribbons.
United Kingdom	9	Walters and Sons	Black plush for hats.
	41	Wardle, H. and T	Flicured sitks, handkereblefs, and cravats.
	65	Winkworth and Procters	Shot and glace gros, and figured and Chine silk
Switzerland	153	Zeller, Felix, and Son Zurrer, Jacob	Gros-de-Naples and satisfies, both Gaspe. Persians and sarracts.

HONOURABLE MENTION.

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NATION.	No. in Caralogue,	NAME OF EXHIBITOR.	Objects Rewarded,	
switzerland	134	Alioth, T. S, and Co	Chappes and spun silks.	
	153	Amann and Egli	Satingt, Chine lustrings, and gros-de-Napics.	
rance	763		Collection of ancient silks.	
witzerland	13/2	Bischoff Brothers	Ribbons.	
Rome	7	Bracel, Filanda Al Fano	Organzine.	
	830	Bischoff Brothers Bracel, Filmida Al Fano Bachoven and Vailschwitz	Llack plush for traveiling caps.	
Austris	230	Bader Brothers	An assortment of checks and Chine silks, cravat handkerchiefs, and searfs.	
nited Kingdom	26 158	Brocks, Thomas Boeiger, Mark	Plain silks. Chappers and spun silks.	
France	764	Boeiger, Mark	Figured umbrells and parasol silks, plain poplin	
Austria	252	Bujatti, Franz	Chine, and figured sliks. Damask and turniture silks, black satins, an table-covers for Greece.	
United Kingdom	68	Caidecot, R. and R	Ribbons.	
France	1137	Causec and Garion	White poil, 12, 13 derniers, for ribbons, and for	
Austria	71	Chwails, Anton	" Drammed" silks (a tours comtes).	
France	1176	Delarbre, Victor	White and vellow organzine.	
-	1580	Deydier, Paul	Organzine.	
-	831	Eymieu, P., and Son	Spun silk, both shot and warn.	
Austria	255	Fries and Zeppezauer	Damask and broché shot cotton, also figure silks.	
France	832	Fahrèque-Naurry, Barnoula, and Co.	Spun silk, both weft and warp.	
Sardinia	37 153	Formento, L	Organzine, 26, 28 derniers.	
			Armares, glaces, and striped and checked gro- de-Naples.	
russia	533	Greef, F. W.	Velvets, and siiks, for parasols and umbrellas.	
rance	1241	Greef, F. W.	Woven landscape.	
Lustria	262	Harnbestel, C. G., and Co.	An assortment of plain and figured silks ar figured silk handkerchiefs, terry velvets, as	
witzerland	153	Huber-Rordorf ,	figured crope shawls. Striped and plain gros-de-Naples.	
tussia	207	Iraf Ogil	Plain and striped goods, made from Caucasia	
Prussia	524	Jacobs and Bering	Silk.	
Bavarin	38	Jacobs and Bering	Specimens of parmol silks. Silk plush for hats.	
russia	525	Kuorr, F.	Chine and figured silks,	
Austria	964	Knorr, F. Knibel, John Kootner, Albert	Black plush for hats.	
rance	1298	Lavernhe and Matideu	Poii or tram singles, for gaze à-bluter, and erep de-Chiné, and for organzine.	
Ruseis	204	Lokteff, J	Ribbons, plush wnistcoats, in gros-grains, an neckerchiefs.	
	371	Lapteff, N	Plain, checked, striped, Chine, and figured silk:	
rance	921 227	Lapteff, N. Martell, Geoffroy, and Valensot Meyer Brothers	An assertment of figured and broche silk cravat	
mace	1313	200	Intreeline, juspe, &c. Organzine and grenadine for lace.	
Inne	13/3	Méjean, A	Organzine and grenadate for face.	
russia	582	Meifredi, Armentaria	Organzine.	
	523	Meyer and Engelmann.	Parasol silks, cravats, shawls, and vesting.	
Austria	248	Neviandt and Pheiderer	Cravats and handkerchiefs. Ribbons.	
lustria	152	Pfenningberger, J.	Hibbons,	
Instria	88	Preiswerck, D., and Co	Trams and organitues.	
instria	161	Ressi, G. M.	Trans end organizates.	
	1472	Pfenning berger, J. Preiswerck, D., and Co. Ressi, G. M. Ryldner and Sons Sauvage, R., and Co.		
Lustria	259	Salvage, R., and Co	Moire silks, armures, and taffetas. Black plean for bats.	
Savaria	37	Schipper, Carl	Silk plush for bats.	
lussia	202	Schipper, Carl Slmon, H. Sitoff Brothers	Silver-gilt fringes, braidings, and wire-three and samples of bracade.	
nited Kingdom	29	Soper, Heary	Parasol silks.	
tustria	87	Steiner, G., and Sons	Trams and organzines.	
nited Kingdom	7		Damask for furniture.	
rance	1500	Theyenet Roffin and Rony	Rich rep siiks, Chine shawls, and Chine silks,	
	1037	Thibert and Adam	Black silk plush for hats,	
and the same of	1040		Flounces of various slades.	
	1511	Troccon, A.	Slik shawis and sliks for erayats.	
energy.	921	Velenost M	Terry velvets, and plushes far bonnets.	
nited Kingdom	28	Troccon, A. Valansot, M. Vanner, J., and Son Von der Muchl Brothers	Parasol silks.	
witzerland	162	Vanuer, J., and Son	Glace grot-de-Naples,	
witzerland	102	Washington and Davis	Plain and figured plushes for vestings.	
	133	Wirz and Co.	Satinet and black gros-de-Naples.	
nited Kingdom	10	Wilson and Co	Silk plush for bats.	
tusein	200	Witson and Co Zaloghin	Gros-de-Napies, glace and checked, gros-moir	
	-00		(watered silk), and satin.	

		PRIZE MEDAL.	
NATION,	No, in Catalogue,	NAME OF EXHIBITOR.	OMECTS REWARDED.
Russia	19	Alexandrovsk Manufactory, The Im-	Cauvas.
United Kingdom	5	perial Andrews, Michael	Damask table cloths and napkins.
Belgium	216	Berthelot and Bonte	Hand-spun flax-varu.
nited Kingdom	51	Beyer's Wildow and Co	Damask cloths and uspkins,
nited Kingdom	27	Birreli, David	Damask table-cloths and markins.
Prussia	562 32	Bolenius and Nolte	Fine linens. Cambrics,
rance	20	Beniface and Sen	Diapers.
	212	Cuphorn, Hill, and Co.	Lace thread made from hand-apun yarn.
United Kingdom	92	Coulsen, J., and Co.	Damask table-cloths and napkins.
-	63		. Low-priced striped belding and hessians,
Belgium	235	Cumont-Decleren	Linen threads (colour).
France	137	Dautremer and Co	Fine linens.
Prusia	549	Kickholt, Anton, Heirs of	Designs of damasks and colours of linen.
Spain	193	Ferroi, The Royal Manufactory of	Canvas.
United Kingdom	48 79	Finlayson, Bousfield, and Co Fraser, Douglas	Strength, teste, and neatness in threads (coarse and middle sizes). Canvas made by steam-power looms.
France	526	Grassot and Co.	Domasks.
-	866	Haro, E. F	Canvas for historical painting.
United Kingdom	16	Henning, John	Damask table-cloths and cambries.
	45	Hives and Atkinson (Cl. 1v.)	Mili-spun yarns. Satin-finish linen threads.
Belgium,	53 468	Hoidsworth, W. B., and Co	Assortment of canvas, Bussia-sheetings, &c.
nited Kingdom	10	Kums, E. Kirk, W., and Son	Brown linens of low description and price, Hol- lands.
Prussia	128	Kramsta, C. G. and Sons	Bleached platillas far export,
nited Kingdom	63 63	Laing, J. and A	Ducks, imitation Russla-sheeting. Assortment of low-priced dowlas, backs, sheeting window-blinds, &c.
_	19	McCay, Thomas	Fronting linen, made of mill-spun warp and hand- spun weft.
France	25 320	MeMorray, T., and Co	Fine lineus,
Inited Kingdom	55	Malo-Dickson and Co	Preparation of "China grass,"
France	926	Merlie-Lefevre and Co.	Cordage.
	636		Cambries.
United Kingdom Belgium	71 231	Milvain and Harford	Canvas made with hands. Assortment of canvas, of tow, flax and hemp also railway-waggon coverings.
	222	Parmentier, P	Fine linen of mill-spun yarn, also handkerchiefs
Austria	288	Pedrian's Heirs.	Fine linen of hand-spun varn.
United Kingdom	7	Richardson, J. N., Sons, and Owden.	Light shirting linens for export,
	18	Sadler, Fenton, and Co	Henvy shirting lineus for home trade (bleached)
Franca	1007	Scrive Brothers	Damasks (including their yarn and power-loon goods).
United Kingdom	63	Smieton, J., and Son	Dowlas, crequilias, creas, &c., of light and low priced quality for expert.
Saxony	53 45	Wantle, C. D., and Sons	Damask table-cloths and napkins. Growth and preparation of flax. (Exhibited by Messrs, Hives and Atkinson.)
Prussia	543	Westermann, A. If., and Co	Lineus.
United Kingdom	42	Wilford, J., and Sons	Plain and fancy drills, and China-grass sheeting
	Note.	— The Jury weard the sum of £10 each to	the following Exhibitors.
Fnited Kingdom	105 546	Harvey, Ann. Belfast	Hand-spun flax-yers. Spun flax-yers.
United Kingdom	-	Heepen Spluning School (for a little girl 10 years of age). McGill, Jane, Belfast	Hand-spun flax-yara.
		HONOURABLE MENTI	ON.
Belgium	2003	Ameye-Berta, R	Waggon-coverings, and beavy goods made by power looms.
	163	Beck and Sons and other Exhibitors	
Switzerland United Kingdom	163 6	Beck and Sons, and other Exhibitors. Bell, T., and Co.	Damask and drills. Cambric handkerchiefs.
Switzerland	-6	Bell, T., and Co	Cambric handkerchiefs.
Switzerland		Beck and Sons, and other Exhibitors. Bell, T., and Co. Bernard and Co. Beveridge, E.	Cambric handkerchiefs.

NATION. Catalogue		NAME OF EXHIBITOR.	OBJECTS REWARDED.	
Prussia	799	Burlinch Brothers and Co	Hemp water-pipes without seams.	
Russia	216	Bruzghiu, A.	Canvas.	
United Kingdom	26	Center, Jos.	Ducks, drahbets, &c.	
	36	Carter, Brothers	Ducks, drabbets, &c.	
Spalu	191	Carthegens, Royal Arsenal at	Conlage,	
United Kingdom	24	Corry, Binin, and Co	Damusk, also a design for a table-cloth.	
_	. 83	Coulson, W.	Damask cloth,	
France	1170	Daudré, A	Pamasks.	
Belgium	233	Déroubaix, II.	Drills and other articles.	
	208		Sheetings, hand-span, and imitation Russian.	
_	231	Dogamer, T	Cambric handkerchiefs and other linea articles	
United Kingdom	63	Don Brothers and Co	Brown sheetings and Osnaburghs.	
	63	Don, W. and J., and Co	Brown sheetings and Osnaburghs.	
	63	Easson, A	Saileloth and sacking.	
_	-	Easson, A. Edinburgh Rope and Salieloth Com-	Canvas,	
Prussia	470	Elmendorf, E. F	Middle-sized yarns.	
Austria	284	Ferie, Wenzel	Lowns,	
United Kingdom	36		Ducks, drabbets, &c.	
	106	Gailey, D. (Cl. iv.) Ghent Linen Company Godard and Bontemps	Cold-water steeped flax.	
Belginm	230	Ghent Linen Company	Assortment of the heavier tow yarns.	
France	240	Godard and Bontemps.	Fine cambries.	
Belgium	237	Guens, L. J. Guynet and Berquet	Cordage,	
France	254	Guynet and Berquet	Fine cambrles.	
Linted Kingdom	36	Haxworth and Caruley	Ducks, drabbets, &c. Ducks, drabbets, &c.	
	74	Hattersley, Parkinson, and Co. Helloway, T. J.	Cordage,	
	28	Hunt, W., and Son	Dumaske.	
	36	Jackson and Matthewman	Ducks, drabbets, &c.	
Ilusela	102	Kazalett, A.,	Cordage,	
Prussia	120	Kirstein, C	Linens,	
	556	Kirstein, C	Lineus.	
France	1019	Landerneau, Linen Jolut Stock Com-	Canvas made from hemp.	
'nited Kingdom	63	Leadisetter, J., and Co	Low-priced elecked and striped linear,	
rance	1313	Legrand, D	Fine cambrie handkerehiefs.	
axony	52	Lieske and Habler	Damasks.	
nited Kingdom	22		Bleached lawns and handkereblefs.	
	222	Mengden, Mlehael Von Moore, W. F.	Dumasks.	
nited Kingdom	67	Moore, W. F.	Canvas.	
-	36 81	Pigott and Newton	Ducks, drabbets, &c.	
	21	Renny, Sons, and Co. Hichardson, J. and T., and Co.	Conves, Cambrie handkerchiefs.	
	23	Richardson and Co. (Lisburn)	Excellency of blench in fine linens.	
Wortemburg	36	Seemann, C. and H.	Fine white and printed lineu.	
kustria	290		Bleached ereas.	
Innover	226	Schulze, D. St. Bernard, Antwerp, the House of	Middle-sized yarns.	
Belgium			Dowlas, imitation Russia-sheeting, ducks, &c.	
nited Kingdom	51	Titley, Tatham, and Walker	Excellence in colour of the linen threads.	
lelgium	213	Van Ackere, J. C	A piece of fine hand-spun linen, double thread i	
Netherlands	26	Vanden Harris T	. warp. Cordage,	
semetimists	45	Vanden Hoogen, T	Damasks.	
nited Kingdom	38		Sheetings and huckabacks.	
mana magazini	63	Warden, A. J.	Jute carpeting.	
rnssia	542	Westel, F. W	Lineas.	
hina	-		Cloths and handkerchiefs of China grass.	
	211		Canvas,	
nited Kingdom	31	Wilks, J	An assortment of linens, huckabacks, and Russia	
			sheetings.	

CLASS XV.

	COL	NCH	MEDAL.
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NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	Objects Rewarden.
rance	1182	Denelronse, E., Bois-Glavy, and Cn.	The discovery of a new and important process i the production of elaborate designs.
		PRIZE MEDAL	
		TRIZE MEDAL	
'nited Kingdom	256 309	Atkinson, R., and Co	Collection of poplins. A collection of shawls, and a square of Kashmi
Inited Kingdom	295	Distriction F. F.	wool worked with gold. Collection of shawls and baregu scarfs.
	270	Biss, William Boss Brothers Bolingbroke, C. and F.	A variety of shawls.
rance	68 311	Bons Brothers	Shawls of Indian yarn. Plain, striped, and watered poplins.
'nited Kingdom	1	Brown and Forster	Vestings, of cotton warp nod weft wool; like wise stuffs of utter descriptions, also wais contings of plush vigonia.
Belgium	244	Cattenux Brothers	Pantaioon stuffs of cotton, wool, and linen-cottu
-	245		Cotton, woollen, and linen stuffs.
France	1148	Chocqueel, Felix	Cutting and printing of light shawls.
Austria	800	Croco, F. Cormildi, Diegn	Vestings. Vestings embroidered on a new principin.
nited Kingdom	902	Cross, William	Tartans made of fine ladian wool.
France	1167	Damiron sad Co	
United Kingdom	113	Day, John, and Son	Pantaloon stuff, warp of cotton with a west : carded wood, erressed on one side only, of the character of cassinet.
France	1592	Duel é and Co	Fine shawls of Indian Wool.
Austria	304		Vestings.
France	293	Fassia, jun.	Waisteoatings, &c. Shawis.
Prussia	547	Forbes and Hutchinson	Mixed cloths and dresses.
Prussia	1243	Funke, R. Cousses, Fargeton, and Co	A variety of shawle of ladian wool.
United Kingdom	279	Glen and Mindoe	Excellence and economy is printing shawls. (Exhibited by Keith, Shoobridge, and Co.)
Prussia	591	Grafe and Neviandt	Vestings of cotton warp,
nited Kingdom	1259	Graham, John	Embroidered craps slawls, from Chins. Two long shawls of elaborate design,
France	1621	Grillet and Co	Shawls, woven from Indian wook
Prossia	575	Heymann, C., and Co.	Vestings.
-	117	Hebert, F., and Son	Woollea velvets of plushes of goats' lair, various descriptions, priated, and Chine.
United Kingdom	279	Keitii, Shoobridge, and Co	Large collection of printed showle
Carren temperatur	20 4	Kerr, Robert (Kerr and Scott)	Large callection of printed shawls. Fine specimens of avery description of shawl
	275		and a variety of tartans.
Austria United States	347	Laporta, H. F.	Embroideries, on several textures.
United States	115	Lawrence, Stone, and Co	Tariaus made from native wool, Cassinets of superior quality, exhibited by M
t nited Kingdom	115	Learoyd, William	Rehwann, Cassinets of novel and excellent quality, exh
	192		bited by Mr. Schwann. Specimens of tertan plaids,
France	1309	Lees, R. and G	Vestings,
Belgium	240	Lennire, Descamps, and Plimart Licunti-Cinfinux, Madame	Specimens of pantaloon stuffs.
P	242 1347	Licunti-Cinfinux, Madame Lion Brothers and Co	Specimens of pantaloon stuff, Collection of shawls.
France	113	Mary and Waigert	Utrecht relvet and shawls.
Russia	281	Marz and Weigert	A long white woven shawl.
United Kingdom	-	Milner and Hale	Excellent cashmerettes,
Prussin	532		Woolinn veivet, plain and figured,
	466	Murley, W. J. C	Vestings. Collection of tartans.
France	1380		Vostings of Cashmere.
France	573		Vestings,
United Kingdom	255	Pim Brothers and Co	Collection of poplins.
Austria	301	Robertson, J. and J	Shawis, Specimens of waistcoatings.
Caited Kingdom	396	Sanderson, R. and A., and Co.	Collection of tartans.
Prussia	161	Stieff and Harrass	Variaty of vestings. Printed shawls of great axcellence.
United Kingdom	283	Senisland, C.	Printed shawls of great axcellenca.
Barrer .	111 37	Semisland, C. Taylor, J., and Son. Tee and Son, (Cl. xiv.)	Vestings. Variety of fabrica,
France	1506		
United Kingdom	300	forder, Campin, and Co.	Collection of shawls and first-class printed good
Prussia	494	Torrier, Campin, and Co. Van der Beeck, J. C.	Fancy tartans.
	51		Poplins,
United Kingdom	287	Waimesley, H. (Cl. xr.) Whitehill, M., and Cn. Zelsel, J. and J. and C. Biumel	Merino shawls.

HONOURABLE MENTION.

NATION.		No, in Catalogue.	NAME OF EXHIBITOR,	OBJECTS REWARDED.
United Kingdom .		137	Aked and Sons	Pantaloon cloths.
Portugal		682		Pontaloous
nited Kingdom .	-11	185	Bennett and Co	Utrecht veivet.
France		33	Bonte, L.	Pantaloou stuffs.
	-11	1094	Bonte, L	Shawls.
United Kingdom .		12	Bull and Wilson	Waistcoatings,
Savony		100	Buckbardt, H. T.	Cassinettes, &c.
France	-1	1140	Chambellan, G., and Co.	Collection of shawls.
		89	Chinard, Charles	Collection of shawls
		125	Coru, A	Vestings.
	- 1	1586	Depoultly Brother, Bolvaux, and Co.	Barege shawls,
I'nited Kingdom .	- 1	257	Fry, W., and Co.	Various furniture and dress pieces.
		241	Glison and Bossut	Specimens of pantaloon stuffs.
France	• [1252	Gillion and Bossut	Specimens of printed shawls.
Inited Kingdom .		58	Godefroy	Flannel shawis.
Prussia		567	Haley, John, and Son	Collection of tartains.
Austria		311	Haarhaus, J. C., Sons	Shawls, &c.
Austria			Haydter, Sebastian	
nited Kingdom .		13	Henry, E., and Sons. (Cl. xi.)	Embroidered merinos,
rance		263	Hess, G. Holms, William, and Brothers	Vestings.
United Kingdom .		288	Holms, William, and Brothers	Clan tartans.
_		278	Jameson and Banks	Collection of shawls,
—	- 1	294	Lawson, J., and Co	Printing and designs.
Prussla		136	Lehmann, D. J	Specimens of plush and woollen velvets.
		114	Levin, H., Sons	Vestings.
United Kingdom .		276	Lewis and Allenby	A design of their own composition, of peculis Indian style.
Prussia		133	Max Meyer and Co	Silk and cotton plash.
-	- 1	134	Opdenboff and Hartung	Harness shawls and tartans.
	- 1	574	Pferdmenges Brothers	Light cloths, called cassincttes,
Inited Kingdom .		266	Rernolds, W.	Poplins, for turniture.
Austria		315	Rheinhold, W	Long and square shawls.
-	-1	316	Riss, Joseph	Shavis.
United Kingdom .	. 1	296	Roxburg, John and Andrew	Specimens of woven shawls.
russia	11	580	Rurmann and Meckel	Vestings.
rance	- 1	-	Sabin, Rebeyre	Crayats, searfs, and shawls,
nited Kingdom .	-	125	Schoffeld, J	Pantaloon cloths, vestings in wool, silk, an cotton, and kerseymeres,
Prusela		675	Shulte, J. H	Valentles and Cashmere designs.
Austria	- 1	271	Siebert, F.	Embroideries.
lavaria		41	Trendel, jun.	Light pantaleon stuffs of cotton and wool.
nited Kingdom .	•	310	Willott, E., Nephew, and Co	Paramettas, or bombagines.
. more analysism .		468	Wilson and Son	Collection of clan tertans.

CLASS XVI.

PRIZE MEDAL					
NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	OSJECTS REWARDED.		
United Kingdom .	323A	Adeock and Co	A collection of fenthers for ornamental pur-		
United States	498	Baker, B. J.	Light harness of superior workmanship.		
France	756	Barrande, J. P	An assortment of mornece and kid leather of		
	415	Bayvot Brothers and Co	An assortment of moroeco, roan, and calf lea- ther.		
	56	Berthault	An assortment of purchment and vellum,		
United Kingdom	& 352	Bevingtons and Morris	A collection of furs and skins, and an assortment of sheep-skin rugs.		
-	78	Blackwell, S. and R	Phoeton barness.		
	90	Blyth, R	Lady's saddle and a hunting ditto.		
	294	Bossard, J	Curried calf leather of superior quality.		
-	58		Two coses of bits, stirrups, and spurs.		
	65	Brown and Son	Specimen of saddle trees.		
	77	Caistor, A. B.	Husser and hunting saddles, with pair of hunting		
	307	Clorke, R., and Sons	A collection of manufactured furs.		
	48	Clark, C. and J.	Sireep and lamb-skin rugs.		
	50	Cooper, M	Racing saddle and case of saddlery.		
_	314		Italian lamb-skins, for gloves.		
France	1971	Courtols, E	Black and coloured varnished calf and libles.		
	806	Courtepée Duchesnay	Boot-fronts from the calf-skins of Paris.		
United Kingdom					

NATION.	No. in Catalogue	NAME OF EXHIBITOR.	OBJECTS REWARDED,
Inited Kingdom	293	Cox, W. H., and Co.	Two foreign butts, very well tanned.
'nited States	51	Crawford, H. M.	Calf-skins tanned in oak bark.
nited Kingdom	56	Cutf. R.	Saddle (riding), bridle, and harness,
rence	813	Dende, J	A large assertment of calf and cow hides.
United Kingdom	10	Deed, J. S	Angora goat and English sheep-skin rugs. As
			sortment of morocco leather (and Honourald,
France	473	Delacour, H. P	Horse-bair and "vegetable silk " damask.
United Kingdom	290	Dixon and Whiting	An assortment of varnished and coamelled hide and splits.
Grand Duchy of Hesse	23	Dörr and Reinhardt	An amortment of varnished calf leather.
United Kingdom	336	Drake R	Three very beautiful mutis,
_	253	Draper, R. and H.	A remarkable heavy and well-tanned Englishide,
France	189	Duport, V	Three split hides of twice the usual length,
France	167	Dezaux-Lacour	Curried calf-skins.
United Kingdom	107		A case of harness
Chiten Kingdom	101	Empers, F.	A for execut.
Russia	1212		An assortment of coloured and black morocco
Prince	210	Emmerich and Georger Fieux and Co. Forrer, A. (Cl. xxm.) Gauthier, J.	Mmufactured sole and harness leather.
United Kingdom	99	Forrer, A. (Cl. xxm.)	Ornaments worked in bair and gold.
nited Kingdom	1244	Forrer, A. (Cl. xxm.)	Black and coloured varnished leather.
France	316	Gauthier, J	National clock made from lamb-skins.
Austria	534		Boot fronts of various kinds,
France	257		Horse hair, and also filter stuffing for furniture.
Belgium	283	Hansseus-Hap, B.	Black varnished calf leather.
Prussia	283	Heintze and Freudenberg	Boot fronts and curdovan.
t nited &inguom	293	Hemsworth and Linley	BOOT FROITS SHIR CUPROVER.
	538	Herrensehmidt, G. F.	An English erop butt, Boot fronts and curried calf.
France	39	Herrensehmidt, G, F	Varnished calf leather,
Grand Duchy of Hesse	59	Heyl, C	Variation call leather,
United States		Hickey and Tuit	Two portmanteaus.
France	1271		An assortment of black and coloured varnishe leather,
United Kingdom	301	Hudson's Bay Company	A collection of fur skins.
Canada	109	Jetu, C. A	Curried perpoise leather, and samples of leather from the skin of the whale.
Belgium	306	Jorez, jun	A white varnished hide.
United Kingdom	62	Kane, G	Portmanteaus and camp furniture.
	-	Jorez, jun. Kane, G. Keilich, Henry Konig, L. Landron Brothers Lacey and Phillips	Models of a miniature tigress and cubs,
Prussia	139	Konig, L	A camaille of superior workmanship.
France	1639	Landron Brothers	
United States	41	Lacey and Phillips	A case of harness,
	256	Ladoubée, Le Jeune C.	Saddlery and harness.
United Kingdom	63	Lambert and Son	Waxed calf-skins, boot-fronts, and cordovan.
-	89	Langdon, W., iun.	A light phaeton harness.
	38	Last, S	Railway portmanteau, Horse hair damask, &c.
	330		Horse-hair damask, &c.
France	900	Lemonier and Co	Ornamental hair-work.
United Kingdom	24	Lever, J. and J.	Specimens of veilum and parehment for book binding, &c.
France	1330	Lolagnier	Specimens of leather,
Switzerland	175		Curied calf leather.
Prussia	672	Merklinghaus and Wez	Dressed hides, manufactured for saddlery as
	012	meraniguam and wes	harness,
United Kingdom	304	Meyer, S. and M	Manufactured articles, made from the skins
	67	Middlemore, W.,	the rabbit. Lady's embroidered saddle, and ditto with class
			seat, also mounting-rein for unbroken horses
Canada	113	Morris, R	A set of double sleigh harness.
Grand Ducby of Hesse	36	Mayer, Michel, and Deninger	Japanned and varnished hides, and calf leather
			and morocco, roans, and skivers.
Nova Scotia	2	Nova Scotia, Central Committee of .	A choice collection of skins.
France	1373	Nys and Co	Black varnished calf leather.
France United Kingdom	286	Oastler and Palmer,	Large assortment of enamelled and varnishe
			leather, and erop butt.
	79	Passmore, W	A set of single-horse harness.
France	677	Peltereau, Angust	Sele leather.
	949	Pelteresu, F., jun	Sole leather,
United Kingdom	279	Pollock, J.	A very perfect set of Scotch harness. A varied collection of saddlery and harness.
France	688	Prax and Lambin	A varied collection of saddlery and harness.
	1411	Prin, A , jun. Pullman, R. W. and J.	Russet and black curried calf leather.
United Kingdom	285	Pullman, R. W. and J.	Chamois leather of every description.
Russia	-	Itussian Imperial Cabinet of St. Peters- burgh.	A pelisse lining, made from the necks of the st ver fox, &c.
	232	Skyorsoff, M	Curried calf leather and a few calf-skins curried
United Kingdom	310A	Smith, G., and Sons	with the hair attached. An assortment of furs, made from Russian sold
	17	0: 110 W	&c.
			Specimens of boot fronts.
	92	Swaine and Adeney	A large assortment of whips and canes.
France	92 1022	Swaine and Adency	A large assortment of whips and canes. A good assortment of curried calf leather as boot fronts, and boots and above for expertatio

NATION.	No, in Catalogue.	NAME OF EXHIBITOR.	Onjects Rewanded.
France	1033 1384	Texler, —, jun	Specimens of huck, doe, and fawn leather. Boot fronts, manufactured from Bordeaux call
Denmark	7	Warming, E	rkins. A fur carpet.
Inlted Kingdom	243	Webb, E	Coloured hair-cloth, and cloth composed of sil and hair, and horse-hair carpets. Silver-mounted harness with improved registere
-	1		
Selgium	250 205	Weinknecht, T Wiedom, Russel, and Whitman	Two carpets made of fox-skins and other furs. Specimens of curled hair for furniture.
nited Kingdom	11	Wilson, Walker, and Co	An assortment of coloured sheep, morocco, an calf leather.
Prussia	811	Zeitz, J. F	A coat-lining, made from minx tails, &c.
		HONOURABLE MENTI	
Inited States	476	Adams, II	Portable saddle,
ulted Kingdom	64	Ashford, W. and G	Specimens of whips. A case of harness.
	262	Banton, E	A case of harness. Tanned hides.
Belgium	93	Bauchan-de Bare, A	A lady's saddle and single harness.
	-	Boldner, S	Fur hearth-rug, representing the Royal Arms- England.
	112	Booth, J. P	Various articles of Indies' dress, made from Tu- key down and feathers.
	246	Bouchet, C	Specimens of the new crochet work in wig-ma- ing, on skin and on net. Collection of tanned sole leather.
	293 334	Boutcher, Mortimore, and Co Boulogne, P	Collection of tanned sole leather.
Instrin	245		Kid and inmb-skin leather, dressed for gloves. Head-dresses of ornamental hair.
	293		Tanned hippopotamus hides,
rance	77	Builn, R. A. Buschmann, J. W.	Curried horse hides. Manufactured solo leather.
nited Kingdom	386	Buschmann, J. W	Curried calf leather.
mited Kingdom	94	Buse, N. Bywater, W. M. Caries, H. R. Causse, D. A. Cowan, L. Crotar, J. David, C.	Harness and Improved Russian cavalry bridles
-	251	Carles, H. R.	Wigs and head-dresses.
	259 273	Causse, D. A	Perukes and head-dresses. A set of Scotch cart harness, of patent leather.
ranco	1574	Cowan, L	Perukes without tormees, produced by machiner.
	812	David, C.	Perukes without toupees, produced by machiner A collection of dyed morocco.
· · · · · · · · · · · · · · · · · · ·	1181		Specimens of sheep and morocco leather.
United Kingdom	311	Dick, A	A well-manufactured hearth rag. Dyed and embossed sheep leather, in imitatic of Utrecht velvet.
France	1214	Estivant Brothers	Ruenos Avres bido tanned in onk-bark
United Kingdom	18	Evans and Son	Specimens of well-manufactured parchment, as direction lables.
	233	Evershed, -, Sussex	Well-tanned light sole leather. (Exhibited I Bootchier, Mortimora, and Co.) Curried leather.
France	510 74	Fortier-Beaulieu Foster, Son, and Duncum (Cl. xxix.)	A muff and boa, of Marabout feathers.
unted Kingdom	32	George, C.	Specimens of morpeco and Russian leather
-	289	George, J.	Specimens of leather.
France	850 469	Giraud Brothers	Dyed morocco leather. Cow hide, curried for strap leather.
Belgium	400	Hall,	Enamelled kangaroo skins,
Switzerland	172	Houser, J. de J.	A specimen of solu leather,
Capada	332		
France	261	Henoc, —	Screens and feather brooms, made of ostric peacock, and other feathers.
United Kingdom	13	Hogarty Brothers	Curried calf leather and boot fronts.
Assessed	16	Hogarty Brothers	Specimens of the tanned hide of the walrus &c.
	60	Hudson, S	A hunting-anddle with clastic seat, and a sid saddle with safety stirrups.
Name of Street, or other Designation of Street, or other Desig	106	flughes, R	Heraldic mountings for harness.
-	253	Isidore and Brandt	Wicz, perukes, and other works in bair.
F	266 1325	Kelsey, J. T	A well-tanned crop hile, weighing 82 lbs. Feather for ornamental purposes.
France	1323	Lodlé, A. A.	
United Kingdom	53	Lutwyche and George	Well-manufactured morocco leather, and dy
Luxembourg	. 4	Luxemburg Glove Manufactory	Bronze and black kid leather.
Belgium		Masson, Charles	Tanned sole leather.
France	1345	Massemin, C. L	Calf leather, adapted for boot fronts. Dressed leather, both for white and tan-colour gloves.

52

46 37 383

338

Mayer, I.
Mlooprio and Hohwiesner.
Oberconz, II.
Paillart Brothers

United Kingdom . .

Prussia

Fenne

gloves.
Socket spurs, in several stages of manufacture.
Varnished calf and enamelled coach hides.
Varnished calf and coloured japanned hide.
Curried lenther, and for a well-tanned hide.
Calf and sheep lenther.

Promis 741 France 154 Baseleyer, N. 1, and So 154 Baseleyer, W. 154 Baseleyer,	NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.		
Primits	Puited Kingdom	. 91	Penny J.	A state puny bridle		
France 151 Radoo, A. Curried lores bather, adapted for boot trained Kingdom 502 Radoo, V. Ladio's Instal-deresson bather Charles Kingdom 502 Rodo, U., and Co. Radio's Instal-deresson bather Charles Kingdom 502 Rodo, U., and Co. Radio's Instal-deresson bather Charles Kingdom 502 Radio Radio		284	Bassiali and Dicks	Manofactured assortment of chamois and guiter leather.		
France 151 Radoo, A. Curried lores bather, adapted for boot trained Kingdom 502 Radoo, V. Ladio's Instal-deresson bather Charles Kingdom 502 Rodo, U., and Co. Radio's Instal-deresson bather Charles Kingdom 502 Rodo, U., and Co. Radio's Instal-deresson bather Charles Kingdom 502 Radio Radio	Prussia	. 741	Ranniger, J. L., and Son			
Tained Kinghon See Bodry, W. Ladies haddenous have dependent of the second of the sec	France	. 1434	Raoles, A. J			
Spin Account	United Kingdom .	262	Robey, W	Ladies' hend-dresses.		
Frankferien-Malase 9 Book, C. W. decrease in A. 15 Sandrama, W. Velon and purcher, experience of a stress whiteness of the property of the propert	Spala	212n	Reig. S.	An assortment of morocco leather		
Frankfert-m Malas 9 Boch, C. W. Variabled cill leather, arteriors whiten cillused Kinghon 134 Boch, C. W. Variabled cill leather, arteriors whiten cillused Kinghon 134 Boch 134 Bo	United Kingdom .	. 49	Rood, G., and Co	Hearth-rugs made from dyed Angera goat-skins		
Protects 150 Society and Co. Vedlem and junctioner of extreme whitener characteristics 150 Society and Co. S	Frankfort-on-Maine	. 9	Roth, C. W.	Varnished calf leather.		
Carlack Ringhom 31 Souther and Co An extravitie assortment of good bettle Carlach 32 States, W. A Law of shight picks harmone Bergion 33 States, W. A Law of shight picks harmone Bergion 34 States, W. A Law of shight picks harmone Borg and show period. 35 Tarties, W. Borg and show period. 36 States I Tarties, Borg and show period. 36 States I Tarties, Borg and show period. 37 States I Tarties, Borg and show period. 38 States I Tarties, Borg and show period. 38 States I Tarties, Borg and States I Tarties, Borg and show period. 38 States I Tarties, Borg and States I Tarties I Tarties I Tarties, Borg and States I Tarties, Borg and States I Tarties I Tarties, Borg and States I Tarties I T	Prussia	743	Sondermann, W.	Vellom and parchment of extreme whiteness.		
CLASS XVII. CUNCIN MEDAL. Nation Solid Medical Med	United Kingdom .	. 51	Southey and Co	An extensive assortment of good leather, for		
Belgium 254 Tailet, V.	Canada	. 134	Stewart, W	A set of single sleich barness.		
Prince (as.) Prince (as.) Prince and baller front. Linde Kington (b) Prince (c) Prince and baller front. Prince (as.) Prince and baller front. Prince (as.) Prince and baller front. Prince (as.) P	Belgium	254				
Tener Kinghon 2 237 Wester W.			Thibjerge,	Perukes and ladies' frouts.		
Tener Kinghon 2 237 Wester W.	United Klasslom .	154	Tellet, George (Cl. xx.)	Thursts, clonks, victorines, and moffs,		
Tener Kinghon 2 237 Wester W.		264	Tygack, W. V.	Specimens of monufacture in false hair.		
Tener Kinghon 2 237 Wester W.	Spain	247A	Viennex, L. J.	Varnished calf leather for boots and shoes.		
210 Winder, W. Wig is all book director. 25 Wood, W. and S. Wig is a book director. Initiation of mercey heather, related dy leaves to the control of mercey heather, related by CLASS XVII. CUNCIL MEDAL. Nation. Nation. Observe Revaluation. Observe Revaluation.	United Kingdom .	14	William 201	valry saddles, and several manufactored articles		
CLASS XVII. CUNCIL MEDAL. NATION. PRIZE MEDAL. FRING Kinghon 1 Averaged. The Commission of the Commission			Winter, W.	Wigs and head dresses.		
CLASS XVII. COUNCIL MEDAL. Nation. PRIZE MEDAL. Frame. 7 August. Nation. Nati		25	Wood, W. and S	An assortment of cult-skins curried and dyed in Imitation of morocco leather.		
NATIO Cachera NATO Entertures. Outcor Revaluation See Visual Imperial Cent and Printing Service International Printing Confidence on Confid						
Office of combination in the art of typegraphy. PRIZE MEDAL. Fames . 7 August . Committed, cubused, and facey papers. Linked Kingdom 56 Barrier and Co. Convers booksholding. Convers booksholding.	NATION.		NAME OF EMPLETOR.	OBJECTS REWARDER,		
PRIZE MEDAL. France 7 Augusta	Austria	. 362	Vienna, Imperial Court and Printing	Novelty of invention, and the number of new		
France 7 Angrand William 9 Ornamental, coloured, and fancy papers. United Kingdom 56 Akkinson, William Bookkindere doub. 156 Barrit and Co. General bookbinding.			Office of	combinations in the art of typography.		
United Kingdom 56 Atkinson, William Bookbinders' clott. 196 Barritt and Co. General bookbinding. France 40 Barrier, R. Engravings by Collas tracing machine.			PRIZE MEDAL.			
France	France	. 7	Angrand	Ornamental, coloured, and fancy papers.		
	united kingdom .	. 56	Atkinson, william	nookompers ciota.		
			Barritt and Co	General Dookbinding.		
	r rance	40	Darere, B			
United Kingdom . 195 Bestey, R., and Co Types.			Destey, B., and Co.	Types.		
France 1000 Blanchat Brothers and Kleber . White and coloured papers.	France		Blanchet Brothers and Kleber	white and coloured papers.		

			TRIBE MEDIAN.
France		7	Angrand Ornamental, coloured, and fancy papers.
United Kingdom .		56	Atkinson, William Bookbinders' cloth.
		196	Barritt and Co General bookbluding.
France		40	Barere, B Engravings by Collas' tracing machine.
United Kingdom .		195	Besley, R., and Co Types.
France	- 0	1090	Blanchet Brothers and Kleber White and coloured papers.
United Kingdom .		62	Bone and Son Cloth bookbinding.
Saxony	•	178	Brockhaus, F. A. An extraordinary collection of three hundred an fifty-six volumes, the whole printed at his ow establishment in the year 1850.
United Kingdom .		136	Bradbury and Evans Various specimens of printing.
France	•	788	Callaud, Belislenouel de Tinan, & Co. Various specimens of paper.
United Kingdom .	•	78	Casion and Co Variety of types.
Sardinia	•	89	Chirio and Mina Printing, and printing materials and woodcuts,
United Kingdom .	•	68	Clarke, J Various specimens of bookbinding and tree-man
cured tringaoin .		- 00	bling on calf-leather.
France		798	Clave, J Wood-cut and other surface printing.
United Kingdom .	÷	88	Cross, G New mode of fastening the leaves of scrap-book without guards.
-		69	Cussons and Co Bookbinders' cloth.
		143	Dewdney, J Writing-paper, &c.
France		-	Derriey, M Music-types, founts, &c.
Prussia		148	Decker R. L Printing and types.
Denmark	0	4	Drewsen and Sons Writing-paper.
France	- 1	817	Degrosiers, A. Printing,
		822	Donmere, E Printing and paper.
Van Diemen's Land		331 & 333	Dowling, 11, Tasmaulan printing.
France		181	Dupont, P Printing, and fac similes.
Turkey		-	Duzorion Messrs Writing-papers.
India.		-	East India Company, The Honourable Collection of Indian paper.
Prossin		145	Ebart Brothers Paper, glazing boards, & carton-plerre, for roofing
Egypt		218	Fevot. His lijebness the Vicerov of. A collection of one hundred and sixty-five ve
-6) P	i	& 374	Inmes of books printed in the Arabie, Persian and Torkish languages; likewise a catalogu of all the books published in Egypt.
United Kingdom .		8	Evans, J. S Specimens of binding In white vellum,
Bayaria		81	Faber, A. W Black-lend pencils.
Daversa	٠	0.	Andreas, A. H

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom	10	Fisher, J. II	A new mode of priating from copper-plats two colours at once, with a peculiar sort of lnk, suitable for bank-notes and obeques.
Saxony	124 168	Figgias, V. and J	Types. An assortment of paper; also a specimon mill-board.
Franco	518	Gaymard and Gérouit	A specimen of iedger-binding.
Belglum	238 284	Gifbert and Co	Pencils. A great variety of printing, writing, and drawle
Austria	376	Habenicht, A	papers. Bookbinding, porte-monnaies, and other feath-
Beiglum	381	Hardmuth, L. and C	Pencils. A collection of printed books. The Liturgies:
Loutela	367	Hanse G. and Sons	red and black are especially worthy of notice
nited Kingdom	106	Hayday, James	Goneral excellence of their types, and printing Bookbinding (exhibited by Mosses, Candell ar Addey.)
nited States	502 59 & 60	Honig Breet, C, and L	Superior ruling of account books, Specimens of parchment and double cloubs
Inited States	439	Howe, S. G	writing paper. A system of characters (slightly angular in for without capitals) for the blind.
russia	392	Hösch and Sons	A variety of white and coloured writing at
Inited Kingdom	21 424	liyde and Co	tissue papers. Scaling-wax adapted for hot countries.
=	147		Writing paper. Manufacture of pottory tissues.
rance	895 1636	Lamb, J. Laboulaye, C., and Co. Lacroix Brothers	
nited Kingdom	24	Leighton, J. and J.	Writing paper. Bookbinding in various stages, and the restoration of fac-similes of missing pages to valuable world
rance	163 1652	Lewis, Mrs. C	Bookbinding. Bookbinding.
	321	Mame and Co	
	584 619	Marcellin-Legrand	Specimens of type founding. Printing paper.
	& 377 624	Marrie Madages T	Fancy ornaments for confectioners.
Lome	12	Mayer, Madame T	
rand Duchy of Hesse	324	Month and Co	Porte-monnaics, pocket books, and dressing-case Paper, and imitation parchment, adapted f many useful purposes.
_	544	National Printing Office	many uscula process. Variety of Oriental and other types, and for it beauty of execution of their specimen-book, which great taste is displayed; also three th- ental volumes, with borders round every pa- in gold and colours. The ultramarine bis printed as an ink direct from the type, is pu- and bright.
	665	Niédréo, J. E	Speciment of bookbinding.
_	933	Odent and Co	Variety of papers; also paper called anim parchment.
anada	189	Palagrave, J. T.	Printing types. Variety of wood-cuts and other printing.
Vurtemburg	44	Rauch Brothers	
nited Kingdom	89	Remnant, Edmonds, and Remnant . Riviere, R.	A novel application of materials in bookbindir Bookbinding.
russia	780	Rübeland, Ducal Foundry Inspection	Bookbinding. Specimens of stereotype in iron, and the Bit printed therefrom.
Inited Kingdom	36	Saunders, T. H	A novel style of ornamental water-mark on pap the water-mark giving graduation of shod it was invented by Mr. Oldham, of the Bank England, under whose instructions Mr. San deen anylied it in the manufacture of more.
Wurtemburg	41	Scharuffeion, G.,	Plate, printing, writing, and tissue papers, t mark put on dry, by a peculiar process, aff
rance	1480	Schloss, Widow, and Brother	the paper is made. A large collection of portfolios, porte-monnai porte-rigars, and other leather articles.
russia	783	Schreiber, J. C. G	
nited Kingdom	360 92	Smith and Meynier.	Specimens of writing paper.
rapce	380	Surhnee Brothers	Specimens of priating types. Superior bookbinders varnish.
nited Kingdom	42	Spicer Brothers	A collection of papers, showing the present str of the paper maoufacture in England,
	182 44	Stephenson, Blake, and Co	Types. Account books for excellence of paper, rulis and binding.
Rusela	260	Vargounin and Brothers	and binding. Writing paper. (There is a great improvement within a few years, in the make and finish
	& 302		Russian papers.)

NATION.	Ne, in Ostalogue,	NAME OF EXHIBITOR,		OBJECTS BEWARDED
United Kingdom	149	Venables, Wilson, and Tyler		An assortment of paper from the principal mann facturers of the United Kingdom, and the cheapness of their own printing paper.
	-	Venables, George	٠	Wrapping papers, more particular that which i used for paper bags. Variety of publications.
russia	822	Vieweg and Son		Variety of publications.
nited Klagdom	93	Waterston, George	٠	Scaling-wax. Bookbinding, &c.
	48	Westleys and Co	٠	Bookbinding, &c.
-	53	Williams, J.	:	Account books.
	139	Wright, J.		Bookbinding.
		HONOURABLE ME	NT:	on.
United Kingdom	96	Bancks Brothers		Improvement in the water-mark of paper.
	69	Banks, Son, and Co. (CL L)	:	Black-lead pencils.
	189	Barker, J	٠	Specimens of type-metal casts from wooden as trices, applicable to called and other printing
rance	1067	Berbat,	٠	Letter-press and lithographic printing.
nited Kingdom	59 366	Barbat, —	٠	Specimens of bookbinding. Specimens of typography, with simple and cor
Austria				
Belgium	478	Bemsnd, R		Specimens of white and coloured parchment.
rand Duchy of Hesse	60			
Austria	3×0 63			Variety of wafers in paper and gelatine.
France	473		:	Book eloth hinding, and block cilding
I'nited States Belgium	277	Bradley, B, and Co Briard, J. H	:	Variety of wafers in paper and gelatine. Specimene of enamelled paper. Book-eloth hinding, and block gilding. Printed Bibles and Testamenta.
New South Wales	-	Callaghan, Mr., Attorney General		A volume printed from types cut and cast a Sydney, and printed by John Rowe. Specimen of a book-cover in pierced metal.
United Kingdom	106	Cundall and Addey		Specimen of a book-cover in pierced metal.
rance	1484		٠	Variety of tiated papers. Specimens of gold, silver, and other fancy paper. Specimens of lace and other fancy papers.
	1194	Dufour, L. Dopter, J. V. M.		Specimens of gold, silver, and other fancy paper
Netherlands	79 & 109	Dopter, J. V. M	:	
	47		:	Small punches and types.
Algeria	24	Farina, A		
C	38			the leaves of the dwarf palm-tree, Variety of enamelled card-boards and paper,
Grand Duchy of Hesse United States	490	Freund, E. A	:	Superior ruling of account books.
France	234	Gassett, II.	:	Superior brass letters for the use of bookbinders
_	500	Gillot, —		Superior brass letters for the use of bookbinders A new method of atching plates for surface
Belgium	286	Glenisson and Vangenechten .	٠	printing. Card boards, and marbled and surface-coloured
Prussia	746	Graf, H		papers. Block gilding, on the covers of a large folio alta Bible.
France	1256	Grangoir, J. M		Locks for pocket-books, &c.
	857	Gruel, Madame		Bookbinding.
	250	Guesnu, —		Numerous specimens of ornamented paper an stationery.
Grand Duchy of Hesse	62	Hase and Co		Pocket-books, porte-monnales, and other leather
Bavaria	47	Daenle, L		goods. Buruished gold, and other ornamental papers.
Prusela	284	Hanel, E	:	Various matrices, types, and printing.
	44	Heyl, J. F., and Co.		Superior transparent waters.
United Kingdom	17	Hider, Elizabeth	٠	Fancy floral ornaments, as applied to valentines Coloured-surface printing.
Sexony	882	Hulot, A.	:	Coloured-surface printing. Impressions from relievo engraved plates, &c.
	444	Jamer, A.	:	Specimens of illustrated books and woodcuts.
United Kingdom	22	King, T. and J. H.		New type music,
Prusela	329			Stereotyping.
Prussis	152	Kühn, C., and Sons	:	Writing and plate papers. Portfolios, pocket-books, albums, and porte-mor naies; and also ruling of account-books.
France	906	Lebrun, L. J		Bookbinding.
	149	Leisegang, W		Block gilding on velvet.
United Kingdom Prussia	158	Leighton and Son	٠	Bookhinding.
				An ingenious mode of producing several impressions from a mass of colour in which the various gradations of tint are an incb or more is thickness, and which, on being moistened with oil, and subject et to pressure, yields a copy of the subject represented.
United Kingdom	26	Macomie, A., and Co		Specimens of binding,
United States United Kingdom	482 128	Macomie, A., and Co McAdams, J. and W	٠	Ruled account-books, and circular ruling.
United Kingdom	128	Mancain and Moret	٠	Novelty in the application of bitumen to the pur pose of sterrotyping.
-	29	Martin, J		New mode of sizing paper, by which it is rendere
				westerness f

NATION.	No. in Catalogue,	NAME OF EXHIBITOR.				OBJECTS REWARDED,				
France	600	Marion, A				Fancy, ornamental, and plain paper, and station				
	629	Meiliet and Pichot				Postage and other stamps.				
	637	Meyer, E	٠	٠	٠	Specimens of printed designs in fifty colours, from surface-blocks, in imitation of Berlin patterns for needlework.				
United Kingdom	150	Miller and Richard				Type-founding.				
CHIRCIATING COM 1 1	58	Moreil H. (Cl. 1v.).	:	1		Wax and wafers.				
France	661	Moreil, H. (Cl. 1v.)		1	:	Ledger-binding.				
	334	Obry, Bernard, and Co	1	1	:	Black and other papers.				
Prussia	314	Piete L.	:	:		Various papers.				
United Klugdom	33	Picte, L				Specimens of stamping in relief on envelopes and writing-paper.				
France	1393	Piques,				Pasteboard.				
Bayaria	82	Rehhach, J. J.				Black-lead peneils.				
Wurtemburg	39	Reichhold, G				Fancy leather goods, porte-monnaics, &c.				
Netherlands	112	Regeer, H. J.				Bookbinding.				
Russia	361	Revillou				Specimens of printing, and Greek, Oriental, and other types.				
Wurtemburg	73	Rometsch, C				Substitute for writing slates.				
United Kingdom	34	Royston and Brown				Ledgers and account-books.				
France	693	Simier, J.		٠		Bookbinding.				
Prussia	3.3	Schüll, L				White and tinled papers.				
United States	333	Sibell and Molt		٠	. '	Specimens of account-books.				
Canada	191	Starke and Co				Specimens of ornamental printing.				
United States	88	Starr, C				Binding works for the blind, with thickened margins to prevent the embossing from being pressed out.				
United Kingdom	45	Turnbuil, J. L. and J				Drawing-boards.				
Franco	712	Vanderdornel and Son				Various fancy stationery.				
	730	Vincent and Tisserant				Scaling-wax, wafers, and writing-ink.				
United States	123	Walker, E., and Co				A Bible elaborately bound and ornamented, with a recess for a family register inside the cover.				
United Kingdom	46	Waterlow and Sons				Specimens of good account-books,				
Graud Duchy of Hesse	43	Weber, J. B		÷		Specimens of markled papers.				
United Kingdom	159	Wodderspoon, J	٠	٠	٠	improvements in ledger-blading, by the introduc- tion of patent veilum cloth bands.				
	68	Wolff, E., and Son (Cl. 1.)			.	Crayons and pencils.				

of their Skill and Tuste.								
United Kingdom	97 Boddon, E							
_	9) Neil, R. For the care, lindustry, and perseverance displays, to binding an imperial 4th. Bilds of new moreoco, under great disodvantages; this word was accusted at his own home after this daily occupation, by gas-light, in the winter; an novel thatanding these of difficulties, a considera							

PRIZE MEDAL.								
-			_		THIS MEDIAL			
N.	ATION.			No, in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.		
United K	ingdom			146	Armitage, G., and Co. (Cl. xII. &	The dyes of Orieans and Coburg cloths of cotton		
Prussia .				106	Bergmann and Co	Dyed Berlin woolien-yarns.		
rance .				1548	Bersoville, Larsonnier, and Chenast.	Fancy fabries printed in steam colours.		
inited K	ingdom			51	Black, James, and Co.	Printed muslims, jaconets, and faney fabrics.		
France .				29	Bicch, Steinbach, and Mantz	Printed mous-eline-de-laines (all wool), calicoes and jaconets, in madder colours.		
Prussia .				606	Borkmüld Brothers, Schlieper, and Hecker.	Printed calicoes.		
Austria .				231	Bossi, J	Fancy fabrics, printed in steam colours.		
France .		•		50	Chocqueel, L.	Fancy fabrics, printed in steam calours, for dresses and shawls.		
United K	Ingdom			27	Dalgleish, Faiconer, and Co	Machine-printed calicoes.		
France .				1583	Delamorisière, Goniu, and Michelet,	Fancy fabries printed in steam colours, for		

NATION. Catalogu		No. in Catalogue,	NAME OF EMBITOR.	OSJECTS REWARDED.	
France		1191	Dollfus, Micg, and Co	Printed muslins and jacouets; also mousseline de-laines (nll wool).	
United Kingdom		1	Evans D. and Co.	Printed silk handkerchiefs and table covers,	
France		1381	Francillon	Dye of merinor exhibited by Paturle-Lupin an	
		198	Féau-Béchard, V. A	Skein-dyed woodlen yarns for shawls,	
_		1252	Godefroy, L	Fancy fabrics, printed in steam colours, for dresses.	
		248	Gros-Odier, Roman, and Co	Printed muslins and jaconets; also mousseline declaines (all wool).	
		1263	Guinon, A. P	Skein-dyed silk, bleaching silk, and the applica- tion of picranne acid.	
		256	Hartmann and Son	Fabrics printed in madder colours.	
United Kingdom		36	Howe, J., and Co. (Cl. 1v.)	Skein-dyed silk.	
		36	Hoyle, T., and Sons	Machine-printed calicoes.	
		4	Inglis and Wakefield	Machine-printed mousseline-de-laines ma- barreges.	
France		274	Japuls, J., B. and Sons	Printed furniture, cotton, and chints.	
		1634	Koechlin Brothers	Printed mousseline-de-laines (all wool), and calicors.	
Austria		187	Leitenberger, F	Printed callenes,	
United Klogdom		60	Le Lievre, H	Skein-dyed black silk,	
		8 & 242	Littler, Mary Ann (Cl. am, & av.) .	Printed silk handkerchiefs.	
		212	Partridge, N. (Cl. xii & av.)	The dye of broad-cloths of different colours or each side.	
		148	Ripley and Sons (Cl. ail. & av.)	The dye of Orleans and Coburg cloths, mixed or cotton and wool.	
_		33	Sale, J. N	Printed cotton shirtings.	
France		1481	Schlumberger, jun., and Co	Cylinder-printed calleses and jaconets.	
United Kingdom		41	Schwabe and Co	Printed calicoes in madder and garancine.	
France		1003	Schwartz and Huguenin	Printed cotton chintz colours for furniture,	
United Kingdom		47	Simpson and Young	Moussellne-de-laine (cotton warps) printed by eylinder in sia and seven colours; also calicoe printed in steam colours.	
France		383	Steiner C	Turkey-red, plain dye and printed.	
United Kingdom		37	Steiner, F. and Co	Turkey-red, plain dys and printed.	
-		25	Thomson Brothers and Sons	Printed mousseline-de-laines (cotton warp),	
Switzerland, .		36	Vaucher, Du Pasquier, and Co	Calicoes and inconsts printed by cylinder.	
France Switzerland		720	Vessire, A	Merinos,	
Switzerland, .		155	Weymer, T. R.	Skein-dyed silk.	
United Kingdom		7	Welch, Margetson, and Co	Printed silk handkerelsicfs,	
		18	Welch, Thos	Printed table-covers.	
Switzerland		146	Ziegler and Co	Plain Turkey-red dye.	

Switzerland	25 36 720 155 7 18 146	Thomson Brothers and Sons Vaucher, Du Pasquier, and Ce. Vessire, A. Wegner, T. R. Welch, Margetson, and Co. Ziegler and Co. Ziegler and Co.	Printed mouseeline-de-laines (cotton warp), Calicose and jaconase printed by cylinder, Merinos, Skein-dyce drilk. Rein-dyce drilk. Printed table-covers. Plain Turkey-red dye.
		CLASS XIX.	
		COUNCIL MEDAL,	
NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	Orsects Rewarded.
United Kingdom	19	Ball, Dunnieliffe, and Co	Velvet and Simla lace, being new patented fabrics suitable for shawls, dresses, and for various urnamental and useful purposes, and of great commercial importance, also for imi- tation. Valenciennes lace, black and white point tulle, of great smerit.
France	-	Gobelins and Beauvais Tapestry, Go- vernment Manufactory of. (Joint Medal with Class XXX.)	Originality and beauty of design of the different specimens exhibited for furniture, and the ex- traordinary excellence of execution of most of the productions exhibited.
		PRIZE MEDAL.	
United States Switzerland	183 110 1544	Albro and Hoyt	Floor-cloths. Muslin curtains, Laces, Wide thread lace

United Kingdom		388	Avers, W			. 1	Wide thread lace,
Saxony		158	Bach, G. F. and Son			٠,	Fancy gimps and silk fringes,
Switzerland			Bänziger, J			٠.	Embroidered double-flounce dress of novelty.
Beigium		324	Beck and Sons			. 1	Broad and narrow Valenciennes laces of goe
							fabric,

United Kingdom . 394 Bennoch, Twentyman, and Rigg Ginge, fringes, and cameo brabis.

Austria . . . 389 Benkowits, Marie . . . Embroidered crape on white silk.

	No. in		
NATION.	Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
France	54	Berr and Co	Robe, shawl, scarf, voil, berthe, cape, &c.
	435	Braquenie and Co.	Aubusson carpet, tapestry, &c.
United Kingdom	110	Brie, J., and Co. (CL XX.)	Embroidered shirt-fronts,
	58	Brinton and Sons	Carpet, velvet pile, and Axminster rags. Book-robe, short cambric handkerchiefs, ste
	57	Brown, Sharps, and Co	mseher, and collars. Embroidered muslin robe.
Prussia	164	Burchardt and Sons.	Printed mole-skin table-covers, floor-cloths, an
	1		pulnted window blinds.
United Kingdom	115	Burch, J., and Co	Specimens of printed voivet pile and Brussel carpets.
-	75 130	Burgh, R	Specimens of gimps, tassels, and ornaments. Honiton lace flounce; design and quality us equalled in its class.
France	83	Castel, E., Crace, J. G. (Cl. xxvir.) Crossley and Sons	Aubusson carpet. Specimens of Brussels and velvet-pile carpets,
United Kingdom	530 142	Crace, J. G. (Cl. xxvir.)	Specimens of Brussels and velvet-pile carpets.
	71	Danby, C. and T.	A carpet, rags, and table-covers, Vorlety of silk fringes, &c.
France	1578	Darmet,	
mercina.	1173	Delibeld-Pellerin and Co	A counternane
Belgium	316	Defrenne, Sophie Dinglinger, A. F.	Brussels point handkerchief.
Prussia	175	Dinglinger, A. F.	Sofa carpets, Muslin robe, jacket, and cambric bandkerchief
Prussia	267	Delaroche-Daigrement	Muslin robe, jacket, and cambric handkerchief Application of Brussels flounce, real,
Paited Kingdom	155	Delehaye, A. Dove, C. W., and Co.	Application of Brussets flounce, real,
Belgium	314	Dubayeo-Brunfaut, and Co	Specimens of fine frame Brussels carpet, Wide and narrow Valenclennes inces, &c.
Switzerland	191	Ehrenzeller, F	Net ond muslio curtains.
United Kingdom	74		Silk fringes, braids, and faney buttons.
	165	Faudel and Phillips	Embroidered langings for a state bed,
Switzerland	192	Fisch Brothers	Net curtain of novelty.
United Kingdom	221	Fishers and Robinson	Imitation inces, &c. A rich black blond dress and mantilla.
Spalo	204		Alayuck velvet carpets,
United Kingdom	45	Forrest, J., and Sons	Jacket flouncincs, &c.
France	1603	Forrest, J., and Sons Foulquie, Mile., and Co.	Collars, half showls, &c.
Npain	237	Gilari, R. Gomperts, B	The royal arms, worked with coloured silks, &c
	33		Hair-embroidered pictures of the Queen and the Prince of Wales, &c.
United Kingdom	34	Greasley and Hoperoft Grouenck, Copestake, Moor, and Co. Hacele, I. T. Hamburger, Rogers, and Co. Hamburger, Rogers, and Co. Hammelrath, P. Hamren, Suphie Jare, John, and Co.	Jacquard shawl, &c. Honiton guipure half-shawl, &c.
Belgium	341	Hacek I T	Real Brancis pisit veil
United Kingdom	LNG	Hamburger, Rogers, and Co	Epaulettes, military hats, &c.
	337	Hammelrath, P. H	Real Brussels pinit veil, Epaulettes, military hats, &c. Narrow Valenciennes laces, &c.
Sweden and Norway	28	Hamren, Sophia	
United Kingdom	190	Harris C. and Co	Specimens of oil-cloth, &c. Three specimens of veivet pile,
=	263	Harris, G., and Co. Heald, Benjamin, Government School of Design, Nottingham.	Pattern for a broad lace flounce.
	201	Henderson and Widnell	Specimens of fine tapestry, &c. Two bobbin Brussels lace dresses, &c.
Belglum	310	Heusschen-Van Eeckhoudt, and Co.	Two bobbin Brussels lace dresses, &c.
	539	Heyler, Mile, M	Silk-net mittens and gloves.
United Kingdom	25 168a	Heymann and Alexander	Machine-made lace curtains. Seven tableaux embroidered in hair and silk.
Saxony	1	Holden I and Co (Cl. viv.)	Muslin insertions and trimmings,
- International Control	61	Heitel, J. A	Embroidery by machinery.
	5		Galpure Healton lace shawl,
France	268	Howell, Jomes, and Co	Hend-dresses, &c.
	1280		Specimens of rimps, &c.
Belgium	316		Printed mole-skin table-covers.
United Kingdom	43	Lambert and Bury	A large carpet. Limerick lace shawl and tunic dress.
contra rendicion	83	Lambert, Brown, and Patrick	Ensulettes and laces &c.
-	233	Lambert, Brown, and Fatrick Lapwarth, A. Le Crosnier, — Lefebure, A. Lees, R., and Co. Lester, T.	Specimens of velvet-pile carpets, ke.
France	1305	Le Crosnier, -	
	1646	Lefebure, A.	White thread lace, counterpane, &c.
United Kingdom	79 236	Lees, R., and Co	Printed mohair velvet. Wide white-thread lace.
	66	Lester, T. Nacoloruld D. S. I. and Co.	Embroidered muslin robe, cap, and bassinet.
No. 1940	59	Lester, T. Macdonald, D. & J., and Co. Mair, J., Son, and Co. (Cl xl.)	
-	29		Imitation black trimming faces, &c. Specimens of Valenciennes face and lappet.
France	599 236	Mollet Brothers	A dress from fibre of the pine-apple. (Per)
Belgium	302		
France		Melette, E	Gold embroidery. Patterns for flounces, handkerchiefs, lappets, 8
	641	Meranx, J. H.	Fancy ribbon trimmings for dresses and cloaks
-	632		
Principals.	1362	Mornieux, F.	Galloons and buttons.
Belgium	655	Moulard, Mile.	Lace head-dress, caps, &c. Bobbin, Brussels berthe, colffure, inppet, &c.
United Kiogdom		Nacitiens, G	Bolibin, Brussels berthe, colffure, Inppet, &c. Veivet-pile carpet.
	2,17	Tacaconto und anges	s cives pile emper.

NATION.		No. ia Catalogue	NAME OF EXHIBITOR.	Objects Rewarden.
Belgium		217	Overman and Delevirne	Carpets.
Finnes		. 675	Paray	Point-lace shawl and scarf.
1 nited Kingdom		263	Parder, Hoomans, and Parder	Velvet-pile carpets.
	:		Parlanti, E	A piece of embroidery, &c.
Belgium	:	218	Parlanti, E. Polak, Mile, F.	Black lace floundings, &c.
France	:	1684	Randon, L	White blond flounce scarf, &c.
Belgium	:	500	Reullier, Mile	Brussels point-lace handkerchief, &c.
I nited Kingdom	:	. 32	Reckless and Hickling	Shawle, &c.
France	:	1433	Requillant, Roussel, and Chocqueel .	Moquette or velvet carpet,
Luited Kingdom			Riego De La Bronchardiere, E	Crocket-work frock, berthe, &c.
		254	Robinson, Thomas	Lace curtain.
Saxony		161	Rorlier and Huste	Painted table-covers, &c.
United Kingdom	:		Rolph, J.	Double-flounced scarf, &c.
t mited semigroun	•	305	Rolph, J	Embroidered work,
Prussia		. 118	Schaertf, R.	Conch laces, &c.
Switzerland .		201	Schlaepfer, Schlatter, and Kürsteiner	Net curtains, &c.
Saxony		. 60	Schmidt, G. F.	Cushions, &c., for a set of furniture.
		202	Schools, Schiess, and Son	Embroidered handkerchiefs.
Nexouy		71	Schreiber, F. A.	Pillow lace.
Prussia	•	637	Seel, G.	Pictures in hair.
France	•	1000	Seib, J. A.	Enamelied floor-cloth.
United Kingdom	•	318		Carpets, &c.
Belgium	•		Somen, F.	Lace handkerchiefs and lappets,
Switzerland .	:		Stacheli Wild, C.	Embroidered table-covers, &c.
United Kingdom			Steenman, H. and Co.	Lace curtain,
Sardinia	•	. 86	Stefan, W.	Silk-embroidered tableaux.
Belgium		507	Stoomart Brothers	Black point-lace slowl. &c.
Switzerland	•	933	Sutter, J. J.	Chintz book rube, Ac.
real post senso.		900	Tamer and Koller	Embroideret muslin dresses, &c.
		205	Tanner, J. U.	Embruidered work
United Klagdom		. 315	Templeton, James, and Co	Axminster carpets, &c.
Current temperom		55	Trendwin, C. E.	Honiton lace.
Belgium		. 313	Vanderkelen-Bresson	Brussels lace
ariginal	•	303	Van Halle, J.	Vestments, robes, &c.
		333	Van Kiel, Sisters	Mechlin laca.
France		718	Vaugeois and Trueby	Embroidery,
United Kingdom	:		Vicears, R.	Lace.
r meet seingwon	•	33	Vickers, William	Luce shawls, &c.
		3:17	Victoria Felt Carpet Company, Leeds	A carpet and felt cloth,
France			Videcoq and Simon	A Chantilly shawl, &n.
United Klagdam		337	Watson, Bell, and Co	Carpets.
canca aringuna		6	Weedon, Francis	Lace.
-		27	Whitlock and Billishi	Luces.
		315	Whitweil, J., and Co	Carpets.
		358	Wright, Crump, and Crane	Carnets.
Denmark		. 3	Wulff, Jeus, and Sons	Lace, &c.
Switzerland .	•	203	Zupelager, T.	Invention in weaving chemille in carpets.
				research in season countrie in carpets

			HONOURABLE MENTION.
United Kingdom .		21	Adams and Sons Thread edgings. Audiat. F
Dited Kingdom		95	Audiat, F Embroidered inces. Barnes, R. Y Oil-cloth.
nited Kingdom .		384	
Austria		388	
		767	
rance			
Inited Kingdom .		64	Brown, flugh Muslin flounce and trimmings,
-		2	Brown, J. R. and W. (Cl. xiv.) . Muslin robe.
Account		114	Brown, McLaren, and Co Velvet carpets.
Belgium		328	Bousson-De Vlieghere Imitation Spanish point lace.
inited Kingdom .		21	Capper and Waters (Cl. xx.) Court sult in needlework.
80.000		122	Cardwell, C. and T Pillow lace.
-		18	Clarke, Jane Lace.
France		152	Paberet-Tampe Silk buttons.
Belgium	1	329	Darteville and Mounoury Imitation Brussels scarf.
Portugal	-	553 & 881	Daufrins, B., and Co Scotch carpets.
rance		1584	Deleambre, A Gold-colour isce, point lace, and scarf.
	•	-	Duchel and Son Moouette carpet.
Inited Kingdom .		159	Ellis, Sophia A Specimens of tatting In collars, &c.
Belgium	•	321	Evergert Sisters Black lace showl, dress, incket, and vells
pain		238	G. M., Signora Curlously-embroidered shirt.
nited Kingsiom .	٠	386	Gill, W. L
France		251	Guillemot Brothers Coach and livery laces
Tuesia	•	166	Grünthal Berlin patterns for needlewark,
rrinesa	•	100	Grandar
Austria		619	Hase and Sons Moonette carpet.
Inited Kingdom	•	85	Harrison, T. Altar-cloth and cushions of Genoa velvet
. moogan A botta	*	195	llartree, E. and G Table-cloth embroidered on silk canvas.
		295	ileald, Henry Pattern of half shawl.
-		199	Helbronner, R New style of needlework.
		209	Henderson and Co Damask Venetian carpet.

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom	28	Herbert, Thomas, and Co	Imitation blonds, laces, &c.
Switzerland	195	Holdregger, C	Embroidered curtains.
France	1625	Holdregger, C. Hooper, Carros, and Tabourier	lmitation lace scarf, lappets, and berthe,
United Kingdom	210	Humphries, Thomas	Seven-frame velvet pile carpet.
rand Duchy of Hesse	46	Then R	Moleskin table-covers.
United Kingdom	77	lhm, F. Irish Work Society.	Knitted, netted, and crochet lace.
content and dom	84	Incheon C	Applique embroidery.
	48	Jackson, C	Small picture embroidered in tent-stitch.
	123	Kightly, J.	Pillow lace.
	225	Kingsbury, Louisa	Basket of flowers, &c.
Austria	263	Krichl, E	Arms of England embroidered in gold, silver
Austra	200	Krien, E	and silk.
United Kingdom	379	Ladles' carpet (needlework)	The design by Mr. Papworth,
Chited Kingdom	213	Ladies' Industrial Society, Dublin	Infants' lace robes.
France	901	Larroque, Sous, Brothers, and Jaque-	Aubusson carpets,
rmace	201	met.	Aubusson carpets,
United Kingdom	10	met.	Honiton half-shawl.
	903	Laugher and Cosens	Silk buttons and trimmings.
I'nited States	453	Laurent, J. D.	Carpet.
		Lawrence, A. and A., and Co	Scotch carpets.
Prince	167	Lerun and Co	Painted moleskin table-covers
Franco Franco United Kingdom France United Kingdom	613	Lenmonn, M.	Silk buttons, fringes, &c.
Franco	51	Martin, C. A	Banner screen and flags of all nations.
t mited Kingdom	1354	Mee, Cornena	Purses, Greek cam, and reticules.
Prance	252	Mercler, -	Brusiels carpet.
Russia	274	Morton and Sons	Articles in leather, embroidered in gold.
Austra	214	Lehmon, M. Martin, C. A. Mer, Cornetia Mer, Cornetia Mercler, Morton and Sont Nakhitchevan, upon the Don, The town of	Articles in tenner, emorotoered in gota.
Prossis	168		Berlin pattern for needlework.
United Kingdom	238	Newton, Jones, and Willis	Church carpets and hangings, and episcopa
Cutted Kingdom	230	Newton, Jones, and withis	robes.
	56	Onless P	Fringe, tassels, and ornaments.
Prussia	169	Onion, F. Parey, C. F. W.	Needlework carpet.
United Kingdom	88	Purcell, Frances	Embroidered table-cover.
Empeo	1414	Donler	Lace and trimmines for carriages.
France	62	Puzin	Cambric table-covers, collars, and other embroi
Cantea trangation : 1	02		dery.
Belgium	301	Roy, C. F. Rey Brothers Saris and Renjos	Brunels flounce.
Sardinia	35	Rev Brothers	Thick coarse carpeting.
Greece	56	Saris and Regios	Embroidery in gold.
Prussia	160		Embroidery.
Belgium	322	St. Joseph, Establishment of	Flanders guipure lace flonnce, sleeves, and trim
		on respiration and the second	ming lace.
Saxony	62	Schnorr and Steinhaeuser	Table-cover,
	156	Schubert, Mrs	Table-cover worked on not lace.
France	1008	Seguin, Joseph	Black diamond open ground lace in half-show
			mantle, and laces
United Kingdom	301	Sim, C. J. Simcox, G. P. Smith and Baber	Two pair of pillow-lace lappets.
	302	Simcox, G. P.	Brussels carpet.
	371	Smith and Baher	Oilseloth.
Prussia	173		Needlework.
	239		Braids, laces, plaited lines and fringes for dresses
	204		Muslin.
Sardinia	49	Tessada, F. Todt, A. Tuissant, — Turton, Samnel	Cambrie handkerchiefs.
Prussia	171	Todt, A	Berlin patterns for needlework.
France		Tuissant	Scarf.
	179	Turton, Sampel	Design for lace curtain.
Switzerland	140	Vonwiller, Ulrie de Gasp	Variety of low-priced articles.
United Kingdom	275	Yonwiller, Ulrie de Gasp	Tapes.
cance ranguou	351	Wilson, J. and W.	Kiddermluster carpets.
	334	Woodward, B. Higgins	Five-frame Brussels carpet.
Prussia	225	Zeisig, H	Upholstery and coach trimmings.

CLASS XX.

NATION.	No. in Catalogus.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
Switzerland United States United Kingdom	227 471 13 100	Abt Brothers and other Exhibitors Addington, W. H	Straw plait. Shoes for mining purposes. Straw hots and bounets. Collection of articles, showing progress in heaters.
	32	Atloff, J. G.	Economic plan of cutting leather for shoes.
4000	202	Angrave Brothers	Drawers and shirts.

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	OSJECTS REWARDED.
France	22	Bathier, V	Novelty and cheapness in the production of woulen shoes,
United Kingdom	103	Berni and Melliard	
	201		Specimens of low-priced hosiery. Good quality of Thilet wool, low panipier, an variety of socks.
	1	Buckmaster, W., and Co	Various articles of Court costume.
-	196	Cartwright and Warners	Yarus prepared from Mexican and Virginia wools, and articles made therefrom.
France	87 1150	Chenard Brothers	Beaver hat, and haren'-fur hats, Kid glaves,
Austria	327		Workmanship of shoes, &c.
United Kingdom France	48	Clarke, Cyrus, and James (Cl. xvi.)	Flongsting galoshes. Dresses and embroidery.
	1162	Clarke, Cyrus, and James (Cl. xvi.) Cochois and Colin Coupin, J.	Felt hats.
United Kingdom	78 1185	Dent, Alleroft, and Co	Glaves of high-class workmanship. Plan of cutting leather for boots and shoes.
France	147	Deschamps, N. Doucet and Duclere	Embroidered shirts.
No. of Contract of	1200	Dufessee, sen	Strong work in boots, &c.
	1201		Excellent workmasship in boots and shoes.
United Kingdom	185	Ensor, T	Two-finger grantlets and gloves. Plush-plurange gloves.
-	193	Fownes Brothers Fry. J.	Gloves. Lisle thread hose, of excellent make, and Segovia
			goods.
V- vany	179 72 to 83	Gilbert and Co. (Cl. XVL)	Riding boots. Women's cotton glaves,
Caxony	8	Glasser, J. S., jun. Gregory, Cubist, and Co. Groskopf, George	Straw hats and bennets,
Austria	343	Groskopf, George	Strong boots and shees.
United States United Kingdom	385	Hnight, Mrs. W	Shirt. Examples of bosicry.
United Kingdom	150		Glazed Wellington boots.
	192 194	Hickson and Sons (Cl. xvt.) Holland, T., and Co	Excellence of fight export shors and boots. Fiercy hosiery, for medical uses, and superio Segovia goods.
	114	Hook, John. (Cl. xvz.) , , , ,	Ladies' shoes.
France	1627	Hook, John. (Cl. xvi.) Houbigant-Chardin Hurst and Sons	Gloves, Excellence of home and export hosicry goods.
Furkey	408	Janina, Feruveladgi (The Taliors'	Albanian costumes. (See Turkish Catalogue).
France	to 413 1279	Association of) Jouvin and Doyon	Kid gioves.
	833	Jouvin (Widow) Jeffers, W. H. (The Workmen of)	Gluves. Ladies' boots and shoes. (Honourable Mention
United States	116		to Exhibitor)
France	892 551	Joly, Mesdames, Sisters Josselin, J. J	Corset of novel description. Cursets.
Austria	333 331	Kunerth, A	Turkish slippers. Double pilot cloth coat.
Saxony	72 to 83		Women's single-thread cotton hose.
France	216	Lauret Brothers	Embroidered silk hose of high quality. Case of gloves.
-	1303		Assortment of habit kid gloves,
United Kingdom	578 16	Lefebure, J. P	Invention for making boots and shors. Hats and bonnets made on the pillow-lace
Austria	324	Malatinzky, E	principle, Richly-embroidered overcoats,
ranee	1317	Malatinzky, E	Excellence of production of boots and shoes.
l'nited Kingdum	118	McDoogali, D	Hosiery knitted by the Scotch peasants. Waistroot pieces.
	142	Metice, Jno. G., and Co	Shetland knitted showls and bose,
rance	1352 72 to 83	Meier, F.	Workmanship in ladies' shoes. Woollen shirts for exportation.
exony	639	Meinert Brothers Meyrucis and Sons	Extra-fine ambasidered sitk base.
	89	Miles, S.	Collection of articles of dress.
rance	930 186A	Miles, S. Milon, P. D., sen. Mohr, W. Moreau and Co. Morley, I. and R.	Workmanship of hosiery. Light clogs and kid boots.
rance	652	Moreau and Co.	Embroldered shirts.
nited Kingdom	101 173 &	Morley, I. and R	Silk and cotton hose of the best quality. Rye-straw bonness,
Saxony	72 to 83	Nacke and Gehrenbeck	Women's cut-up white cotton hose of fine quality
Tuscany	67	Nannucci Nevill, A., and Co	Legborn hats, and capotes. Ladies' under-clothing, hostery, drawers, &c.
axony	72 to 83	Neuber, F.	
rance uited Kingdom	3 %	Neuber, F	Embroidered slik. Boots, strong and light.
	242		

NATION.	No. in Catalogue	NAME OF EXHIBITOR.	OBJECTS REWARDER.
United Kingdom .	1 157	Parker and Sons (Cl. xvl.) Peplow, W. (Cl. xvl.)	General excellence of boots and shoes. Workmanship, and application of spring to boots
France	. 1338		Self-coloured leather boots.
Russia	310	Popinoff, Sophia	Shoes, slippers, and other articles.
Austria	336	Prague, Glovers' Association	Gloves.
France		Robert-Worley and Co	Cornets
Russia		Shekonin, Alexis	Embroidered boots and shoes.
United Kingdom		Simmous and Woodrow	Selection of felt bonnets.
			Dress coats
		Singer, J. Sofialioglou's Daughter (Constan-	
Turkey	876	tinople.)	Veils embroidered in gold and pearls, with silve fringes. (See Turkish Catalogue.)
Saxony	1		Adaptation in price, to export demand in certal qualities of hosiery.
Switzerland	. 234	Sulsaberger and Akermana	Variety of Swiss straw plaits.
United Kingdom .	127	Taylor and Co	Plushes made from waste silk.
France	391	Thierry, C. A	Gentlemen's boots.
United Kingdom .	211	Thomas and Son (Cl. xvi.)	High-class workmanship in boots.
money.	79	Thresher and Gleupy	Fabric for under clothing in warm climates.
	9:2	Thurman, Piggot, and Co	Floss-velvet glores.
Turkey		Turkey, II.11, the Sultau of	Admirable collection of costumes.
Belgium	. 345	Van Beneden-Bruers	Stays of good description without seams.
United Kingdom .		Vyse and Sons	Case of bounets.
Tuscany	. 66	Vyse and Sous	Leghorn hats and capotes.
United Kingdom .	207	Walsh, William (Cl. xv.)	Welted cork soles.
	195	Ward, Sturt, Sharp, and Ward	Hosiery, &c.
Luxembourg	. 1 3	Wemmer, J	Shoes for labouring men.
United Kingdom .	. 12	Welch and Sous,	Hats and honuets.
contra seringania s	212	Welch, Margetson, and Co	Braces, carriage rugs, ties, cravats, &c.
Saxony		Wex and Lindner	Hosiery of great excellence.
United Kingdom .		Whitby, E., jun.	Habit lambskin gloves,
curren rendaom :	183	Wilson and Son.	Thread hosiery, with lace fronts,
Switzerland	227	Wohler and Co.	Variety of straw plaits,
outractions	. 221		amin't or array hours.

				HONOURABLE MENTIO	N.
Canada			331	Adams, W. H. F.	Cloth made up into coats.
Promia	•		172	Adolphi, C. F. W.	Ladira' boots and shoes.
United Kingdom	:	:	149	Allen and Sons (Cl. xvt.)	Stout-made boots.
Sultzerland.			210	Bally and Co	Display of good braces.
Canada	:		-	Barbeau, J	Deer-skin boots,
France	1	1	1069	Raten, W. and Sons	Hate made of hares'-fur.
United Kingdom	:	:	118	Bearn and Jeffs (Cl. xvt.).	"Stabbery" in boots.
Chica tringaoni	•	•	220	Beckett, George (Cl. vvi)	Well-made boots and shoes.
Belginm			342	Berger, Madame	Variety of stays.
United Kingdom	1	0	207	Biddle, John	Sexony wool goods, spun silk, and be
c mice magazine			-	Diodate Commit	hares'-fur wrought up.
			66	Braund, J	Cap with tale peak.
France			7.3	Brediff Brothers	Strong above.
I'nited States .	1	:	411	Breed, N. A., and Co	Children's shoes
France			1115	Bridard, I	Strong boots and shoes.
			1116		Braces.
Turkey			988 & 989	Bukudgy, The Girl (Constantinople)	Slippers. (See Turkish Catalogue.)
Belgium			263	Cabu-Février	Bonts for expertation.
Turkey	•	٠		Carabet's wife (Constantinople) .	Slippers. (Sco Turkisb Catalogue.)
United Kingdom	:	:	154	Clark, B. (Cl. xvi.)	Lolles' boots "clumped" with wood.
- mica confinen	•	•	206	Corsh, II., and Sons	Contributions of hosiery.
			142	Cowling, J. (Cl. xvt.)	Shooting boots.
			141	Creak, James (Cl. xv.)	Stont boots.
France			1569	Coulbols	Varnished skins, and boots made there:
Switzerland			189	Deplerre Brothers	Embroidered straw bonnets.
United Kingdom	٠	•	145		Navigator's boots.
Grand Duchy of I	in	÷.	33	Dörr and licinhardt	Boots.
India	•		-	East India Company, The Hon	Collection of cloths, silks, &c.
I'nited Kingdom	٠	٠	176	Farrauge, Miss	Knitted stockings.
Austria	•	•	332	Friedl, L.	Boots and shors for ladies.
France	•	٠	201	Fromont-Clolus	Boots and shoes, and wooden shoes.
United Kingdom	•	•	230	Garner, D. (Cl. xvi.)	"Lasts."
Cinted Anguom	•	٠	212		Screwed-clamps solid boots,
			134	Hadden, A., and Sons	Sperimens of dyed wools.
			211	Harding, T	Buttons
			fiii	Harris and Tomkins	Smock-frotks.
Franca			1265		Smock-frocks.
Austria	•	٠	331	Hayem —	Ladies' boots and shoes.
United Kingdom	٠	٠	84	Helia, J	Ladies' Boots and snoes. Shawl-clook.
I mited Kingdom	٠		120	Holmes, J and Co	Various kinds of hoslery.
				Hudson, James	

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	Objects Rewarded,
United Kingdom	194	Hubert, C. (Cl. xvi.)	Boots and shoes,
France	270	Unet (Wildow)	Elastic braces.
Turkey	98	Huet (Widow) Intche, The Girl (Constantinople)	Slippers. (See Tarkish Catalogue.)
Franco	856	Jacobs and Dupuis	Boots and shoes for Indies of the higher classes.
United States	116	Jeffers, W. H.	Collection of hoots and shoes. (Prize Medal to the workman).
United Kingdom	175	Kearse, T	Novel plac of inserting India-rubber in articles of dress.
	81	Lart, John, and Sons	Hosiery of peruliar fit.
Austria	329	Langier, J	
Russia	311	Lerkho	Ciogs and galoshes,
United Kingdom	119	Lerkho Lengton, R., and Sons, and Thomas Smith.	Elastic welt in boots and shoes.
	67	Lyons, J	Military caps.
	54	Melton, II.	Lady's riding hat,
United States	93	Milward, James, and Sons	Bonnets made of cotton braid.
Russia	234	Miller, jun	Light boots.
United Kingdom	97	Musson, R. and J.	Plaited gloves, and silk gloves.
_	167	Norman, Samuel Willis	Lady's corked-soled boots.
=	197	Peal, Nathaolel (Cl. xvi.)	Fishing or hunting boots,
	126A	Pearson, J.	Child's bonnet and feathers,
	41	Piper, T. F	Hygienic child's cornet.
	6	Pearson, J. Piper, T. F. Pope and Plants	Surgical elastic sock and belt.
France	1416 974	Rabourdin	Braces.
United Kingdom	9/4	Rapp, C. F	Tasteful-looking goods (boots and shoes.) The moke of silk hose, No. 1000. (Exhibited by
Cinted Kinguam	224		J. and R. Morley.)
_		Robert, A. (Cl. xvl.)	Excellence of workmanship in boots.
	307	Sayce, J. and Co. (Cl. xtt. and xv.) . Scutt, P.	Light pluma cont.
	928		Fine breasted shirts and collars.
Grand Duchy of Hesse		Scott, S. T. (Cl. XVI.)	"Last" to clongate model of foot.
terand Duchy of Hesse	47 91	Schumneher, jun. Shaw, John Smith, J. E.	Well-made boots and shoes.
United Kingdom	91	Shaw, John	Application of Jacquard to stocking frame.
		Smith, J. B.	Shirt without seams or gathers.
	119	Smith, Mrs. Charlotte	Cornet,
	1492	society of Accalewomen	Shirts of good shape, Corsets.
France	1492	Soules, Hypolite, Mms. Solomon, Mrs. S.	
United Kingdom	177A	Stewart, Jana	Embroidered ball dress. Elegant koitting.
Turkey	986, 994, & 996	Terzy's Wife (Constantinople)	Slippers. (See Turkish Catalogue.)
Russia	314	Toitshkoff (Gov. of Nijni, Novogo- rod).	Curiously-made felt shoes.
Tunis	12	Tunis, Exhibitor from	Silppers.
_	10	Tunis, Exhibitor from	Fcz caps and shawls.
-	41 48	Tunis, Exhibitor from	Silk wrought as a separate article. Dresses in cotton and silk.
Dalalam	427	Vandament M	Boots.
Brigium	709	Valtat and Roulilé	Good shirts
	725	Viault Esté, J. J. B.	Case of Indies' shoes,
United Kingdom	177	Vinealt Esté, J. J. B	Clothes made of sheepskins, in imitation of
consecrating cont	63	Walker and Babb	cloth,
		Walker and base	Portable alpaca coat, Shirt elaborately embroidered,
_	22 206	Wheeler and Abiett	Application of stocking-frame to wearing shawls
	205	Wheeler, T. and Co.	Application of stocking-frame to wearing shawls
		Wilshin, S. B. (Cl. xvr.)	Method of fastening skates to boots,

CLASS XXI.

COUNCIL MEDAL. B OF EXHIBITOR. OBJECTS REWARDED.

	Catatogue.	TANK OF LIGHTERTOR.	
United Kingdom	113	Spear and Jackson (Cl. xxII.)	For exhibition of circular saws, and particularly one 80 inches in diameter, of marked and very superior excellence, naunifactored by a process of peculiar merit, the result of a novel appli- cation of mechanical ingenuity recently effected by themselves.

			PRIZE MEDAL.	
NATION.	No. Catalo	ia ogue.	NAME OF EXHIBITOR.	Objects Rewarded.
United Kingdom .		23	Addie J R inn	Carving tools,
Emited Kingdom .	7	53	Addis, J. B., jun	Cutlery.
France	. 19	13	Biske and Parkin (Cl. xxu.)	Cutlery, Sews and files,
Omited tringation 1	· ii	10A	Brookes, W., and Son (Cl. xxII.), .	Edge tools.
United States	. 2	59	Brookes, W., and Son (Cl. XXII.). Brown and Wells	Tools.
United Kiogdom .		18	Butcher, W. and S. (Cl. xxII.)	Torning and other look.
-	19		Butcher, W. and S. (Cl. xxII.)	Edge tools and razors.
-	2		Butterley, Richard (Cl. xxII.)	Sickles, Files and edge tools,
T	. 1		Coeker and Sons (Cl. xxrr.) Coula ox sed Co. Dittmar Bothers	Naws.
France		57	Dittmar Brothers	Cutlery,
United Kingdom .		49	Eastwood, G	A plane.
		3	Eyre, Ward, and Co. (Cl. xxu.)	Cutlery,
-	11	14	Fyre, Ward, and Co. (Cl. xxII.) Fenney, Frederick (Cl. xxII.)	Rezort.
Anstria	. 43			Fites,
	· 21	18	Froely, A	Fine lites, Seissorn,
United Kingdom .	: 8			Navs and tools.
France	. 8	592	Goldenberg, G., and Co. Guerre, nech. Hague, S. (Cl. xxii.) Heindl, A. Hanob, A. Handy, T. (Cl. xxii.)	Cutlery,
United Kingdom .	. 2		Hague, 8. (Cl. xxii.)	Penkuives.
Austria	. 5	17	Heindl A	Cotlery,
Austrin	1 3	31	Hannoh A	Augers, &c.
		46	Hardy, T. (Cl. xxII.)	Dressing-case Instruments.
Turkey Wurtemburg United Kingdom	. 150		Hassin	Science.
Wurtemburg		58		Scythes, Razors
United Kingdom .	· 15	35	Hawcroft and Sons (Cl. xxII.)	Razora.
		11 87	Heljestrand, C. V.	Cutlery,
Prussia	. 1	88	Henkels, J. A. Higginbotham, G. and W. (Cl. xxxx.) Hill, Joseph V. Hilliard and Chapman Leeller, A. and E.	Scissors.
United Kingdom .		47	Hill Least V	Saws,
TOTAL CO.	1 3	33	Hilliard and Charman	Cutlery
Prussin	. 6	3.7		Cutlery. Edge tools (engraving).
United Kingdom .	. 1	81	Howarth, J. (Cl. xxII.)	Edge tools (engraving).
	2.	28	Howarth, J. (Cl. xxii.)	
-	2	15	Hutton and Newtoo (Cl. xxII.)	Scythes and reaplog-hooks.
Russia	. 21			
United Kingdom .		91	Ibbotson Brothers (Cl. xxii.)	Cast-steel scythes, &c. Saws.
Rossia	20	67	Ibbotson, Richard (Cl. xxii.). Ibbotson, Richard (Cl. xxii.) Imperial Artinsk Works	Scythes,
United Kingdom .		09A	Imperial Artines works	Files.
United Kingdom .	. "	5	Johnson, Cammell, and Co. (Cl. xxii.) King and Peach. Kirk and Warren (Cl. xxii.)	Planes.
	14	61	Kirk and Warren (Cl. xxu.)	Files.
-	1 1	14	Loy, William	
-		15	Loy, W. T	Cutlery.
	1	12	Loy, William	Rag-engine roller bars, bottom plates, and ra- kolves.
Benzale	. 6	17	Manoesmann, A	Files.
Prussla	11	39	Mappin and Brothers (Cl. xxII.)	Cutlery
	11	69	Marsden Brothers and Co. (Cl. xxII.)	Cutlery, Joiners' tools.
_	1:	32		Razors,
Accessed to		32	Mathieson, Alexaeder	Joiners' tools,
Account 1	10	81	Matthews, W. (Cl. x.)	Table entlery.
		.7	Morton, J. and G.	Table knives,
Uolted States		13	Proceeding and come	Planes,
United States United Kingdom .	. 3	23 49	North Wayne Scyths Company Nowill, J., and Sons (Cl. xxii.)	Seythes, Cutlery.
o moon resugnanti .	1 0	33	Novill, J., and Sons (Cl. xxii.) Peace, J. (Cl. xxii.) Philp and Whicker (Cl. x.)	Saws.
	6.		Philp and Whicker (Cl. x.)	Cutlery,
France	. 3	18	Picault, G. F.	Cutlery.
	94	63	Picault, G. F	Cuttery, Fine files.
United Kingdom .	. 6:	90	Rodgers, J., and Sons (Cl. xxii.). Saynor and Sons (Cl. xxii.)	Cutlery,
-	11		Saynor and Sons (Cl. xxit.)	Gardegers' knives.
Prussia	. 6		Schmolz, W., and Co	Cutlery.
United Kingdom .		10	Sharp Brothers, and Co	Table knives.
United States United Klogdom .	. 11	19	Simmons, D., and Co	Edge tools,
United Kiegdom .	20		Simmons, D., and Co. Slack, Selters, and Co. (Cl. xxii.) Sorby, R., and Sons (Cl. xxii.)	Saws, Edge Iools,
	21	11	Stoniforth Thomas (Cl. xxrr)	Sertles and siekles.
	15	24	Step and Webster (Cl. xxii.) Steer and Webster (Cl. xxii.)	Scissors.
Switzerland	. 1 6	53	Stotzer, Frederick Stuba, Peter Tahir Talabot ond Co. Taylor, Henry (Cl. xxii.) Thorphill Walter	Fine files,
United Kingdom .	11. 1	39	Stuba, Peter	Small files.
Turkey	. 153	50	Tahir	Seissors.
United Kingdom . Turkey France	. 100	27	Talabot and Co.	Scyther,
United Kingdom .	. 15		Taylor, Henry (Cl. xxn.)	Engravers' tools,
and the	10 .	2	Thornhill, Walter Tomlin and Co., Turner, Thomas, (Cl. xxii.) Turnon, Thomas, and Sons (Cl. xxii.)	Garden tools,
	3	18	Tomlin and Co.,	Sickles and shears.
-	11	17	Turner, Thomas, (Cl. xxii.)	Files, saws, and cuttery.
	1 6	io.	Unwin and Rodgers (Cl. xxII.)	Files,
	1 1		Unwin, W. (aged 16) (Cl. xxii.)	Cutlery. Sportman's knife,

148 Walters, J., and Co. (Cl. xxii.)	Seythes. Cutlery.
United Kingdom . 122 Wilkinson and Son (Cl. xxii.) . 175 Wilkinson, T. and G. (Cl. xxii.) . 195 Wilson and Son (Cl. xxii.) .	Edge tools. Syythes. Tools, Sleep shears, vice, and chains, Selssors. Slose and butchers' knives. Cutlery.

		-	(
			HONOURABLE MENTION.
United Kingdom		11	Addis, S. J Carving tools,
		174	Alcao and Locatelli , , , Files.
United Kingdom		118	Algor, J. (Cl. xxII.) Shoe knives.
United States .	٠.	97	Allen, A. B., and Co Tools.
United Kingdom	٠.	365	Atkin and Son (CL xxII.) Joiners' tools.
carren serugation	٠.	160	Atkinson and Marriott (Cl. xxn.) . Files.
-		20	
		37	Barker, R Butchers' steels.
		46	Beach, W Cutlery.
		232	Bell, J. (Cl. xxii.) Silver knives.
		212	
		130A	Bloomer and Phillips (Cl. xxII.) , Joiners' tools.
		3	
-		26	Bradford, Samuel Cutlery.
		145	Rendford, Samuel
-		171	Brookes, J. (Cl. xxii.) Dressing-case instruments
_		182	
Austria		120	Bubenitscek, J Cutlery.
Switzerland		270	Burkhardt, James Razors.
United Kingdom		100	Carr, J., and Riley (Cl. xxn.) Saws and files.
		142	Clayton, Goorge (Cl. xx11.) Table cutlery.
Pressia United Kingdom		628	Coppel, A Pen and pocket-knives.
United Kingdom		165	Consins and Sons (CL xxII.) Seissors.
		217	Cutler, John (Cl. xxn.) Edge tools and shears.
		157	Deakin, George (Cl. xxII.) Scissors (horse).
		110	Deakin, G , and Co. (Cl. xxn.) Table cutlery.
_		120	Ellin, T., and Co. (Ci. xxxx.) Table entlery. Elliott, J. (Cl. xxxx.)
		156	Elliott, J. (Cl. xxII.) Razors. Ellis, J. (Cl. xxII.) Cutlery.
		50LA	Fischer, G Files.
Austria		206	
United Kingdom		167	Fisher and Bramhall (Cl. XXII.) Files. Flather, B. (Cl. XXII.) Joloers' tools.
		219	
		551	
Prossia United Kiegdom		123	Githert Brothers (Cl. xxx)
United Kieguom		187	Githert Brothers (Cl. xxx.) Razors. Jowltt and Battle (Cl. xxx.) Files.
Turkey		1304	Kirkar Scissors.
United Kingdom		24	Kirkar
Carren Kinguom	: :	30	Krumbholx and Trinks Cutlery.
Saxony Canada	: :	121	
France		1641	Lanne, E. Cutlery. Leavitt, G. Axes. Lechner, M. Files. Lecoultre, J. Razors.
Canada		124	Leavitt, G Axes.
Ametria	: :	496	Lechner, M Files.
Switzerland		215	Lecoultre, J Razors.
United Kingdom	• •	9:25	
Savony	: :	31	
Culted Kingdom	: :	231	Linley, G. A. F. (Cl. xx11.) Sheep sheers.
	٠.	128	Marples, R. (Cl. xxil.) Joiners' took.
		162	Marsh Brothers (Cl. xxtt.) Cuttery and edge tools.
		35	Mathieson, T. A Plane,
		36	McPherson, C. and H Braces and bits.
Belgium		352	
Denmark		22	
Enlited Kingdom		133A	Newbould and Balldon (Cl. xxII.) . Table cutlery.
		137	Nicholson, W. (Cl. xx11.) Cutlery.
Austria		411	Offner, Brothers Scythes.
_		445	Pamer, S. Seythes.
United Kingdom		119	Parkin and Marshall (Cl. xxii.) Table cutlery.
		233	Pearce, Henry (Cl. xxii.) Files.
Austrin		446	Penz, J Seyther.
Pruesia		619	
Portugal Hamburgh		632	Polycarpo, A Garden knives.
Hamburgh		43	Ritter, W. Angers, &c. Rossler, J. Cutlery. Sanders, G. Rasor strop.
		552	Rossler, J Cutlery.
United Kingdom		34	Sanders, G
		610	Schwarte, J. D Cutlery.
		122	
Prussia Canada United Klogdom Canada	: :	122 147 123	Scott and Glasford . Axes. Sellers, J. (Cl. xxii.) Cutlery. Slaw, Samuel

NATION.	No. ia Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom Turkey United Kingdom Sweden and Norway .	158 1303 21 12a	Singg, II, W. (Cl xxii.) Sopilize, Province of, Stewart and Co.	Razor guard. Razors, &c.
Austria	539 1496 1024 205 211	Stirckhart, John . Talourdeau, P. Taboria, P. F. Taker, Henry, (Cl. xxii.) Taylor Brothers (Cl. xxii.)	Cutlery. Cutlery. Files. Saws. Sans.
Prussia	671 120 187 572	Thomas, C. Wallace, A. Warburten and Co. (Cl. xxtt.) Weiss, J., and Sons	Cutlery. Planes. Augers. Tools.
United Kingdom	134 8 256A 450	Winks, B., and Sons (Cl. axil.) Wood, J. Ylsarra, J. Zeitlinger, J. A.	Ragors,

CLASS XXII.

COUNCIL MEDAL.

NATION.	No. in Catalogue,	NAME OF EXHIBITOR.	Objects Rewarded.
France	. 1053	Aodré, J. P. V.	Iron fonatain is nave, and the design of the
_	1055 1709	Aubaaci, J., Barbeslienne, F., and Co. (Joint Medal with Cl. xxv.)	Castings of animals, and gilt cast-iron door. Sculpture in metal, bronzes, &c.
United Kingdom .		Coalbrook Dale Company	Cast-Iron statues, new method of bronzing steel grates, and diamond flooring for steam-engines
	700	Hardman and Co	Ecclesinatical brass work,
	140	Hoele, Robson, and Hoole	Drawing-room steel-grates,
France	923	Matifat. C. S.	Orlgiant designs in bronze.
Bavaria	. 90	Miller, Ferd	Casting in bronze of a colossal lion, and statues of Libusa, and George I, of Bohemia,
Prussia	. 271	Minister of Trade, for the Royal Prussian Foundry.	Three vases, and candelabra with group of figures
United Kingdom .	102	Stuart and Smith	Drawing-room grates on Sylvester's patent, and the novel application of a revolving canopy invented by Laurie.
Belgium	- 26	Vieille-Montague Zine Mining Com- pany.	Specimens of aine castings,
United Kingdom .	. 373	Wisfield, R. W.	Bress foundry work and metallic bedstead, with taper rolled pillars, and chandeliers.

United States	462	Adams and Co Bask lock.
United Kingdom	300	Allen and Moore Metal buttons.
	150	Armitage, M. aad H Anvils. &c.
Prossis	189	Arnheim, S. J Iron-safe bureau.
United States	138	Arrowamith, G. A Permutation locks.
United Kingdom	283	Aston, W Buttons,
Canada Annagana	663	Aubin, C Locks.
	805	Bally and Sons Cast-iron staircase work, brass work, &c.
	319	Baker and Co Flower-stand and cages.
-	287	Banks, E Buttons.
	34	Barnard and Eishop Wrought-iron hings.
		Barnard and Bishop Wrought-iron hinge.
	693	Barroa and Sons Locks.
_	329	Bartleet and Sons Needles and fishhooks.
	25	Bartrum and Pretyman Wrought copper usils, &c.
	361	Bedington and Tonks Bruss work (various).
Prussia	407	Beissel's Widow, and Son Neolles of English steel.
United Kingdom	98	Benham and Sons Cooking apparatus,
-	606	Bentley, W. H Cooking apparatus.
Prussia	310	Blacser, G Bronze statue of Beethoven, &c.
France	28	Blaazy, Poure, and Co Metallic pens.
United Kingdom	349	Blews and Son Ship lamps and belts.
Prussia	633	Bicker, R. sad H
United Kingdom	333	Baker, B. Sud II
United Kingdom	680	Bolton, T Brass and copper tubes. Boobbyer, J. II Locks.
		Boobbyer, J. II. Locks.
France	776	Boucher, E., and Co Culinsry vases, tinned by a new process.

NATION.		No. in Catalogue.	NAME OF EXHIBITOR,	OBJECTS REWARDED,
United Kingdom		330	Boulton, W., and Son	Needles and fisb-hooks,
rance		653 437	Bramah and Co	Locks and costings (and Special Approbation).
Juited Kingdom		437	Bricard and Ganthler	Locksmiths' work, &c. Carriage lamps.
nited Kingdom	٠.	364		Buttons,
		477	Brown and Relpath Burney and Bellamy Cain, J.	Stoves for ships.
		633	Burney and Bellamy	
CADCO		1129	Cain, J.	Brunses-birds in nest, &c.
nited Kingdom	: :	655	Carpenter and Tildesley Childs, J.	Locks
		459	Childs, J.	Brass lamp for lighthouses.
Inited States .		417	Chilson, Richardson, and Co	Hot-air furnace.
Cussia		365	Chilson, Richardson, and Co. Chopin, Felix Chubb and Son	Bronze candelabrum,
nited Kingdom		646	Chubb and Son	Locks and safes (and Special Approbation).
-		446	Clarke and Restell	Lamps, gas-burners, and locks.
		657	Clarke, T. and C., and Co	Enamel ware.
-		434 115	Cochrane, J.	Gas meter. Needles.
-		234	Cocker, S., and Sons Cocker and Sons	Needles.
		27	Coombe and Co.	iron and copper netting.
		255		Been work (medous)
		416	Carcoran, B., and Co. (Cl. vs.)	Brass work (various.) Metallic cloth.
nited States .		46	Cornelius and Co.	Chandeliers.
nited States . nited Kingdom		698	Cottam and Hallen	Gates, cast-iron, and enamelled cast-iron horse
				manger,
-		307	Cotterill, Edwin	Locks.
		63	Cottingham, N. J. (Main Avenue	Brass lectern.
		62		Beds and steam tubes.
		244	Crook, W.	Cooking amaratus
nited States .		298	Day and Newall	Cooking apparatus, Parantoptic permutating locks (and Specis
nited Kingdom		186	Deane, Dray, and Deane	Store prates.
Belgium	: :	361	De Bayny Paul	
rance		779	De Braux d'Anglure	Statues of galvanized zine, bronze busts, &c. Japanned tin goods. Gas meter, bath beated by gas, &c.
		71	De Braux d'Abgiare Deffior, C. Defries, N. De la Fons, J. P. De Latour, Albert De Miguel, F.	Japanned tin goods,
nited Kingdom		482	Defries, N	Gas meter, bath beated by gas, &c.
-		800	De la Fons, J. P	
Belgium		363	De Latour, Albert	iron castings.
pain Selginm		260 365	De Miguel, F.	Iron bedsteads, &c. (and Special Approbation). Brass caldrons, &c.
selginm		1588		Brass candrons, &c.
ranca russia		280	Desjardins-Lieux	Medallians, &c. Castings in zinc.
russia		188		Specimens of Iron castings, &c.
nited Kingdom		797	Dietrich and Son	Powder flasks.
ntted Kingdom		476	Dixon, J., and Sons	Cundy's hot-air ventilating stove.
russia		638	Dreysa and Collenbusch	Copper rivets.
Belgium	: :	353	Drien, E.	Wrought nails,
netria	1 :	456	Dubsky, Count	Wire tacks, twisted nails,
nited Kingdom	: :	350	Dugard, N, and H.	Wire tacks, twisted nails, Carriage lamps.
		89	Duley, J. '	Cottage cooking stove,
nonemap.		336		Pins.
-		51	Edge, T	Pit chains.
		441	Edge, T	Gas meter.
- house		387	Edwards, F	Arnott's stove.
rusela		200	Egolls, F. A	Cast-iron chimneyplece.
Lustria		435		Leaden pipe, 1,800 feet long, in one piece. Cast-iron goods, &c.
rustis		762 302	Einsledel, Count G	Cast-iron goods, &c. Buttons.
nited Kingdom		103		Cooking apparatus
-		352		Cooking apparatus. Brass and enpper tubes.
elgiom		154		Percussion caps.
nited Kingdom	: :	444		Gas chandelier nn Professor Faraday's principle
ca erangiom		686	Fortham, Miller, and Sayer	Stove grates, &c. (and Special Approbation).
		161	Firmin and Sone (Class xx.)	
kustria		420	Fischer, A.	Malleable cast Iron.
rossis		296	Fischer, C. H	
nited Kingdom	: :	38	Flavel, S.	Cooking apparatus (and Special Approbation).
rance		1227		
russia		293	Franz J	
-		289	Friebel, L.	
ustria		412	Fürstenberg, Prince	Stoves, mnnuments, crucifix, Lamps, bronzes, &c. Chandelier.
		227		Lamps, bronzes, &c.
nited Kingdom		556	Gardener, M.	Chandelier.
		483		Stoves. Bronges.
ustria		703 967	Gasser, J	Bronzes. Statues in zinc, "Eve," &c. (and Special Approba
			Geiss, M	tion).
Inited Kingdom		652	Gerish, F. W	Locks and binges.
TADOR		520		Copper boiler with grate.
nited Kingdom	: :	654	Glbbons, J., Jun.	
		324	Gibbons, J., Jun. Gillott, J. Glover, T. (Cl. I.)	Metallic pens,
_		438A	Glover, T. (Cl. 1.)	Gas meter. Cooking apparatus,
		2040	Goddard, H	

NATION.	No. in Catalogue,	NAME OF EXHIBITOR.	Objects Rewarded,
United Kingdom .	481	Goodbehere, G. T	Ships' stoves.
	335	Goodman, G	Needles and plns.
	405	Gray, J., and Son	
	262	Goodman, G. Gray, J., and Son Gray and Son Gray and Son Gray, T. W. Green, T. (Cl. vx.) Greening and Sons Griffiths, T. Griffithe, T. Griffithe, T. Grignen, M. Grahl, F.	Fire-irons, &c. Brass-work (various),
	518	Gray, T. W.	Brass-work (various),
	66	Green, T. (Cl. vx.)	
	33	Greening and Sons	Strong wire cloth, woven by steam power.
	254	Griffiths, T. F	Tin and enamel ware,
France	. 1617	Grignen, M	Bronzes, &c.
Saxony United Kingdom	. 37	Gruhl, F	A bell (very fine tene).
United Kingdom .	. 524	Guest and Chrimes	Water closet and fire cocks.
	. 255	Hadrot, L., jun.	Moderator lumps.
United Kingdem .	. 563	Hale, J.	Curh chains. Buttons.
	282	Hammond, Turner, and Sons	Buttons.
	52	Handyside, A	Cast-iron fountain.
	616	Hanson, J.	Manufactured lead. Buttons.
-	211	Handyside, A. Hanson, J. Harding, T. (Cl. xx.) Hardman and Illife.	Buttons,
	284	Hardman and Illiffe	Buttons.
	660	Harley, G.	Locks. Door-plates.
	63/5	Hart and Sons	Wrought-Iron bluges, &c.
_	421 52	Harley, G. Hart and Sons Haslam, W. Hatfield, J. A.	Statue in brouge.
		Hatfield, J. A.	Statue in bronze.
_	318	Hawkins, J.	Brass, copper, and Iron screws and bolts.
-	97	Hawkins, J. Haywood, J. Haywood and Son	t hurch stove.
	647	Haywood and Son	Locks, gilding, &c. Fish-hooks.
_			Fish-hooks.
	316	Henn and Bradley	Taper serews, &c.
United States United Kingdom .	124		Salamaoder safe.
United Kingdom .	. 351	Hetherington, T. and C. Hilgers and Sons Hincks, Wells, and Co. Hodges, T. Hoden, H. A. Hood, S. Horne, T. Horfall, H. Howland, C. Howland, C. Howler, C.	Carriage lamps.
Prussia	. 631	Hilgers and Sons	Hardware.
United Kingdom .	. 326	Hincks, Wells, and Co	Metallie pens.
W7700 140	519	Hodges, T	Bells.
-	348	Holden, H. A	t'arriage lamps.
-	1	Hood, S	Cast-iroo cosmelled stall and manger.
	275	Horne, T	t'urtain poles, &c.
-	334	Horsfall, H	Pins, and wire for fish-hooks.
United States	. 486	Howland, C.	Bell telegraph,
United Kiegdem .	. 649A	liuffer, J	Locks.
_	609	Huffer, J. Hughes and Klmber Hibbetson, Capt. L. L. B.	Copper and steel plate for engravers. Bronzing, iron and metallic eastings—new metho
			(and Special Approbation).
_	304	Ingram, T. W.	Buttons.
_	317	James, J.	Fish-books and needles.
	237	Ingram, T. W. James, J. Jeakes, W. Jennings, G.	Stove grates (and Special Approbation).
	810	Jennings, G.	Water closet.
	106	Johnon and Ce	Radiating stove.
Prussia	. 285	Kalide, T.	Boy with swan, in bronze, &c.
France	. 1632	Karcher, II., and Westermann	Articles in stamped Iron.
United Kingdom .	. 76	Keep and Watkin	Aovila, vice, &c.
	109	Keith, G.	Refrigerator.
	327	Kell, A., and Co	Metallie peus.
	804	Kennard and Co	Stoves and iron castings.
	360A	Kenrick and Son	Enamelled ware.
	553	Kent, G	Koife-cleaning machine,
-	489	Kepp and Ce.	Copper bath.
Prussia	. 299	Kesseler, C	Bronze statue of Polyhymma.
l'oited Kingdom	. 96	Jennings, G. Johon and C. Johon and C. Karcher, H., and Westermann Keep and Waikin Keep, M. Keep, A. K	Pios, &c.
	. 434	Kitschelt, A. (Cl. xxrv.)	Cast-iron vases, &c.
Inited Kingdom .	. 689	Knight and Forster	Metallic pens.
-	& 694		
	283	Knowles, H.	Buttons.
Rossia	. 287	Krumbigel Koper, W. Lacarrière, A.	Gilt bronze candelabra.
oited Kingdom .	. 32	Koper, W	Metal ropes,
France	1284	Lacarrière, A.	
'olted Kingdom .	. 534	Lambert, T. Laureau, L	Water-closet and disphragm valve.
rance	2)3	Laureau, L	Figures, in a galvanized compound of bronze az
-	569	Laury G	pewter. Stove-grates and stoves (and Special Approbe
United Kingdom .	. 54	Lawrence T. B.	tien). Perforated zinc, &c.
·	665	Les. W. and J.	
France	. 1644	Lecoco, il.	Ornaments in stamped brass, hot-air stoves, &c.
Belgium	334	Lafebore V and Co	Wire neits and rivets.
reillions	381	Limelette P	Weomeht naile
	857	Llord C B lun	Iron lap-welded tubes for steam-bollers.
	. 001	Amyon or majorn	Cooking apparatus.
United Kingdom .			
Inited Kingdom .	105	Longuen and Co	
United Kingdom .	382	Love, J	Gas stoves,
=	382 346	Lawrence, T. B. Lee, W. and J. Lecoeq, il. Leckebyre, V. and Cc. Limelette, F. Lloyd, G. B., lun. Longden and Cc. Love, J. Lowe, J. and H.	Gas stoves, Carriage lomps, &c.
=	382 346 1340	Miniflat, J. B.	Gas stoves. Carriage lomps, &c. Metallie gilt pens, &c.
Franca .	382 346 1340 370	Miniflat, J. B.	Gas stoves, Carriage lomps, &c, Metallie gilt pens, &c, Cooking apparatus.
France	382 346 1340	Love, J. Lowe, J. and H. Lowe, J. and H. Mislat, J. B. Mappleback and Lowe Marchand, J. B. Marry, W. Marrison, J. P.	Gas stoves. Carriage lomps, &c. Metallie gilt pens, &c.

CLASS AXII.]		JURY AWARDS-PRIZE	MEDAL. ACK
NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	ORJECTS REWARDED.
United Kingdom	795	Marriott, W.	Weighing machine.
			Stamped copper for decoration.
United Kingdom	233	Martin and Gray	Carriage lamps.
_	416	Massey, W., and Co	Brass flower-stand.
Continued on A	634	Martin and Gray Masters, W., and Co. Masters, T. Mathey and Son	lee apparatus. Cylinder of rolled steel for watch-springs.
Switzerland Belgium United States	339	Mathey and Son	
United States	20-		Bank lock
United Kingdom	681	Mears, C. and G.	Bella.
France	630	Mene, P. J.	Brouger of boar hunt, &c.
Franco	340	Messenger, Samuel	Bronzed and incquered imps (and Special Appro- bation).
Austria	413 645	Metternieb, Prince	Stove for hunting-seat. Signal lamps, &c.
United Kingdom	642	Miller, Geo. Alex	Safes.
	539	Milner and Son	Metallie pens.
	328	Mitchell, W.	Metallic pens. Iron and trass hinges.
	974	Mitchell, W	Iron and areas hinges.
France	1666		Monlided cast-leon, &c.
United Kingdom	610		Galvanized timed-fron sheets.
	204	Mossman, W. (Cl. xxx.)	Brass candlestick.
France	934	Muci-Wahl and Co.	Chandeliers, fountains, &c. Bells.
United Kingdom	683	Murphy, J	Bells. Metallic peos.
_	538 538	Narior, J.	Lamps for pillars and wall brackets.
_	36	Naylor, J	Metal ropes,
_	87	Naylor, J. Newall, R. S. Nicholson, W. N. Nicklin and Sneath	Anglo-German cooking-stove.
=	332	Nicklin and Speath	Wire weaving.
	491	Noirsain, J	Ventilatiog stoves.
_	424	Paddon and Ford	
France	671	Paillard, E	Copper and zine frames for mirrors, &c.
United Kingdom	447	Palmer and Co	Candlo lamps.
France	942	Palmer, J. L	Drawn wire.
Tuscany		Papi, Clement	Basket of flowers, cast from nature. Galvanized sheet of iron, &o.
France	12.9	Paris, E	Looks.
United Kinguom	649	Patent Pointed Serow Commany	Pointed acrews gast out of malleable iron.
France		Paublan	Safes and locks.
France	688	Perry and Co	Metallic pena. Japanned ware.
		Perry, E	Japanned ware,
Netherlands United Kingdom	78	Perry, E	Bells with suspending apparatus.
United Kingdom	371		Metallio japanned hedsteads.
	107	Plerce, W	Cottage grate, Copying presses,
United Kingdom	323	Potrier, L	Bronzes and incquered lamps, &c. (and Special
	64	Purly, C. W. (Main Avonue West) Puissant, F	Gothic ornament.
Belgium	356	Puissant, F	Wrought-Iron crucible and ornaments.
Belgium	72	Ran and Co	Japanned tin-plate. Chandellers (2 large and 2 small).
Netherlands	99	Regout, P.	
United Kingdom	315 433	Reynolds, J.	Cut nalls. Gas stoves.
_	637	Regout, P. Reynolds, J. Rickets, C. Riddle, W.	Apparatus for extinguishing fires in ships, signal
France	1440		Reil of rintell. &c.
United Kingdom	189		Stove grates. Metallic writing slates (and Special Approbation). Betters
Wartembary	7.3	Rometsch, C	Metallic writing slates (and Special Approbation)
Wurtemburg United Kingdom	278	Rometsch, C. Rowley, Charles Salm, Prince.	
Austria	430	Salm, Prince	Cast-iron statue of Radetzky, considered as a specimen of casting (and Special Approbation).
	343		specimen of casting (and Special Approbation). Brouze and inequered lamps.
United Kingdom	270	Salt and Lloyd	
Cools	259	Simonite, J	Bedstead of cust steel, with bronze ornaments
Spain	405		(and Special Approbation). Galvanized steel wire.
	370	Schleicher, C	Letter-press rollers.
	644		Kitchen stove.
Netherlands	98	Schutz, L. N	Zino castings.
United Kingdom	50	Shave, W. J.	Stoves and ovens.
	243A	Sherwin, J.	Kitchen range.
n	66	Schutz, L. N. Shave, W. J. Showin, J. Shoolbred and Co. Shtange and Verfel	Japanned ware. Bronze candelabrum.
Russla	370 435	Shtange and Verfol	Rotatory syrings.
United Kingdom	321	Siebe, A. Simrox, Pemberton, and Sons Smith, Kemp, and Wright	Breas work (various.)
_	321	Smrox, Pemberton, and Sons Smith, Kemp, and Wright	Rottons.
Panesia	803	Sommermeyer and Co	Iron safe, ornamented (and Special Approbation).
Prussia	60	Steele, W. and P.	Cooking apparatus, Alloy bell, for cheapness, Patent.
	-	Steele, W. and P. Stirilog, Morries J. D. (Main Avenue	Alloy bell, for cheapness. Patent.
		West.)	
Prassia	199	Stobwasser, C. H., and Co	Japan articles, &c.
United Kingdom	422	Stocker Brothers (Cl. v.)	Beer machine. Brass and steel wire, &c.
Wartemburg	779	Stohrer, J. F. Stollberg-Wornigerode, Count	Cast-fron Gothic vase, &c.
Prussia	113	Stollberg-Wornigerode, Count	CARP NOW COUNTY THREE, DAY

NATION.	No. in Catalogue	NAME OF EXHIBITOR,	Objects Revarded.
Inited Kingdom .	413	Strode, W.	Gas slove.
France	1023	Susse Brothers	Bronze candelabra, fountains, &c. Safes.
Juited Kingdom .	622	Tann and Sons	Locks,
	682	Taylor, J	Bells (and Special Approbation.)
	705	Taylor and Son	Bells (and Special Approbation.)
	705	Thompson, T. II.	Sanatory trap, &c.
-	312	Timmins and Sons	Vices, hammers, &c. Zine window blinds.
	55	Treggon, II. and W	Zinc window blinds.
France	. 700	Treion, Weldon, and Well	Buttons and China knobs,
-	1512	Tronchon, N. Trubia, The Royal Ordnance.	Iron articles of furniture, &c.
Spain	. 280	Trubia, The Royal Ordnance	Iron bust of King of Spain.
United Kingdom .	550	Tupper and Carr	Wire fencing (galvanized iron.)
	174	Turner, H. and W	Fire-Irons.
-	63	Tyler and Pace	Perforated metals, Bronzed ware and baths,
-	401	Tylor and Son	Bronzed were and baths.
Franco	. 1517	Vantillard and Co	Tinned-iron pins, &c.
_	1705	Verstaen, L. N.,	Strong boxes and safes.
United Kingdom .	. 391	Wskefield, F.	Cooking apparatus. Perforated brass.
_	29	Walker, F.	regionized brass.
-	243	Walker, F. Walker, R. (Cl. viii.) Walker and Co. (Main Avenue West) Walters, B. and P.	Metallic pens.
and the same of	62	Waller and Co. (Main Avenue West)	Monumental brass,
	670	Walters, B. and P	Locks.
-	69 & 701	Walton and Co	
	798	Walters, B. and P. Walton and Co. Worner and Sons Wells, J. T.	Bronzed copper ware and bells.
_	290	Wells, J. T	Buttons.
	600		Refrigerator
	667	Whitehouse and Co	Iron tubes and fittings.
married to	356	Whitfield, Samuel	Brass cornices and safes.
about 1	242	Whitmee and Chapman	
	30		Metal ropes.
	490	Wilson, R. and W	Baths (various).
_	668	Windle and Blythe	Locks and steel pens.
-	75		Chain cables,
	664	Yates, 11	Locks,
_	384	Yates, Haywood, and Co	Stove grates.
*****	343	Yates, II Yates, Haywood, and Co Zuccanl, B. (Cl. xxx.).	Aviary.
		HONOURABLE MENTI	ON,
			ON.
Prussia	. 214		ON. Enamelied stoneware.
Prussia	647		ON. Enamelled stoneware. Door pivots.
russia	647 253		ON. Enamelled stoneware. Door pivots. Bellows.
-	687 253 65		ON. Enamelled stoneware, Door pivots. Bellows. Monumental brass.
Apetria	687 253 65 665		ON. Enamelled stoneware. Door pivots. Bellows. Monumental brass. Pearl buttons.
-	687 253 65	Action-Verein, Wilhelmshütte Aldridge, J. M., Aliday, W.	ON. Enamelled stoneware. Door pivots. Bellows. Monumental brass.
Apetria	687 253 65 665 301	Action-Verein, Wilhelmshütte Aldridge, J. M., Alblay, W. Archer, J. W. (Main Avenus.) Arrer, J. Aston, J.	ON. Enamelled stoneware, Door pivots. Bellows, Monumental brass. Pearl buttons, Silk buttons,
Austria	687 253 65 665 301	Action Verein, Wilhelmshütte Aldridge, J. M., Aldlay, W. Archer, J. W. (Main Avenue.) Arrer, J. Aston, J.	ON. Enamalled stoneware, Door pivots. Bellows, Monumental brass. Feurl buttons. Sik buttons. Mortice night bolt,
Austria	647 253 65 665 301 641 760	Action Verein, Wilhelmshütte Aldridge, J. M., Aldlay, W. Archer, J. W. (Main Avenue.) Arrer, J. Aston, J.	ON. Enamelled stoneware. Door protes. Monumental brass. Peer buttons. Sik buttons. Mortine night bolt. Boter (as a man in armour.)
Austria	647 253 65 665 301 641 760	Action Verein, Wilhelmshütte Aldridge, J. M., Aldlay, W. Archer, J. W. (Main Avenue.) Arrer, J. Aston, J.	ON. Enamelled stoneware, Door pivot. Bellows. Monumental brass. Silk bettons. Morelee sulph bolt. Morelee sulph bolt. More on suna in armour.)
Justria	687 253 65 665 301 681 760 438	Actica-Verein, Wilhelmshütte Aldridge, J. M. Alday, W. Archer, J. W. (Main Avenue.) Artrer, J. Astron, J. Bamber and Son Bann, K. Bishiel, G. A.	ON. Enamalled stoneware, Door pivots. Bellows. Peerl button. Sik buttons. Mortien alght bolt. Store (as a man in armour.) Two irone make become the
Justria	687 253 65 665 301 681 760 438 438	Actica-Verein, Wilhelmshütte Aldridge, J. M. Alday, W. Archer, J. W. (Main Avenue.) Artrer, J. Astron, J. Bamber and Son Bann, K. Bishiel, G. A.	ON. Enamalied stoneware, Door pivota. Bellova. Bellova. Monamental brass. Pear! buttons. Silk buttons. Mortice night bolt. Store (as a man in armour.) Two iron cash boxes. Cas bourer, self-enaltating.
Austria	687 253 65 665 301 681 760 438 438 448 297 650	Actice. Verein, Wilhelmshütte Addridg, J. M. Aldsay, W. Archer, J. W. (Main Avenus.) Arten, J. W. (Main Avenus.) Aston, J. Bamber and Son Bamm, R. Beitl, F. Böddel, G. A. Böddel, J.	ON. Enamalled stonewary. Door pivots. Bellows. Monumental brass. Mile battone. Mortle night boli. Store (se a man in armoner.) Two irow cash bones. Gas bourner, self-regulating. Letter-clup, see.
Justria	687 253 65 665 301 681 760 438 438 297 650 267	Actice. Verein, Wilhelmshütte Addridg, J. M. Aldsay, W. Archer, J. W. (Main Avenus.) Arten, J. W. (Main Avenus.) Aston, J. Bamber and Son Bamm, R. Beitl, F. Böddel, G. A. Böddel, J.	ON. Enamalled stonewary, Door pivots. Bellows, Bellows, Bellows, Silk buttons. Mortice algalt bolt. Stora (as a man is armour.) The borners borner, The borners borner, Letter-claps, de. Letter-claps, de. Letter-claps, de.
Prossia	687 253 65 665 301 641 760 438 438 297 630 267	Actica-Verein, Wilhelmshütte Aldrieg, J. M. Aldsay, W. (Main Avenus.) Arrer, J. W. (Main Avenus.) Arrer, J. Bamber and Son Bamm, R. Beitl, F. Beitl, F. Biglerd, I. Biglerd, I. Biglerd, I. Biglerd, I.	ON. Enamalled stocoware, Deprivate. Monumental breas. Pearl buttons. Silk buttons. Merite night bold. Wortle night bold. Two liven cash boxes. Gas burrery, self-guidating, Gas burrery, self-guidating, Lock. L
rustria	687 253 65 665 301 641 760 438 297 630 267 464 623	Actica-Verein, Wilhelmshütte Aldrieg, J. M. Aldsay, W. (Main Avenus.) Arrer, J. W. (Main Avenus.) Arrer, J. Bamber and Son Bamm, R. Beitl, F. Beitl, F. Biglerd, I. Biglerd, I. Biglerd, I. Biglerd, I.	ON. Boardied stoceware, Deor pivote. Monumental breas. Monumental breas. Monte sight belt Mortice sight belt Stoce (as a max in armour.) Two lave eash boxes. Letter-clips, becaulating. Letter-clips, becaulating. Informatical sighton. Informatical sighton.
rustria	687 253 665 665 301 641 760 438 438 297 630 267 464	Actica-Versta, Wilholmshitte Aldridge, J. M. Aldray, W. (Main Avenue.), Actica, J. W. (Main Avenue.), Actica, J. Bumber and Son Bumm, K. Bedel, F. Bedel, F. Bedel, G. A. Bedel, J. Birke, R. Birke,	ON. Boardied stoceware, Deor pivote. Monumental breas. Monumental breas. Monte sight belt Mortice sight belt Stoce (as a max in armour.) Two lave eash boxes. Letter-clips, becaulating. Letter-clips, becaulating. Informatical sighton. Informatical sighton.
rustria	687 253 665 665 301 641 760 438 438 297 630 267 464 623 94	Action Verein, Wilhelmshitte Abdridge, J. M., Albigy, W. (Main Avenue.) Arree, J. Arree, J. Bamber and Sen Bamm, K., Beitl, F., Beitle, J. Beit	ON. Boardied stoceware, Deor pivote. Monumental breas. Monumental breas. Monte sight belt Mortice sight belt Stoce (as a max in armour.) Two lave eash boxes. Letter-clips, becaulating. Letter-clips, becaulating. Informatical sighton. Informatical sighton.
Justia Justia Lustria	. 647 253 65 665 . 665 . 301 . 760 . 438 . 438 . 297 . 630 . 267 . 464 . 769 . 769	Action Verdin, Wilhelmshifte Abridge, J. M., Abridge, J. M., Archer, J. W. (Main Avenue.) Arrer, J. W. (Main Avenue.) Bamber and Son Berli, E. Binder, G. A. Binder, G. A. Binder, G. A. Binder, J. Bi	ON. Deep jeven. Deep jeven. Deep jeven. Monumandal braus. Silk bettimes. Silk bettimes. Moriface sight beld. Horizon sight beld. Horizon sight beld. Horizon sight beld. Horizon sight beld. Two lower sight beld. Letter-clays, Re. Letter-clays, Re. Hydrostatel sighten. Hydrostatel sighten. Free-beaper. F
unitria United Kingdom Prossia United Kingdom Prussia Wurtemburg United Kingdom United Kingdom	687 253 65 665 301 641 438 438 297 650 267 464 623 94 769 770 426	Action Verein, Wilhelmshitte Advining, J. M. Advining, J. M. Advining, J. M. Action, J. W. (Main Avenue.) Action, J. W. Miller and Son Baume, F. Beath, F. Beath, F. Beath, F. Beath, F. Beath, B. Black, B. Black, B. Black, B. Blackmann, E. Bockle, M. Beckle, M. Bec	ON. Deep jeven. Deep jeven. Deep jeven. Monumandal braus. Silk bettimes. Silk bettimes. Moriface sight beld. Horizon sight beld. Horizon sight beld. Horizon sight beld. Horizon sight beld. Two lower sight beld. Letter-clays, Re. Letter-clays, Re. Hydrostatel sighten. Hydrostatel sighten. Free-beaper. F
unitria United Kingdom Prossia United Kingdom Prussia Wurtemburg United Kingdom United Kingdom	687 253 65 665 665 301 760 438 438 297 630 267 464 623 769 770 426 438	Action Verein, Wilhelmshitte Advining, J. M. Advining, J. M. Advining, J. M. Action, J. W. (Main Avenue.) Action, J. W. Miller and Son Baume, F. Beath, F. Beath, F. Beath, F. Beath, F. Beath, B. Black, B. Black, B. Black, B. Blackmann, E. Bockle, M. Beckle, M. Bec	ON. Deep jeven. Deep jeven. Deep jeven. Monumandal braus. Silk bettimes. Silk bettimes. Moriface sight beld. Horizon sight beld. Horizon sight beld. Horizon sight beld. Horizon sight beld. Two lower sight beld. Letter-clays, Re. Letter-clays, Re. Hydrostatel sighten. Hydrostatel sighten. Free-beaper. F
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Austria Prossia Austria Austr	647 253 665 665 501 641 760 648 448 297 650 267 464 623 769 770 425 433 575	Artica Verda, Wilhelmshitte Artica Verda, Willelmshitte Albiny W. (Mai Avenue.) Artica, J. W. (Mai Avenue.) Bauner and Son Bauner, B. Bauher and Son Bauner, B. Bauher, I. Barker, I. Barke	ON. Domailled indexaury. Domailled indexaury. Domailled indexaury. Domailled index. Domail
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Ameria Dated Klagdom Prussia Avaremburg France Truste Klagdom Avaremburg France Truste Klagdom France Truste Klagdom France Trusta	. 647 253 65 665 501 641 760 448 227 644 428 227 464 429 770 426 433 549 621 247 623 621 621 621 621 621 621 621 631 641 643 643 643 644 644 645 645 645 645 645 645 645 645	Artice-Yerin, Wilhelmshitts Artice-Yerin, Wilhelmshitts Alday W. (Chain Avenue). Astrop. J. W. (Chain Avenue). Astrop. J. W. (Chain Avenue). Astrop. J. Bender and Son Bonder and Son Bond	ON. Examiled stoleware, Bollows, Bollows, Monomand brane, Silk betton, Morrison agist boll, Gas burner, self-equilating, Lock, cliqu, see Lock, clique, see L
Austria "nited Kingdom "prossia "prussia "warremburg "France "Inited Kingdom "France "Inited Kingdom "Travel a	. 647 253 650 660 5655 301 641 760 448 297 650 267 464 428 277 650 247 770 429 429 429 429 420 421 521 521 521 521 521 521 521 521 521 5	Artices Veyria, Willedmahlete Artices Veyria, Willedmahlete Aldagi, W. W. (Infa Avenus) Arter, J. Arter, J. Arter, J. Arter, J. Arter, J. Bould, F. Bould, F	ON. Domailed sieeeway, Bollow, Bollow
Austria Cuited Kingdom Prossia United Kingdom United Kingdom Wursemburg France Linited Kingdom France Cuited Kingdom	. 647 253 65 665 501 641 760 448 297 660 247 464 452 760 464 470 470 470 470 470 470 470 470 470 47	Artice-Yerin, Wilhelmshitts Artice-Yerin, Wilhelmshitts Alday, W. Chain Avenus, J. Artice, J. Chain Avenus, J. Artice, J. Chain Avenus, J. Artice, J. Chain Avenus, J. Bander, and Sun Bander, S. Bander, J. Band	ON. Examiled stoleware, Bollows, Bollows, Monomand brane, Silk betton, Morrison agist boll, Gas burner, self-equilating, Lock, cliqu, see Lock, clique, see L
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NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	Objects Reawaded.
France	134	Cadrae, F	Window-rod fasteners.
	99	Cugnot, A	Locksmith's work and ironmoneery.
United Kingdom	754 1168	Culverwell, W	Portable vapour bath, Ornamental steel purse.
France	445	Debaufer, H.	Concentrating gas lamp, for the exterior illu-
	-		nation of shop-windows. Bronze and cast-fron articles, &o.
France	1582	De la Conr. L. F	Bronze and cast-iron articles, &o.
Russia	324	Demidoff, Messrs	Melachite vases,
France	145	Dervanx-Lefebvre	Chalus, bolts, &c. Buttons, &c.
	819	De Serionne, Loln, and Co Deydier, Madame	Zinc dermer windows, &c.
-	8:14	Ducel, S. J.	fron castings of statues, animals, &c.
Prussia	641		Pad and portfolio locks
Jersey and Guernsey .	. 9	Dn Pre, W. H.	Wind gunrd, &c.
Franco	151	Duval and Paris Eberstaller and Schindler	Bronze lumps, &c. Iron and steel wire, &c.
United Kingdom	241	Edwards, D. O	Atmopyre boods and gas stove.
United Kingdom	345		Inkstands, glass screws, &c.
Prossia	660		Window curtain, in frame of bross.
Prussia	86		Kitchen range and bath apparatus.
Austria	457	Ernst, P.	
United Kingdom	540 380	Farrow, C.	Machines for wine and other liquors. Wrought pails.
Belgium	503	Fauconier-Delire (Wildow) Faulding, J.	Portable vapour bath by spirit lamp.
France	1691	Faulding, J. Faye, P. G.	Bronze clocks, &c.
	1601	Fetu, J	Bronze chamieliera &c.
United Kingdom	508	Fisher, J. N.	Cash-box,
	13		Horse-shors.
France	508	Fondet, sen, Fox, T. II. Fumet, C. F.	Warning apparatus, Bird-caces,
United Kingdom	513	Fox, T. II.	Apparatus for artificial ice.
Franca	193	Fumet, C. F	Parrot-cage, German silver.
France	225	Gaertner, A. Gaillard, jun. Gidney, J. W.	
France United Kingdom	536	Gidney, J. W.	Wire tenning.
France	849	Gillot, F.	Clocks, &e.
United Kingdom	238	Glenton and Chapman	Polished register store. Wrought-iron strong box.
Belgium	357	Gob, J	Stave grate and fender.
United Kingdom	66	Gorton, G	Monnmental brass, inlaid steel figures-
Austria	469	Gould, — Grabner, F. Grangoir, J. M. Grant D	
	1256	Grangoir, J. M.	Locks, &c.
United Kingdom	431	Grant, D.	Gas stoyes.
Prussia	653		Samples of butlons,
France	252	Guinlor, T	Water-closets and cocks.
United Kingdom	432		Hurse-slines, Water-closets, Sec.
	486		Bells, kettles, &c.
-	612		Enamelled zinc.
-	263	Hands, J. Harrison, W. Hedlund, J.	Brass-work, cornices, &c, Enamelled frying-puns.
-	555	Harrison, W	Enamelled frying-puns.
Sweden and Norway .	10	Hedlund, J	Padleck, Coffin furniture,
United Kingdom	271 65	Hickman and Clive	Patent bedstead, with iron pillars, &c.
-	355		Stamped brass orgaments.
	15	Bill, J. Hillman, J. Hollste, J. Holliday, R. Holmes, Capt.	
	450	Holgate, J.	Signal-lemps.
	448	Holliday, R.	Gas-lamp. Improved horse-shoes,
-	12	Holmes, Capt.	Improved horse-shoes,
Prussia	648		Samples of buttons (plated). Iron and steel wire.
Austria	428 880	Huet, J.	Purse-trimmings, &c.
Prussia	632	Huet, J.	Vices, &c.
United Kingdom	406	Huxhams and Brown	Stores.
	236	Huxley and Heriot	Gas-stoves, hydraulic stoves, &c.
	311	Jackson, W	Tools for tin and copper ware.
France	887	Jaudin, A	Tinfoil and coloured spangles. Improved borse-shoes for frosty weather
United Kingdom	407	Jackson, W. Judin, A. Jones, G. King, S. Kolesch, H. Ladd, C. P.	Stove-grates (ventilating principle),
Prassis	196	King, S	Iron safe.
Canada	ISIA	Ladd, C. P.	Balance-scale.
Franco	288	Lang. L.	Wire-gauze, &c.
France	506	Leadbeater, J. Leade and Albrecht (Cl. xxix.)	Fire-proof safes. Cake-moulds and temple.
	108	Leale and Albrecht (Cl. xxix.)	Cake-moulds and temple.
Prussla	197		Brass curtain ornaments.
France	673	Lewis, G.	Lock on circular lovers.
comes tringuous	503	Longfield, W	Occamental iron safo.
France	1332	Luce, P	Mantelplece, ornamented with a mirror.
Netherlands	100	Lurasco Brothera	
	378	Macquinay Brothers	Wronght nails.
United Kingdom	639	Machell, J. C.	Patent portable steamer-bath Brasswork, cornices, &c.
-	261	Malin and Sons	Ornamental nails.

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARRED.
Belgium	120	Marcinelle and Couillet Smalting Com-	Samples of nails, &c.
rance		pany. Martin, O., and Very Brothers	0.11
rance	614	Martin, O., and Very Brothers	Cast-iron ornamental work.
untria	608	Metaner, W	Pearl buttons.
mited Kingdom	9	Miles, W.	Horse-shors (various). Shoe-tips and heels,
Inited Kingdom	467	Mitterberger, J	Shoe-tips and heels.
nited Kingdom	669	Moreton and Langley	Lock, and general hardware.
rance	931	Moreton and Langley Morison, N. J. Morrall, A. Morton, J. Moss, P. Müller, — Murray, W. Neal and Tanks Nettleton and Son	Bronzes, &c.
Inited Kingdom	333	Morrall, A	Needles.
-	104	Morton, J	Fenders and east-iron table.
	498	Moss, P	Copper vapour-bath by spirit-lamp.
russia	287	Müller,	Ornamental castings in bronse.
nited Kingdom	793	Murray, W	Tabular filter.
-	285	Neal and Tunks	Buttons,
-	388	Nettleton and Son	Gothle church-ventilating stoyn.
rance	662	Neuburger	Lamps, &c.
nited Kingdom	640	Nlxey, W. G.	Pateut till.
	249	Onions, J. C	Bellows.
B00770	658	Osmond, G	Sash-fastenings, &c.
mace	683		
inited Kingdom	73	Perry, J	Copying press.
ranco ranguom	954	Petithomme, L. A.	System of suspension for bells.
rance nited Kingdom	281	Perry, J	Buttons : navai buttons.
netrie	433	Pleischl, A	Sheet-Iron saucepans in non-metallic ename
ustria	4-3-3	Plemies W	Model of an improved borse-shoe.
mice rangdom	414 & 434	Plomley, W.	Cooking stoves.
nited States nited Kingdom	9198 434	Pond and Co. Pope and Son Prideaux, J. S.	Double-action rarefying stores.
mies Vinkaom	243	Pope and Son	Grate, feeding at bottom; draining machine
_	233 465	Prideaux, J. S.	Grate, feeding at bottom; draining machine Bronze urns, &c.
	465	Pyrke and Sons	prouse urns, ac.
			D
TRICE	975	Rebert, C	Door-fastenings.
	979	Rebert, C	Copper cake-moulds.
nlted Kingdom	449	Rettie and Sons	Signal-lamps.
urtemburg	62	Rexer, C.,	Brass and steel wire and gauze,
urtemburg	150A	Rice, W	Wire fencing.
amburg	50		Brass parrot cage. Metallic buttons.
russia	639	Ritzel, L. (Widow)	Metallic buttons,
rance	1447	Robin, L.,	
amburg russia rance nited Kingdom	437	Richter, J. M. S. Ritzel, L. (Widow). Robin, L. Roper, J. Ryan, J. Sebedl, C. Schmidt, P. L.	Transparent gas-meter.
	436	Ryan, J.	Transparent gas-meter.
ustria	429	Schedl, C.	Iron and steel wire,
russia	646	Schmidt, P. L.	
russia	470	Schwarz, C. Schwarz, F., jun. Schwarz, F., sen. Schwarz, J. Scarle, C., M.D. Seebass, A. R.	Jews' harps. Jews' harps. Jews' harps.
	471	Schwarz, F., jun.	Jews' harns
	470	Schwarz, F., sen.	Jone' harry
	472 473	Schwarz, J	Jews' harns
nited Kingdom	480	Searle, C., M.D.	Jews' harps. Tubulated solid brick-heating stove.
mend Dushy of House	50	Sectors, A. R.	Cast-iron and steel ornaments,
rand Dueby of Hesse alted Kingdom	438A	Shears and Son	Patent dry gas-meter.
nuted kringdom	243A	Shears and Son	Passent and garageter.
-t-t	358	Sherwin, J	Economic range, hot closet, and bath. Nalls, termed "Clous de Paris."
eigium	1017	Sleron, L.,	Copper and steel pegs for shoes.
rance	1017	Sherwin, J. Sleron, L. Sirot, P., sen. Skeltons, S. and R.	Charles and seces pegs for shoes.
mited hangdom	220	Skeltons, S. and R	Shovels and spades.
	452	Smiths and Co	Carriage, rail, &c., lamps.
Market Trans	354	Smiths and Co	Copper-bronzed urns, Cash-box for railways,
	430	Sparkes, J	Cash-box for ratiways,
	451		Signal lamps. Horse-aboes and plates. Water-closet, brass taps, &c.
-	7	Stevens, H. R.	Horse-spoes and plates,
	252	Stokes, J. C	Water-closet, brass taps, &c.
пилсе	1497	Tachy, A., and Co	
-	1039	Talllafer, A., and Co	
nited Kingdom	521	Taylor, S	Ornamental beliows.
russia	624	Thomas, Christian	Hardware.
rusela	419	Taylor, S	Steel and Iron for nails.
rance	703	True	Lamps, &c.
versein	636	Turk, P. C. (Widow)	Motal buttons.
nited Kingdom	- 1	Turner	Post-office window, double-action fastenings
merca sempuom	279	Turner, — Twigg, G. and W. Ullenberg and Schnitzler	Naval battons.
musula	355	Twigg, G. and W	Screws and wire,
russia	460	Ullenberg and Schnitzler	Nails (assorted).
ustris	355	Vingert, A	Zinc vessels.
elgium	933	Vandercamer, J. A	Paral Continue
rance	1531	Yourot, E	Steel for jewellery.
nited Kingdom	113	Wallace and Son	Cooking apparatus, Gas cooking stove,
	218	Wallace and Son. Warriner, G Wescher Brothers, and Strassmann	Gas cooking store,
russia	634	Wescher Brothers, and Strassmann .	Buttons, &c.
'nited Kingdom	656	Whitley, J	Wronght-Iron hinges. Ventilator and guard,
ersey and Guernsey .	12	White, George	Ventilator and guard,
ersey and Guernsey . Inited Kingdom	10	Whitehead,	Horse-shoes.
ennia .	993	Winchelmann J	Electrotypes.
russia	525	Wies, R.	Self-acting water-closet,
move Linguom	276	Wies, R	Lock.
	8	Woodin, D	Horse-shoes (various),

NATION.	No. in Catalogue.	NAME OF EXIMATOR.	Objects Bewardeds
Pennark United Kingdom United Kingdom Frankfort-on-the-Maine	412	Wooblridge, J	Brass fittings, &c. Two brass ica-urns, excented by hand. Yets lamps, from and 2inc wares,

CLASS XXIII.

COUNCIL MEDAL.

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom .	1720	Elkington, Moson, and Co Froment-Meurice	Artistic application of the electrotype. Centre-pieces representing globe surmounted by
	. 98	c 1 B 10 10	deities.
United Kingdom .		Garrard, B. and S., and Co,	Artistic plate and jewellery.
France	. 1619	Gueyton, A	Variety of exhibits and electro-plating.
United Kingdom .	. 112	Haucock, C. F.	Originality and taste in his exhibits.
-	97	Hunt and Rockell	Vase in repouse by Vechte.
Russia	. 376	Knemmerer and Zeftlgen	Diadem, &c , In jewels.
France	301	Lemonnier, G	Queen of Spain's jewels, &c.
	331	Marrel Brothers	Scals, snuff-boxes, and smaller articles.
United Kingdom .	. 117	Morel, J. V., and Co.	Enamels.
France	1465	Rudolphi, J. F.	Silver ornaments.
Russia		Sazlicoti, Ignace	A centre-pleze.
France		Vittos, G. T.	Gilt bronzes.
Prussla		Wagner, Emil, August, Albert	Large centre-piece.
United Kingdom .		Wales, H.R.H. the Prince of (Main	Shield.
Cinted Kinguom .	. 50	Avenue.)	outciu,
Prussia	. 412	Weishaupt, C. M., Sons	Chess-board and mon.
		PRIZE MEDAL,	
United Kingdom .	. 111	Angell, J	Enamels.
France		Aubanel, J	Chimney decorations,
-	1052	Aucoc, sen	Dressing-cases.
	11	Audot, L. D. J.	Silver ornaments and inlaid work of dressing
Sardinia	. 59	Bennati, J.	Filigree.
France	. 1107	Bouillette, Hyvelin, and Co	Artificial stones.
-	70	Boyer, V. P.	Electro-gold,
Hamburg	. 54	Boyer, V. P. Brahmfeld and Gutruf	Inkstand.
France	1119	Bruneau, L. A	Articles of luxury.
	1133	Caron, A.	Damascene pistola.
	1562	Christofle, C., and Co.	Electro-plate,
United Kingdom .		Creswick, T. J. and N.	Plated silver.
unted Kingdem .			

Dufrique, F. Dusfontaines (Maison), Leroy, and France 1186 Son. Dixon and Sons Dubois, A. Durand, F. Durham J oseph B. (Cl. xxi.) Son. 38 United Kingdom . . Switzerland 43 AR Switzerland Dutertre, A. Belgium . . . United Kingdom 83 Golay Lereche, A. . . . Grandjean Perrenend, II. Switzerland 22) AR Haulick, G. F. Haulick, G. F. Heeley and Sons (Cl. xxn.) Ibbetson, Capt. L. L. B. (Cl. xxx.) Jahn and Bohn. 413 Prussia United Kingdom . 305 323 United Kingdom . Prussia 888

1284 Lacarrière, A. .

1308 1287

103

1318

44

595 58

Levelle Brothers . . . Leuchars, W. (Cl. xxix.) . Levy Brothers and Co. . .

Loleo, J. Marshall, E. S.

Miroy Brothers .

France

United Kingdom .

France United Kingdom

France . . .

Sardinia United Kingdom

France . . .

Engraved gold. Flower, in stones Chatelaine. Electrotypes.
Setting of diamonds.
Chalices.
Tea-service of coloured cornelian, and jewel-cases in green moss agate.
Mntation of gilding.
Carabine mounting.
Clock.
Vase. Bronzes, &c. Dressing cases Mountings. Filigree. Gold lenf.

Imitation bronzes.

Cast-iron clock,

Britannia metal.

Engraved gold.

Damascene steel.

Setting of stone.

Chatelaine. Enameta,

Enamels.

Spain 951	
United Kingdom . 118 Rowlands, C. and W Jewellery.	
Pruseia 271 Royal Prussian Iron Foundry . Intaid silver.	
France 1476 Savard, A Pinted gold.	
368 Savary and Mosbach False stones.	
Saxony 33 Strube and Son Vase.	
France 696 Thoumin A Stamped brass,	
- 1702 Thouret, F. A Electrotypes.	
- 1045 Truchy, E Black pearls.	
707 Valce, C Faise pearls,	
- 1707 Villemsens, F Candelabra, &c.	
United Kingdom . 105 Watherston and Brogden Vase.	
15 West and Son Irish brooches.	
France 740 Weygand, A Vase.	
Prussia 889 Wild and Robinson Vason.	
Spain 264 Zuloaga, E Damascene arms.	
A 2644	

	707	Villemsens, F			Patte pearts.
	1707	Villemsens, F	٠		Candelabra, &c.
United Kingdom	105	Watherston and Brogden			Vese.
	15				Irish brooches,
France	740	Weygand, A	٠		Vase.
Prussia	889	Wild and Robinson			Vases.
Spain	964 8 264A	Weygand, A. Wild and Robinson Zuloags, E.	٠	٠	Damascene arms.
				_	
		HONOURABLE 1	(E	NTI	ION.
United Kingdom	88	Adams, G. W			Tudor pattern silver.
	293	Alien, F. (Cl. xxii.)			Vases.
	103	Angell, G. Attenborough, R.			Vasca,
	113	Attenborough, R			Tea service, &c.
	26	Altescorouge, a. Baird, W. Bautte, J. F., and Co. Bergmann, W. Bielen, J. and F. Bolzau, Louis Buss, H. Cartwright and Hirons Collis. It B			Ram's head.
Switzerland	236	Bautte, J. F., and Co		٠	Gold paper press.
Prustia	207	Bergmann, W	٠		Rich crystals,
United Kingdom	51	Biden, J. and F			Seals, &c.
Prussia	-	Bolzau, Louis			Meerschaum pipes.
United Kingdem	79	Buss, 11			Arms of all nations, in enamel.
	30	Cartwright and Hirons			Table silver.
	34	Collis, G. R.			Plateau of sliver.
France	95	Corniflen, J. H			Toilet bottles.
Malta	24	Cornilion, J. H. Critien, E. Desjardins-Lleux			Fliigree.
France	1588	Desjardins-Lleux			Statuettes, &c., in silver and bronze,
	1589				Clock, style of Louis XVI.
Malta	25	Falson, S			Filigree,
Portugal	1022	Falson, S			Silver ornaments and filigree.
	A to c				
Frankfort-on-the-Maine	20	Goldschmidt, M., and Son .			Gold and enamel ornaments.
United Kingdom	64	Goodwin, C	- 1		Jasper enp.
Austria	576	Goodwin, C	-		Neckiaces, brooches, &c.
United Kingdom	131	Honrys and Co	- 1	- 1	Imitation of diamonds.
Prussia	440			- 1	Amber pecklaces.
France	1628	Hontlier B	- 7		Pistols inlaid with gold, &c.
France	905	Honlier, B	- 5	-	Nackinces and brooches,
Toront	409	Jünger's, Jacob, (Widow)	1		Samples of enamels,
Prenza	281	Jünger's, Jacob, (Widow) Kirstein, F.			Stars, in silver,
France	27	Lister and Sons	•	- 1	Coffee and tea-pots, &c.
France	597	Maillet, E	•	:	Ornaments for bottles.
Portugal	1022	Mamada B G	•	- 1	Amethysts, &c., in filigree.
United Kingdom					Chatelaine and bracelets, &c.
Custed Kingdom	2.3	Martin, Baskett, and Martin .	•	:	Gold chatelaine, &c.
-	95	Matthews E	•	:	Royal arms, engraved on metals,
	14	Mayer, J.	•		Brooch, neckiace, &c.
	46	Meticoner M	٠	•	Ram's head.
	116	Mon W	•	:	Goti and silver pencil-cases.
	86	Nach E	٠	:	Souff-boxes.
Switzerland	44	Metregor, M. Mott, W. Nash, E. Patton, J. Phillips Brothers	٠	•	Engraved gold ornaments,
United Kingdom	87	Phillips Brothess	٠		Silver statuettes.
Curren tringgom	23	Postelli A			Filigree.
Malta	1388	Portelli, A	٠		False stones, &c.
rance	1388	Patterna, A. F	٠		Candelabras, &c.
United Kingdom	24	Rold and sons			Bracelets, in granite.
	24	Rettie and Sons	٠		Drucelets, in granite.
France	1460	Ronvenat, L. Schreger, B.J. Seymour, E. and J.	٠		Sward mountings. Oxidised silver and jewellery.
Grand Ducay of Hesse	51	scareger, B.l.			Oxidised silver and jewellery.
United Kingdom	72	Seymour, E. and J	٠		Portraits, in enamel.
	110				Silver flower-bolders,
	20	Waterhouse, G. and S			Irish brooches.
					Pebbles.
Prussia	325				
Prussia	177	Wertheimer, S. (Cl. xxva.)	:	:	Inkstand.
Prassia United Kingdom		Weber, Carl. Wertheimer, S. (Cl. xxvi.) Widdowson and Veale. Wilkinson, H.			Inkstand, Rings, &c. Decorations for table.

OBJECTS REWARDED.

CLASS XXIV.

NAME OF EXHIBITION.

COUNCIL MEDAL.

NATION.	Catalogor.	NAME OF EXHIBITION	OBJECTS REWARDED.
France	656	Mais, M	Novelty of chemical application in the manu- facture of optical and other descriptions o- glass.
		PRIZE MEDAL.	
France	1540	Andelle, G., and Co	French botties,
United Kingdom	19	Bacchus and Sons	Cnt glass-imitation of Venetian glass.
Belgium	390	Bennert and Bivort	Window glass.
France		Berlioz and Co	Plate glass for mirrors.
Anstria	600	Bigaglia, P	Venetian glass.
United Kingdom	406	British Plate Glass Company (Cl.	Plate glass for mirrors.
United States	113	Brooklyn Flint Glass Company	Flint glass,
France	39		Watch glasses,
United Kingdom			Glass pipes. Curtain poles.
Citted Kingdom	15	Davis, Greathend, and Green	Cut and coloured glass, Greek and Etruscan vasc
France		Deviolanc Brothers	French bottle gites,
	1396		French bottle glass,
United Kingdom	32	Green, J. G	Design-Form-Engraving on glass.
Austria		Green, J. G Harrach, F. E., Count Von	Bohemian glass.
United Kingdom	21		Cut glass-pressed, moulded, and coloured,
	100	Hartley, J., and Co	Rolled plate glass for roofs, Rough plate.
-	18	Lloyd and Summerfield	Cut glass-medaltions,
Austria		Meyr's Nephews	Bohemian glass.
United Kingdom	13	Molineaux, Webb, and Co	Cut glass, coloured or pressed.
	20	Osler, F., and Co	Cut glass, various—novelty of design in four tain, candelabra, &c.
France	674	Patoux Drion, and Co	Giass.
United Kingdom	. 33	Pellatt, Apsley, and Co	Cut glass-crystal imitation of Venetian glass gems, &c.
	31	Powell and Sons	Fine crystal (purity of colour, pipes, and joints.
Netherlands	99	Regout, P	Tubing and table glass.
United Kingdom	14	Regout, P	Cut and crystal-coloured glass,
France	1445	Robichon Brothers and Co	Crown glass.
Prussia	208	Schaffcotsch, Count	Bohemian glass.
United Kingdom	. 4	Schnfigotsch, Count	Glass dome-plate glass, Pipes coloured.
	399	Thames Plate Glass Company (Cl. xxviMain Avenue West.)	Plate glass.
France	714	Van Leempoel de Coinet, and Co	Bottle glass,
United Kingdom	27	Varnish, E	Silvered glass,
Canted Mangacian 1	17	Webb, T	Cut glass.
	-	HONOURABLE MENTI	on.
	1		A District
Austria		Abele, F	Looking-glass. Cut glass.
Portugal		Aire and Calder Bottle Company	Bottle glass.
United Kingdom		Aire and Camer nottle Company .	
Portugal	to 1016	Basto, Pinto, and Co	Sketched window glass.
Beigium	387	Capellemans, J. B	Bottles.
United Kingdom	35		Giass shades (from Mesers, Chance).
	2	Copeland, W. T., Aldermau, M.P. (Cl.	Tuble glass.
		XXV.)	Door handles, &c.
France	1157	Corderant, A	Imitation of marble.
United Kingdom	396	Davice, G	Rose-water bottle.
Egypt	396	Egypt, it. it. the viceroy of	Mint water course.

12 41 46A

590

11

Austria . . .

Turkey United Kingdom

Glass centre dish. Ornamental cut-glass window. Cut-glass chandeller. Mirrors, &c. Mirrors, &c.

Bolicmian glass Bohemian glass. Bohemian glass.

Venetian glass.

Coloured glass.

NATION.	No in Catalogue,	NAME OF EXHIBIT	ron,			OBJECTS R	EWARDED.	
Austria	507 36 981 768 1 293 8	Pelikan, J. Perry and Co. Renard and Son Röbrig, C. Ress, O'Cannar, and Co. Salivsky, Medame Shephard, J.		:	:	Glass gobiets. Cut-glass chandelier. Plate glass. Glass shades, &c. Watch glasses. Table glass, &c. Glass tubing.		

CLASS XXV.

COUNCIL MEDAL.

NATION.	No. in Cutalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom	1	Minton, Il., and Co. (Jeint Medal with Class XXXII.)	New application and beauty of design.
France	1359	Sevres Manufactory	Iligh art.
A COLUMN TO SERVICE OF THE PARTY OF THE PART		THE RESERVE OF THE RE	

PRIZE MEDAL.

United Kingdom		. 7	Alesek, 8., and Co.	China
France		409	Bapterosses, J. F.	Buttons. (Prize Medal and Special Approbation.)
Portugal		1047	Basto, Punto, and Co	Porcelsin
		& 1108		
Bavaria		64	Bevarian Percelain Manufactory, The Royal	Porcelain.
Prussia			Berlin, The Royal Porcelain Manu-	Porcelain.
France		1086	Bettignies, M. De	Porcelsin, (Prize Medal and Special Approba- tion).
United Kingdom		. 11	Boots, T. and R.	Parian yanea.
		25	Bourne, J	Stoneware.
		2	Copeland, W. T., Alderman, M.P.	Statuary porcelain (general excellence).
Denmark		33	Copenhagen, The Royal Porcolain	Percelain.
			Manufactory at	
United Kingdom		12	Dimmock, T.	Earthenware.
		38	Finch, J.	Baths, &c.
Austria		618	Fischer, Morits	Porceisin.
France	: :	848	Gille, J. M	Parcelain.
United Kingdom		125	Green, S., and Co. (Cl. xxvii.)	Chemical ware.
		1630	Jouhanneaud and Dubois	Parcelain.
India		-	Madras Pottery, Tha	Terra cotta.
France		1342	Mansard, M.	Stuneware.
United Klordom	: :	9	Mayer, T. J. and J.	Earthenware.
		10	Meich, C., and Sons,	Earthenware,
-		5	Ridgway, John, and Co	Earthenware.
-		47	Rose, J., and Co	China.
Saxony		10	Saxon China Manufactory, Melmen,	
			The Royal	
Russia		318	St. Petersburg, The Imperial China Manufactory at	Porcelain,
Prosila		205	Strahl, Otto	Earthenware.
France		395	Tremblay, A., Baron du	Drawings, by lithography, on porcelain or crystal.
Austria			Vienna, Imperial Purcelain Mannfao-	Porcelain.
			tory at	
Prosis		361	Villeroy and Boch	Stoneware.
United Kingdom	: :		Wedgwood, T., and Sons	Earthenware.

HONOURABLE MENTION.

France						1051	Alluand, -, sen Porcelain.
Prussia						778	
France					- 1	1543	Avisseau, C. Pallissy ware
United	Ki	ngd	lom			26	Beil, J., and Co Earthenware
		-	-		- 1	53	Challinor, E Earthenware
	-	_			- 1	44	Chamberlain and Co Porcelain.
Turkey				٠	.	-	Constantinople, Factory of Porcelain Porcelain.
United	Ki	ngd	lom			37	Edwards, J., and Sons Vasc.
Austria						617	Fischer, C Purcelain.
France					. '	1253	Gorses and Perirr Parcelain.

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	Objects Rewarded.
United Kingdom		Grainger, G., and Co.	Porcelain,
Austria	620	Haidinger Brothers	
France	877	Honore, E	Porceinin,
United Kingdom	4	Konnedy, W. S	Porcelain lotters.
	14	Keys and Mountford	Parian.
	48	Lee, J	Letters.
	58	Marsh, James	Designs of best and yase.
Prussia	217	Mattschass, J. G. H. (Widow), and Son.	Earthenware,
France	659	Nast, H. J.	Parcelain.
	1629	Petit, Jacob	Porcelain.
United Kingdom .	22	Pratt, F. and R., and Co	Earthenware.
Canton tringenous s	36	Sharpe Brothers and Co	Derbyshire ware.
	99	Southorn, W., and Co.	
Prussia		Tielsch, Carl, and Co.	
United Kingdom	34	Wood, G.	
Switzerland	260	Ziegier-Pellia	Terra-cotta.
Switzeriand	260	Ziegier-Pellia	A PITS-COLIS.

CLASS XXVI.

COUNCIL	

NATION.	No. ia Catalogue.	NAME OF EXHIBITOR.	OBJECTS REVARDED.
rance	1709	Barbedienne and Co. (Joint Med with Cl. xxxx.)	Ebony bookease, mounted with bronze.
	1715 1231	Delicourt, E	. Paper hangings.
_	1231	Fourdinois, A. G	. Carved sideboard of walnut-wood.
netria	633	Leistler, C., and Son	. Carved furniture in four rooms.
rance	1326	Liepard, M. J.	. Clock case, and other articles.

France	. 1326	Lienard, M. J.	Clock case, and other articles.
		PRIZE MEDAL,	
Tuscany	. 74	Barbetti, A	Carved coffer.
Bayaria		Barth Brothers	Lody's work-table.
Belgum		Beernsert, Antoine	Oak cabinet.
France		Bellange, A. L.	inlaid bubl furniture.
	1106	Bonhaniet, C. P.	Carved billiard table.
Trans.	778	Bourgery, Madame	Models (carton-plorre).
China		Braine, C. T.	Japanned screen
United Kingdom +	4	Borroughes and Watts	Billiard table.
Sardinia	64	Capello, G	Inlaid table, chair, and pedestal,
United Kingdom .	110	Cookes and Sons, of Warwick (CL	Carved sideboard.
Curred resignous :		333.)	
Beiginm	404	Convert and Lucas	Mossic floor and table.
France		Cremer, J.	Marqueterie inlaid furniture,
	810	Cruchet, V	Carton-pierre and carving,
	1579	Daubert and Dumarost	Cabinets, with mechanical action.
Belgium		De Keyn Brothers	Mostie floor.
China		Dent, L.	Bedstead.
India	1 2 1	Deonarain, Singh	Bedstead.
United Kingdom .	122	Doveston, G.	Cabinet and chair.
Cinted Kingsom .	404	Downiegin and Co.	Inlaid cabinet, ornamented with porcelain.
Franco	1:207	Durand, E. P.	Cabinets, &c.
Bavaria		Fortuer, F. X.	Inlaid cabinet.
Russia		Gambs	Cabinet, ornamented with porcelain.
United Kingdom		Gillow and Co.	Writing-table.
Tusenny		Glusti, P.	Carred frame.
Austria	631	Grüger, F.	Ebony cabinet, inlaid with marble, &c., and orns
Austria	. 001	Groger, F	mented with carved figures.
Descrip	. 226	Gropius, P	Carton-pierre figures, &c.
Prussia	770	Hagen, A. von	Cabinet.
United Kingdom .		Hayball, Arthur (Government School	Cabinet.
united Kingdom .	. 394	of Design, Sheffield).	Commen
	407	Holland, W., of Warwick	Table tops, in imitation of marble.
	161	Holland and Sons, of London	Carved bookcase.
	345	Hoyles, Henry (Government School	
	343	of Design, Sheffield.)	- Canada
	879	of Design, Spettiest.)	Cartan-pierre.
Franco		Huber, J	Carved sideboard, and other furniture.
United Kingdom .	. 261		

Cartun-pierre.
Carved slideboard, and other furniture
Cabinet and softs.
Papier-maché inlaid planoforte.
Expanding table.
Cabinet work.

NATION.		No. in Cutalogue.	NAME OF EXHIBITOR.	ORJECTS REWARDED.
United Kingdom .		80	Jordan, T. B. (Main Avenue West) . Kershaw, T. (Cl. xxvii.)	Oak-screen, &c., carved by machinery. Imitation of marbles and woods for house decora-
m		292	F 1. F "	tion. Carved figures.
France		632	Knecht, Emile	Billiard table and enes.
			Knill, J.	Card tables and mechanical furniture
Franco	٠	1283	Krieger and Co	
United Kingdom .		128	Lane, T	Palotings on pearl glass.
France		573	Lochesne, Augusto	
		327	Mader Brothers	Paper hangings.
_		606	Marcella,	Infaid mosaic table.
Tuscany		79	Marchetti, L.	Carved frame.
France		927	Mercier, P. E	Ebony cabinet.
Russia		219	Miller, G., jun	Inlaid floor.
Austria		738	Montanari, A	Painted ceiling.
United Kingdom .		164	Morant, G. J.	Decoration and faralture.
		252	Moxon, C.	lmitation of inlaid marble for decoration,
Hamburgh		69	Plambeck, C. F. H	Inlaid table.
France		1410	Pretot, L. 11. E	Collection of Inlaid furniture.
India		-	Reade, C. W.	Carved box.
Russia		262	Rhan and Vetter	Paper hangings.
United Kingdom .		207	Richardson, C. J	Collection of furniture and designs.
France		1437	Ringuet-Leprince, E	Carved cabinet for medals.
		1439	Rivart and Andrieux	Furniture inlaid with porcelain.
United Kingdom .		264	Rogers and Dear	Bedstead,
Austria		651	Sportin and Zimmermann	Application of block-printing to illustrated works.
France		1556	Taban, A.	Ornamental cabinet-work.
		1499	Theret, J.,	Inlaid cabinet.
Austria		641	Thonet, M	Chairs (bent wood).
United Kingdom .		17	Thurston and Co.	Billiard table
and the same of th		318	Townsend, Parker, and Townsend .	Paper bangings.
name.		162	Trollope and Sons	Ornamental furpiture.
		160	Wills and Bartlott	Bookcase and candelabra.
Netherlands		56	Zeegers, F.	
France		1536	Zuber, J., and Co	Paper hangings.

HONOURABLE MENTION.

United Kingdom	303		Decoration.
France	1061	Balny, inn., J. P.	Transparent painted blinds. Chairs by mechanical process.
		Balny, jnn., J. P.	Chairs by mechanical process. Collection of furniture.
United Kingdom	166	Banting, W. and T.	
Austria	643		Japanned screen.
United Kingdom	206		Sidoboard.
Sardinia	68		Inlaid table.
United Kingdom	189	Clay and Co	Articles in papier-maché.
Franca	1159		Bookease,
Belginm	421		Circular mechanical buffet.
France	815		Mechanical sofa.
Belgium	401	Devis, E I	Paper hangings.
France	1202	Dulud, J. M	Embossed leather hangings.
United Kingdom	57		Cabinet work.
Tuscany	84		Chair.
France	1219		Chairs.
	1223		Hodstead, &c.
Switzerland	224	Finekk, John	Carved tablo.
United Kingdom	24	Galli and Cotti (Bay M.)	Ceiling decorations.
France	1714	Genoux F.	Paper bangings.
	1254	Gradé, L., 1	Inlaid table,
United Kingdom	131	Halbeard and Wellings	Papier-mache tollet table, &c.
The state of the s	197	Hanson, S., and Sons	Carved mirror frame.
Cape of Good Hope .		Hart. J	Chalr.
Bayaria	73	Hartmann, J. J.	Parunet floor.
China	-	llewett and Co	Collection of Chinese furniture.
United Kingdom	71	Heywood, Higginbottom, Smith, and I	Paper hangings produced by machinery.
Chica Linguon		Co	oler naugings bressers of measure.
	310	Hinchliff and Co	Paper hangings,
Prussla	773	Hoffmeister, T., and Co	Sideboard.
United Kingdom	202		Chairs
Canted teloguour : .	321		Druamented cabinet.
France	1276		Chairs.
Spain	285	Jimenez, M 1	inlaid panel,
United Kingdom	70		Bog-yew furniture.
Cinted Kingdom	10	Court.)	ruf.les immirate.
France	554		Mechanical bed.
Austria	610A		Oval mirror frame.
France	1297		Parauet floor and frames,
United Kingdom	63A		Embossed leather hangings,
Chited Kingdom		Arts Court.)	
	203		Sideboard.
Toscany	87	Maggiorelli Brothers 1	Inlaid table-tops.
France	600	Marguario,	Paper hangings.

NATION.	No. in Catalogue.	NAME OF EXHIUSTOR.	OBJECTS REWARDED,
Belgium Luisca Kingdom Luisca Kingdom Luisca Kingdom Luisca Kingdom Luisca Siatoa Hamburg Belgium Luisca Siatoa Hamburg Belgium Luisca Siatoa Luisca Siatoa Luisca Siatoa Luisca Siatoa Luisca Siatoa Luisca Kingdom Lui	211 60 54 637 74 193 70 419 279 71 638A 70 108 9 9 9 9 178 	Mengo, A. G. Nicel and Mine (Cl. 1977) Nicel	Wood mostle table. Maritine-mode psper-basegings. Indian curved formittee. Colleger. C

CLASS XXVII.

COUNCIL MEDAL.

NATION.	No. in Catalogue.	NAME OF EXPERTOR.	Objects Revarded,
Rome	15 323 86	Barberi, The Cavaliere Demidoff, Messrs. Minton, II., and Co. (Jeint Medal with Cl. xxv.)	A table in Roman mossie, Malachise manufactured into various articles of furniture and decoration. Excessible tiles.
-	124	Society for improving the Condition of the Labouring Classes.	Sundry improvements in the construction of bricks, and the improvement of habitations for labouring classes.

_	124	with Cl. xxv.) Society for Improving the Condition of the Labouring Classes,	Sundry improvements in the construction of bricks, and the imprevement of habitations for labouring classes.
		PRIZE MEDAL,	2281 - 12 10 2001 100 30, 100 30
Prance . Tuscany. United Kingdom France . Rome France . Austria . Belgium . United Kingdom . Prussan . United Kingdom . Prance . United Kingdom .	119 211 92 417 773 726 399 104 117 118 235 54	Atsuller, E. F. Blackburn, R. Blackburn, R. Blackburn, R. Blackburn, R. Bord: Bercherr, Bond, J. F. Bottinelli, G. Bower, Californ, and Westlerech. Brown, Robert (Surkhus IIII) Continue, C. Contentine,	Inapproced these. Take in Diverseliam monato. Native dalay. Nat
Rome Malta	. 26 27 . 232 & 247, &e. . 114 . 1184	Candy, S. (Main Avenue West) Ballamoda, T. Barmania, J., and Sons Decessre, F. P. Dejeant Della Valle Brothers Desauges, A. Dolau, D.	Tomb of Queen Philipps, in slabaster. Taxas of Oriental substater. Instal work in marble. Carred Malin stone. A collection of worked and polished marbles of Perrogal. Perrogal. Montelylece and powerent, in stone, A new kind of syndleis work.

NATION.		No, in Catalogue.	NAME OF EXHIBITION.	ORJECTS REWARDED.
India	:	326	East India Company, The Hon Eksterinburg, Imperial Polishing	Inlaid chees table. Jasper vases.
United Kingdom .		93 & 129	Manufactory of Ferguson, Millor, and Co	Vases in terra cotta,
nited Kinguom .	*	47		
_		14	Freeman, W. and J. (Outside West.)	Granite obelisk,
		132 127	Freeman, W. and J. (Outside West.) Gowaas, J. (Cl. i.) Haywood, H. and R.	Carved sandstone. Tiles and other articles manufactured in metallic
			Baywood, H. and R	
=		75 28	Hoeken, R. (Outside West)	Granito obelisk. Pedestal, &c., of a new material resembling marble.
Bavaria	:	28 327	Kapeller, L., and Son	Graphite crueibles, Jasper vascs.
Sweden and Norwa		118	factory of. Kullgren, C. A	Granite cross.
United Kingdom .	٠.	58		Niebe, and status of St. Peter, in Caen stone.
Prince	:	572	Lehron J. A. inn.	Chimneypiece,
France		425	Leclercq, Angustin.	Chimneypiece.
United Kingdom .	٠	81	Lomas, J	Chimneypieco of black Derbyshire marble, in treducing inlaid work in marble.
		17	London Marbia and Stone Working	Various articles in sculptured marble.
		74	Company. MacDonald and Leslie.	Granito vases, pedestal, &c.
		46	Magnus, G. E.	
		91	Magnus, G. E. Margetts, T. K., and Eyles, H.	Foat In Caen stone.
_		. 7	Mayo and Co	Vases for mineral waters.
Austria		610	Meredith, J. H. (Cl. L.)	Slabs of porphyry, Bricks and brick clay,
Rome	:	90		Works in Roman mosale,
United Kingdom .		533	Myers, Geo. (Cl. xxvt.)	Carvings in Caen stone.
		491	Myers, Geo. (Cl. xxvi.) Noirsain, Jules (Cl. xxii.)	Polished marble chimneyplees.
		85	Organ, J.	Font, obelisks, &c., of serpentine marble, from the Lizard, Coruwall.
		36 123	Orsl and Armani	
		75	Peake, T	Tiles and other objects in terro-metallic. Cornish granite and serpentine goods.
Russia		298	Peterbotf, Imperial Polishing Manu-	Jowel casket, with basso-reliavo mosaic, in pietra dura.
France		962	factory of Poilled Brothers	Cenotaph of greenstone basalt.
United Kingdom		108	Pulham, J. (Cl. xxx.)	Terra-cotta,
		& 216		
		97	Rensome and Parsons	Artificial silica stone. Inlaid marble table.
		5 & 103	Redfern, G Robins, Aspdin, and Co. (Outside	Illustrations of Portland cement.
_		435 11 & 88	West.) Ruel, II. W. (Cl. 1.) Seeley, J. (Outside West.) (Main Avenue West.)	Crucibles,
_		1 1	Seeley, J. (Outside West.) (Main Avenue West.)	Portland cement.
France		692		Marble mantelplece. Pavement at the East Entrance.
United Kingdom .	•	88	Seyssel Asphalte Company	Pavement at the East Entrance.
_		121	Skinger and Co	Mosaic pavement. Novel and useful invention of marble paste.
		24		Martin's coment.
		209	Stiring, T., jun. (Cl. L.)	A collection of manufactures in slate.
Malta	:	33 1499	Stirling, T., jun. (Ci. z.) Testa, F. Theret, J.	Carved stone. Iniald and other works in marble and pletra-
Tuscany		1 & 98		dara,
	٠	40	Tuscany, Royal Technological In-	Specimens of worked and polished marble,
United Kingdom		739	Vallance, J	Inlaid marble tables, Manufactores in artificial stone,
United Kingdom	:	10 k 130	White, J. B., and Sons (Outside	Illustrations of Portland and other cements
_		8 & 223	stitute of Vallance, J	Ladysbore terra-cotta.
_		39	West.) Woodley, J	Inlaid marble tables and other articles in marble
		330	Woodruff, Thomas (Cl. xxx.)	and spar. Inlaid marble slabs,
_		116	Workman, J.	Waterproof bricks.
	-		HONOURABLE MENTI	on.
Prance	_		American B	W. b. alt.
United Kingdom .	:	128	Agombart, P	Hydranlic cement. Chimneys and bricks,
	:	778	Ambrose, J. Arnoldi, C. E. and F.	Crucibles, water-nipes, &c., of clay,
	:	725	Benzoni, G	Marble mantelpiece.
United Kingdom .		1006	Betts, E. L.	Terra-cotta vaso, Cracibles.
France	:	4	Bonnet, jun. Bovey, J.	Chimneypiere and font in marble.

an Diemen's Land . nited Kingdom	233 80 86	Boyd, J	
alted Kingdom			Marble from Marie Island.
=		Bright, S.	Vases in black marble.
=		Avenue, West.) Brown, R., Great Russell Street Brown, Rusby, and Booth (Outside,	Marble chimneypiece,
	52 23	Brown, R., Great Russell Street	Manument in Caca stone.
		West),	Paving in Yorkshire flags.
ortugal	275 to 278	Bulboens, Mannfactory at	Refractory bricks,
nited Kingdom	105	Burnett N (Cl +)	Terra-cotta vase.
rance	444	Burnett, N. (Cl. 1.)	Collection of manufactured marbles from La guedoc.
nited Kingdom	20 158	Carnegle, W. F. L. Champernowne, H. (Cl. 1.) Chericl, G., and Sons Colin, J. R. Coste, F. Cristofoll, A. Debay, A. De Bojistimon, C. De Ruolz	Arbroath payement, Columns of Devossbire marble.
uscany	109	Champernowne, H. (Cl. 1.)	A vase of alaborter
rance	1564	Colin, J. R	Polished marbles,
	397	Coste, F.	Cruelbles.
rance	45	Debay, A.	Paving blocks. Artificial stones.
	427	De Boissimon, C.	Fire-brieks,
	1466	De Ruoiz	Cement,
Inited Kingdom	61	De Ruolz . Delabole Slate Company (Old) by J. Carter (Ontside, West). Desch. E. (Outside, West). Desmanet de Biesme, Viscount C.	State clatern. New construction of roof for a greenbouse.
Selgium dalta manco gypt nited Kingdom	16	Desmaner de Riesme Viscount C.	Marble pilaster.
dalta	28	Dimech, F. Dufour, J. B. Egypt, His Highness the Viceroy of Enniskillen, Earl of (Cl. L)	Stone carvings.
rance	485	Dufour, J. B.	Asphalte pavement.
gypt	1,4	Egypt, His Highness the Viceroy of	Teble-tops of Oriental alabaster. Draining tiles.
hited Kingdom	248	Figueiredo, J. J., de	Marble slabs.
ortugal	1228	Forton, Duponcesu, and Co	State billiard-table.
	1232	Forton, Duponceau, and Co. Fox, J. F. Furse, T. W. (Outside, West.) Garmand, jun. Gortl. B.	Glass and terrs-cotts tiles,
nited Kingdom	19 233	Furse, T. W. (Outside, West.)	Weterproof errificial stone. Ornaments of white terra-cotta.
rance	724	Gortl, B.	Vase.
nited Kingdom	99	Grangementh Coal Company	
nited Kingdom	22	Greek Government	Speciment of puzzoleno.
nited Kingdom	185	Grissell, T. (Cl. 1.)	
Selgium	114	Hadden I.C.	Marble alabs. Ithomboidal bricks.
	37, 38	Guislain, C	Sundry objects in marble and elabaster, as inlaid work, chiefly from Derbyshire.
nited Kingdem	118	Hammond, R	A polished stone table. Fire-bricks.
rance	259		Ornaments in patty stone.
	876	Holstein, J. P	Terra-cotte mouldings
nited Kingdom	161	Heiligenthal, J. J., and Co. Holstein, J. P. Hutchison, John. (Cl. 1.) Jones, W. Joostens, G. Kent, A. (Untide, West.) King, T. (Cl. 1.) Lambert, A. C.	Bust and pedestal in blue Peterhead granite.
lome	48 457	Jones, W	Bagnivole of lepis bazuli. Stone pinnacle.
nited Kingdom	62	Kent, A. (Outside, West.)	New mode of glazing greenhouses.
	136	King, T. (Cl. t.)	Ornamental carving in stone.
_	70 200	Lambert, A. C	Two tables of Connemara marble,
Inited Kingdom	250 87		Angers slate, Ornamental bricks,
	nii	Lovelace, The Earl of	Reigh abimney-shaft
russie	240	Luff, J	Brick chimney-shaft. Stoneware chemical opparatus.
lome	13		
russie	180	Morga, E. Maryland Sosp-stone Company Milch, A.	Chimneypieces carved in white marble. Articles made of soap-stone.
russia	9	Mileb. A.	
Inited Kingdom	21		Works in Roman mosaic.
Inited Kingdom	72	Montengle, Lord Monteflore, Sir M. B. (Cl. xxx.)	Irish statuary marble,
ustria	161 728		Two vases carved oet of sandstone. Marble mantelpiece.
ndia	120	Nattore, H. H. the Raish of	White marble garden-seats,
nited Kingdom	- 1	Nelson, Thomas and James (Cl. xxii.)	Chimperpiece.
	91	Nobili, Cov	Marblo column.
mited Kingdom	418 122	Person I (Cl.)	Model of a chandeller in gypsum. Fire-bricks.
=	63 110	Motelli, G. Nattore, H. II. the Rajah of Neison, Thomas and James (Cl. xxII.) Nobili, Cov. Noc. O. Peast, J. (Cl. t.) Phillips, C. (Outside, West) Ramsay, G. H.	Flower-pots. Fire-bricks, gas-retorts, and other works in fir
rance	1427	Dimu I mat Co	elay. Hydraulic cement.
rance	227	Recchigiani Antonio	Works in Roman mosale.
lome		Romoli, L.	Intaid teble in scagliols.
nited Kingdom	63	Rowlands, Issac	Siato Inkstand.
russle	71 780	Regny, L., and Co	Pedestals of Irish marble. Marble table-tops.
nited Kingdom	89		Fire-bricks, perceiain both, &c.
nited States	203	Rufford, F. T. Salt and Mear Scaly, J. Sim, W. (Cl. 1.)	Water vaso of fine brick-clay.
nited Kingdom	130	Sealy, J.	Bath bricks. Granite pavement,

Nation.		No. to Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom Belgium Malta Sardinia Wurtemburg United Kingdom Malta Prossin Sweden and Norway	:	13 398 29 88 69 158 30 241 47	Sinclair, J. (Outside, Weet) Smal-Werpin, A. Soler, J. Spanna, J., and Co. Stailt Wasserot, — Stevens, G. H. (Cl. xxx.) Testa, S. Ungerer, C. Wallis, P. W. P., Elfdahl's Porphyry	Carvings in stone, Artificial marble. Terra-cutta window, Candolabra, table-tops, &c., in glass mosaic. Carvings in stone.
United Kingdom . Spain Belgium	:	140 43 51 136	Works. Waun, Thomas Williams Wright, J. Yassi, M. de Zaman and Co.	Garden-seat of parrot coal. Polished granite headstone.

CLASS XXVIII.

		COUNCIL MEDAL		
NATION.	No. ts Cutalogue.	NAME OF EXHIBITOR.	ORVECTS REVARDED.	
United States United Kingdom	878 85 76	Goodyear, C. Gutta Percha Company, The Mackiutosh and Co	India rubber. Gutta percha. India rubber.	

PRIZE MEDAL.

*******	1063	Badin, J. C. F Fe	ather baskets.
France	86	Bailey, J	dia.
Canada	80		ass. naw and shell work.
Mauritius	265	Balkfield and Co St	
Russia		Bardoffsky, T Fe	it jugs.
United Kingdom	49	Brown, H Br	Itish Ivory.
	286		arl work.
Switzerland	228	Claraz, Ambroise Str	nsw work.
United Kingdom	18	Crummack, E To	rtoiseabell combs.
Prussia	214	D'Heureuse, C Str	raw work.
Canada	119	Dunn, W Ch	nir (porcupine quill).
France	493	Duprat and Co	rk in sheets.
Prussia	242	Engeler, H. M., and Son Pa	inting brushes.
United Kingdom	125	Estailes and Margrave Co	rk veneer.
United Kingdom	929	Estailes and Margrave Co	rk veneer,
Switzerland			ilk tube,
France	202	Fauvelle-Delebarre, To	rtoiseshell combs.
United States	111		mb.
Sardinia	77		mshes.
Prumia	813	Forse, G Br	oshes.
United Kingdom	178	Forster, Thomas	sterproof cloaks.
	181	Frinneby, F. A Br	ushes.
Nassau	13	Geismar, L., and Co Ca	rving in Ivory and bone,
	189	Gerona, The Province of Co	rk in sheets.
	-	Greig, Misses	rnucopia, &c., of shells.
	1	Grey, The Countees Ba	sket and wreath of flowers.
		Grey, the Countess Di	
France	856		rticles in India rubber.
Spain	188	Guinart, J Co	rks and bungs.
Wurtemburg	79	Hans, F. P Str	raw plaitings.
Austria	376	Habenicht, A Ive	ory comba,
United Kingdom	90	Hancock, C., (West Ham Gutta Percha Ar	rticles in gutta percha.
		Company.)	
United States	294	Hayward Rubber Company Inc	dia-rubber shoes.
Pressia	662	Hölteing and Höffken Inc	dia-rubber braces.
United Kingdom	232		graing in ivory.
Cutted struggions	103	Horan, H. (Cl. rv.) Pr	veared whalebons.
Belgium	383		ell cameos.
Belgium	242		rticles carved in wood.
Switzerland			
Bavaria	. 77		ys carved in wood.
France	1236	Laurençot, E Pa	inting and other brushes.
	313	Leunenschloss, M Inc	dia-rubber braid.
Belgium	430	Loncke-Haese, C. In Br	ushes.
United States	424	Loring, G W	ater pails.
United Kingdom	146	MacGreener I W Co	uks.
Spain	235		ERF CRICK.
Belgium	414	Marin, J. E	a-wood boxes.
	***		aner mate.
Canada	615	Manager M. C. C. C. C. C. D.	ory combs.
France	98	Massue, L. J	ory comos.
United Kingdom	28	Maunder, J Te	rning in Ivory.

No. in Catalogue,

NATION.

OBJECTS REWARDED.

United States United Kingdom	534	Moniton, S. C	India-rubber goods. Articles in India rubber.
Bahamas		Nicolis, Miss	Shell work.
	666		lvory combs.
Austria	350	Pattak, G	Brushes.
France	680		Tortoiseshell combs. Imitation tortoiseshall combs.
United States	1337	Poinsignon, —	lvory veneer.
United States	1120	Pratt, Julius, and Co	Wine cask,
Portogal	144	Reotall, J.	Straw work.
Cinted Ataquom	58	Rigby, E. R.	Brushes.
Austria	684		Mother-of-pearl ornaments.
United Kingdom	164		Mochanical sculpture.
	-	Shea, Captain	
United Kingdom	55A	Smith, A	Painting brushes. Truck haskets.
	172	Smith, T	Truck haskets.
Belgium	265	Sirce, Captain Smith, A. Smith, T. Somze-Mahy, H. Staight, D., and Sons (Cl. xxix.).	Floor brushes. Ivory vencer.
United Kingdom	252	Staight, D., and Sons (Cl. xxix.)	Carved lyory and pearl.
_	153	Staight, T. (Cl. iv.)	Combs.
Austria	657		Straw flowers.
United Kingdom	47	Tandler, S	Tower of vegetable ivery.
Sweden and Norway .	44	Thesen, N. P.	Carving in wood.
	97	Tomassia, L.	Willow plait.
France and Abriera	3.3	Trancart, A. A.	
France and Algiers . United Kingdom	30	Trancart, A. A. Treloar, T. Turkey, H. H. The Saltan of	Mats, &c., of cocos-nut fibre.
Turkey		Turkey, H. H. The Saltan of	
Turkey	75		Waterproof cloth in imitation of velvet, Manufactures in whalehone.
	104	Westall and Co. (Cl. IV.)	Manufactures in whatehone.
	40	Wildey and Co	Mais, &c., of cocos-not fibre.
	163	Williams, H.	Kecentric ivory turning. Wood carving.
Switzerland	259	Wirts, J.	lvory carving.
France	141	Wolf,	ivory curving.
	-	HONOURABLE MENT	Specimen of India-rabber in the various stages
United Kingdom	77	Bunn, L., and Co	manufactures.
	115	Burke, W. H. (Cl. IV.)	India-rubber manufactures.
France	786	Cabirol, J. M.	Surgical apparatus, &c., 'in gutta percha.
United States	382	Burke, W. H. (Cl. iv.)	India-rubber shoes.
United Kingdom	82		Waterproof capes, &c.
	29	Dow, A	Brushes.
France	502	Dow, A	Brushes.
United Kingdom	196	Hinde, J. G.	Mechanical application of India-rubber.
Switzerland	72 913	Hodges, R. E. Inter and Otto Misson, E. and L. Nalson and Butters	Straw work.
Switzerland Belgium	412	Misson, E. and L.	Sps-wood boxes.
	84	Nalson and Butters	Brooms.
Canada	1377	Paillette, P	Breakes.
		Paillette, P	Brooms of Indian corn straw.
France			
rrance	431	Warner, R., and Co	Brooms or Indian corn straw.
rrance	431	CLASS XXIX	Brootas,
France	431	Andrew Street,	Brootas,
Tuscany	No. in Catalogue,	CLASS XXIX	Brootas,
France Tuscany United States Nation.	431 No.11	CLASS XXIX	Districts Revanders. Observer, Incumbrie, Invanders, or origing time. Invanders of practical methods of using time. Invanders of practical methods of using time.
France Tuscany United States Nation.	No. in Catalogue,	CLASS XXIX COUNCIL MEDAL NAME OF EXHIBITOR.	Ordices Revarded.
France Tuscany United States	No. in Catalogue,	CLASS XXIX COUNCIL MEDAL NAME OF EXHIBITOR. Constantin, J., Marques	Descript REVARDED. Descript In combiety Invariation of prosteind methods of using lines the manufacture of search cambles, and there of forestic saids in the spreadon of residence of residence of residence of the search of th
Trance	No. in Catalogue,	CLASS XXIX COUNCIL MEDAL NAME OF EMILIPROS. Constants, J., Marques Do Milly, L. A. PRIZE MEDAL Adamoso, O. G.	Collects Revanders. Collects Revanders. Flowers, in cambries, presented assets of suing lines in careation of presented assets of some control of the cont
Tunce	No. in Catalogue, 94 641	CLASS XXIX COUNCIL MEDAL NAME OF EMBETOR. COMMENTOR OF MINING J. MANAGERS OF MINING J. A. A. PRIZE MEDAL Adamous, O. G.	Conserva Revanders. Fluvers. In cambrie: In the same of the same
Tunce	No. in Catalogue, 94 641	CLASS XXIX COUNCIL MEDAL NAME OF EMILIPROS. Constants, J., Marques Do Milly, L. A. PRIZE MEDAL Adamoso, O. G.	Process. Observe Revarier. Flowers. In student: Flowers. In student: The student of the student of using line in the sunspinture of reserve andles, and the su of forestee social in the preparation of wisks. Fresher forestee. Fresher forestee the preparation of the student
Prance United States NATION. France Breail Bavaria . Bavaria . Bride Kingdom .	No. in Catalogue, 94 641	CLASS XXIX COUNCIL MEDAL NAME OF ENTIRPORE Constants, J. Manager De Milly, L. A. Adamson, O. All Brothers Allogrand Alderdes	Descens, OBJECTS REWARDED. Flavors, In combert, Invariation of presented methods off using lines in the combern of the combe
Tunce	No. in Catalogue, 94 641	CLASS XXIX COUNCIL MEDAL NAME OF EMBETOR. COMMENTOR OF MINING J. MANAGERS OF MINING J. A. A. PRIZE MEDAL Adamous, O. G.	Process. Observe Revarier. Flowers. In student: Flowers. In student: The student of the student of using line in the sunspinture of reserve andles, and the su of forestee social in the preparation of wisks. Fresher forestee. Fresher forestee the preparation of the student

CAIV		JULI AWARDO TRIBLE	Temas AAIA
NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	ORIGITS REWARDED,
Spain	177	Alvarmanier R	Preserved fruits.
Spain	39	Alvargonzalez, R	Stearle candles.
		Archer, T. C.	Collecting and arranging the cabinet of Liverpool imports.
France	402	Arnavon, II	Common and Marseilles soap. Meerschaum eigar tubes, and amber month-pieces.
Austria	1059	Astrath, C	Meerschnum eigar tubes, and amber month-pieces. Confectionary.
United Kingdom	24	Barelay and Son. (Cl. IV.)	Wax, stearic, and other candles.
		Bartlett, A. D.	
Wurtemburg	87	Bartlett, A. D	Confectionary presents of gum tragscaph,
Switzerland	236	Bantte, T. F	Mechanical singing bird. Fat acids recovered from waste suds of woollen.
United Kingdom	26	Dawwens, L. P. (Cl. IV.)	silk, and cotton manufactures.
United States	36	Bazlu, Xavier	
United States	245	Baxlu, Xavier	
France	430 70	Bontems	Mechanical birds. Stearie candles.
United States	510	Brasslon, N. D	Soap,
Belgium	436	Campenhoult, C., Van, and Co	Stearie candles,
Portugal	422	Castellar, F.	Preserved fruits.
	tn 426		
	433,6438		
France	1428	Cazal	Umbrelles and parasols,
	11:39	Chagut, A., sen.	Flowers in combrie.
-	118	Charageat, E.	Umbrelias and parasols.
A	121	Chevet, jun	
Austria anlinia Inited Kingdom	68	Clevet, jun. Clicate, jun. Clicate, C. L., and Son Claude, Joseph Cleaver, F. S. Coimbrs, The Nunsery of	Walking sticks,
Inited Kingdom	29	Claude, Joseph	
Portugal Prasce Sardinia Fuscany United Kingdom	417	Coimbra, The Nunnery of	
rance	438	Coletta-Lefebvre	Sunff-boxes,
Customer	83	Continui Son	Taxiderny. Scaps.
pited Kingdom	19	Cowan and Sons	Soaps.
		Conper, E	Models for the use of schools.
ipain	282	Continuers, the Aumsery of Colette-Lefebure Combin, F. Continuel Son Costan and Sons Cosper, E. Cubero, J.	Three terrs-cotta figures,
United Kingdom	197		Articles used in the game of cricket.
content stugaent	198	Dark, M., and Sons	Articles used in the game of cricket.
-	77	Dorvetl, Elizabeth	Flowers In wax.
lamburg	92	Douglas, J. S., and Sons	Toilet soaps. Articles used in the game of ericket.
inited Kingdom	191	Duke and Sou	Articles used in the game of cricket, Stearie candles.
rrance	495	Durotter and Co	Fana.
United Kingdom	89	Duke and Sou Dumortier and Co. Duvelleroy, P. Edwards, T. J. Eichner, G.	Dressing cases.
Bavaria	80	Elebner, G. Farina, J. M. (opposite the Jülichs Place, Cologne).	Mechanical toys.
Prussia	858	Farina, J. M. (opposite the Jülichs	Enu-de-Cologno.
india	-	East India Company, The Bon	castes and professions, manufactured in Kish
Franco	199	Fellx, A	ragur. Faus.
United Kingdom	130	Field, J. C. and J. (Cl. 1v.)	Stearle acid.
Austria	670	Flüge, G	Amber for pipes, and pipe lubes and howls.
United Kingdom	74	Foster, Son, and Duneum	Flowers In essubrio.
Lustria	673	Floge, G. Foster, Son, and Duneum Freeman, E. (CL iv.) Friedrich, J. Fürsteuhoff, Emma	Spermacetl candles, Meerschaum pipe bowls, and eigar tubes.
Austria	4524	Friedrich, J	Artificial flowers and materials.
_	842	Gaudet du Fresno	Artificial flower leaves.
United Kingdom		Gellé and Co	Toilet scaps made by the cold-process. Common and toilet scaps.
Cuited Kingaoua	13	Grossmith, J	Artificial essences and perfamery.
Spain	2914	Gutlerres de Leon, R	Three terra-cotta figures,
l'urkey	-	Hadji Mihrao Duzoglou	Amber mouth-pieces for pipes.
Austria	65g 390		Toys.
United Kingdom	863	Hancory, J.	Taxidermy. Flowers in cambric.
France	675	Hancock, J. Harsad, E. Hartmann, L.	Meerschaum pipe bowls; sticks, and umbrelle
United States	4	finuel, J	Tollet soaps,
Wurtemburg	92	Hedinger, C.	Walking copes.
		Hendric, R	Toilet sonps and perfumery.
Prussia	439	Hoffmann, C. W	Manufactures in amber.
Prussia	134	Holland Brown	Cheap snull boxes.
contest tringdom	2.0	Hmel, J. Hedinger, C. Hendric, R. Hoffmann, C. W. Hoffmann, C. W. Hoffmann, C. W. Holland, Henry Hull Local Committee Jailloo, Molnier, and Co. Johansson, J.	Hull imports,
France	273	Jaillon, Molnier, and Co	
weden and Norway .	17	Jaillon, Moinier, and Co. Johansson, J. Jumcau, Pierre	Stearie candles,
France	1282	Jumeau, Pierre	Dolls' dresses, Toilet rongs.

NATION.	No. in Catalogue	NAME OF EXTRACTOR.	OBJECTS REWARDED.
Austria	653	Kietaibi, F	Automaton love.
United Kingdom	8	Knight, John	Sonne.
France	564		Dressing and ornamental cases, Materials for flowers,
	1295	Lefort, sen	Materials for flowers,
	5018	Leistner, G. L	Perfamery.
United Kingdom	174	Little, G., and Co	Fishing tackle.
	7	Louderback, M. J	Preserved peaches,
United Kingdom	125	Lumslen, Miss J. (Cl. xxx.) Martin, M. C. Masse, Tribouitlet, and Co.	Flowers, in wax.
Prussia	425	Martin, M. C.	Eau-de-Cologne, and Melissa water,
Prussia	1346		Stearic candles, by the process of distillation, as
Russia	305	Matisen, A., and Co. Mercier, C. V. Meyer, H. C., jun.	Stearie candles.
	1658	Mercier, C. V.	Tortoiseshell and horn snuff-boxes.
manuary	86	Meyer, H. C., jun	Walking canes.
United Kingdom	140 29	Meyers, B. Miller, T. J. (Cl. IV.)	Collection of sticks.
	29	Miner, 1. J. (Cl. IV.)	Large block of refued spermacetl, and specime to illustrate the process of spermaceti refining
France	923	Milliau. jun	Marseilles soap.
Austria	40	Milly Stearin Candle Company	Stearic cardles, by the processes of seponification
Frited Kingdom	70	Mintorn, J., H. H., Elizabeth and Rebecca.	Flowers in wax.
	122	Montanari A.	Dolls.
	224	Montanari, A	Figures illustrative of Mexican life.
	306	Morland, J., and Son	L'inbrelles and parasols.
Prussia	262	Motard, A	Stearie candles, by the processes of saponification
			and distillation.
United Kingdom	150	Muir, P	Archery weapons, he
Turkey	-	Naim Effendi	Amber mouth-pieces for pipes.
France	939		Fency and common soaps.
United Kingdom	139	Ogleby, Chas., and Co. Gudard, L., Son, and Boucherot	Stearle, sperm, and composition candles.
United Kingdom	1374	Oudard, L., Son, and Boucherot	
Prussia	263	Palis, A. Paris Chocolate Company (Cl. 111.)	Tallow, oil, and palm soap.
	30	Paris Chocolate Company (Cl. 111.) .	
France	952	Perrot, Petit, and Co	Flowers, in cambric.
—	9:-6		Preserved fruits,
Russia	3/17	Pitansier Piver, L. T.	Steurle candles,
France	1678	Piver, L. T.	Toilet soaps and perfumery.
Russia	83	Piver, L. T. Ploucquet, H. Price's Patent Candle Company (Cl.	Taxldermy, Invention of improved methods of distilling fatt
	431	Oversome C and I	bodies, and for candles made of distilled fat. Stearie candles.
United Kingdom	431 66	Quanonne, C. and J. Randolph, Wilhelmina Rock and Graner	Flowers of undyed feathers.
	106	Post and Control	Toys.
Wurtemburg	902	Rock and Graner	Preserved fruits,
France	302	Royle, J. F.	Collection of animal, vegetable, and mineral sul
	- 1		
Spain	-	St. Pelayo (Oyiedo), The Nunnery of	Preserved fruits.
United Kingdom	136	Sampster, W., and J.	Alpaca umbrellas.
Portugal	-	St. Pelayo (Oviedo), The Numery of Sangster, W., and J	Fenther flowers.
Prussia	255	Sarre, H., jun	Scaps, Walking-sticks,
	593	Schulz, C.	Walking-sticks.
United Kingdom	280	or Sarre, H., Jun. Schulz, C. Schulz, C. Smith, W., and A. Söhlke, G. Sparin, E. C. Staight, D., and Sons Stire. III	Scotch sauff-boacs.
Prussia	265	Föhlke, G.	Tin toys.
United Kingdom	126	Spurin, E. C.	Toys.
	273	Staight, D., and Sons	Manufactures from Cheverton's artificial ivory.
Russia	364		Scaps,
	80	Strauss, J.	Pipes.
United Kingdom	63	Strickland, Maria	Flowers, in wax.
	62		Flowers, in cambric,
nited States		Taylor and Son	Soaps and perfumery. Toilet soap,
nited States	618	Tilman	Planers In combate
France	434	Tilman	Flowers, in cambric. Tollet and olive-oil soaps.
Belgium	431	Taylor, H. P., and W. C. Tilman Touche-Gilles, E. Tunis, The Bey of Tarkey, His Highness the Sultan of. Weill, C. Williams, J. and Son	Distilled perfumed waters (various).
l'unis	53 to 57	Turben His Highway the Pulsar of	Collection of pipes, sonp, candles, & confectionary
Prussia	20	Wall C'	Preserved fruits.
	4	Weill, C. Williams, J. and Son Winterfeld, J. A.	Tollet and common rosps.
'nited Kingdom	201	Winterfold I A	Manufactures in amber,
	82		Carved ivory toys and cane handles.
uited Kingdom	106		Lozenges and comfits made by steam mechinery
russia	250	Wunder, L.	Source
rusela	687	Wotherspoon, J., and Co. Wunder, L. Zeitler, J.	Scape. Pipe-bowls of Massa.
		HONOURABLE MENTH	OX.
ustria	664	Alba, 8	Amber eight mouth-pieces.
	50	Asprey, C	Desks.
netria			
rance	403	Aubert and Noel	Maraschino and other liqueurs. Irish bog-yew dressing-cases.

NATION.	No. in Catalogue.	NAME OF EXHIBITOR.	Objects Rewarded.
France	1123	Bagré Beisiegel, P. Beisiegel, P. Bons, J. B. Bons, J. A. Bertesan, C. Brien, C. Brien	Canes of rams' horn.
Austria	667	Beisiegel, P.	Amber for place and pine tubes
France	1091	Blouze, H	Toilet seaps.
United Kingdom	146	Boss, J. A.	
	124	Boachet, A	Toys
France	1113	Breteau, C.	Flowers, In cambric,
United Kingdom	90	Brien, C.	Mould tallow candles,
South Australia	-	Burford, W. II.	Soap,
Austria Frankfort-on-the-Mains	700	Bürger, Josefa	Artifical flowers,
Frankfort-on-the-Maint	2	Busch, P. A.	Cognac oll
United Klugdom	78	Chisholme, Emma	Flowers, in wax,
France	158	Detacretas and Fourcada	Stearie acid and stearie caudles.
	141 243	Delage-Montigano, F	Fishing lines.
spain		De Loon y Bleo, E	Soap made by the cold-process. Composite and mould tallow enables, also see
Spain United Kingdom France	91 478	Delage-Montiguae, F. De Loon y Rico, E. Dixon, G. Donnesud and Co. Durrot and Petit Dumeril, Sons, and Co. Ede and Co. Ewart, Henrietta Parina, Jian, Marte (Colorne, and	Stearie and and stearie candles.
rrance	149	Donnesud and Co	Fans.
-	176	Duerot and Petit	Clay pipe,
nited Kingdom	18	Fide and Co	Perfumery.
man rangaour	75	Ewant Mondatte	Ploners in new
	21	Faring Juan Marie (Coloma and	Flowers, in wax. Ena-de-Cologno.
-			ann-ac-congacc
Prussis	426	Salter's Hall Court, London). Parins, John Maria (Cologne) Parins, J. M. Farlow, C. Parlow, J. K. Fisher, J. C. Fisher, J. W., and Co. Florinsed. Fronk, J. G. G. Fronk, J. G. G.	Eas-de-Cologne.
Ametria	748	Farina, J. M.	Esu-de-Colorno.
Inited Kingdom	176	Farlow, C	Fishing tackle.
	181	Farlow, J. K.	Fishing tackle,
France	211	Fiolet, Lonis.	Fishling tackle. Clay pipes.
inited Kingdom	80	Fishor, Joseph	
	22	Fisher, T. W., and Co.	Perfumery. Flowers, in cambric.
rance	1224	Florimond	Flowers, in cambric.
rand Duchy of Hesse	61	Frank, J. G.	Walking canca, Materials for flowers,
	73	Gatti, A. and G	Materials for flowers.
paln Inited Kingdom Lustria Inited Kingdom	244	Flormson Frank, J. and G. Girá, J. and G. Girá, J. and G. Grinhat, J., inn. Ilaic, W. S. Henderson, — Holmblad, L. P. Jones, J. Landon and Co.	Castile soap.
nited Kingdom	202	Gordon, C	Taxidormy.
tustria	673	Grünhat, J., jun	Pipe.
nited Kingdom	. 99	Hale, W. S.	Stearie and composite caudles.
Sanada		Henderson,	Clay pipes. Stearic candles.
Penmark	27	Holmblad, L. P	Stearse candles.
nated Kingdom	184	Jefferies, I.	Tennis racquets.
	1210	Jones, J.	Fishing tackle. Aromatic vinegar.
rance Inited Kingdom	55		Artificial essences.
Postele Kinguom	658	Langdale, E. F.	Dusseldorf water.
russia	796	Lipp, Van F	Meerschaam and other pipes.
Inited Kingdom	185	Lax Brothers Makepence, Eliza (Cl. xxx.) Mata Aguilera, J. Motzer, D. Müllenbach and Thewald Möller C. Annal C.	Flowers, in wax.
inain	289	Makepeace, Eliza (Cl. xxx.)	Model of a ball-fight.
Lustria	44	Molzer, D	Toilet soap.
pain tustria Kassau Austria France Austria	10	Müllenbach and Thewald	Clay tobacco-pipes.
Instrin	654	Müller, C. A., and Co.,	Toys.
rance	945	Mullenoach and Thewald Miller, C. A., and Co. Paroissism, A. Partach, A., jun. Pears, A. and F. Polsat (Uncle) and Co. Rimmal, E. Romoll, L.	Artificial leaves.
Austria	611	Partich, A., jun.	Clay pipes.
nited Kingdom	24	Pears, A. and F.	Transparent soap.
rance Inited Kingdom	1399	Poisst (Uncle) and Co	Stearle acid-
Inited Kingdom	3	Rimmel, E.	Perfumery.
Cuscany	118	Romoli, L.	Carved pipe-stick.
	& 119		
ardinia	6	Rossi and Schlapparelli	Stearic randics; oleic-acid scap.
Vurtemburg	89	Roth, W., jun. Roy, W. Von Russel, Vincente Said Aga	Confectionary.
russia	441	Roy, W. Von	Cabinet of amber.
ortugal	1298	Russel, Vincente	Artificial orange-tree.
Carkey	-	Said Aga	Amber moath-pieces for pipes.
ndia	-	Sainte and Co. (Kozipore)	Stearie candles.
tussia	309	Sapelkin, V.	Wax candles.
ardiala	114	Sanetain, V. Sapelkin, V. Schooling, H. Stradwick, T. Tessler, C. L. Thollon	Confectionary.
	42	Strudwick, T	Dressing cases.
russia	41	Tessler, C. L.	Amber.
rance	1701	Thollon	Artificial essences.
nuscany	102	Tonti, L	Canes,
artemburg	91	Trigleo, G	Confectioners' sugar ornaments.
ape of Good Hope .	35	Volsteedt, J. P.	Preserved fruits.
nited Kingdom	27	Weatherley, H. (CL III.)	Confectionary.
russia rance baseany 'artemburg 'ape of Good Hope 'nited Kingdom 'russia 'assou tamburg 'nited Kingdom	257	Tholien Tonti, I Trigleo, G. Volsteedt, J. P. Weatherley, H. (Cl. III.) Wigdor, M. Wingender Brothers Webke, II.	Umbrella and parasoi sticks.
neseu	9	Wingender Brothers	Clay tobacco-pipes. Clay tobacco-pipes. Toilet soaps.
tamburg	89	Webke, II	Clay tobacco-pipes.
	9		

CLASS XXX.

COUNCIL MEDAL,

NATION,	No. in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.			
France	-	Gobeline and Beauvaie Tapestry, Government Manufactory of, (Joint Medal with Cl. x1x.)	Originality and beauty of design of the different specimens exhibited for furniture, and the extraordinary excellence of execution of most of the productions exhibited.			
Prussia	279	Kles, A	The Amazon, cast in zine and broazed,			
United Kingdom	76 1407	Marochetti, Baron (Outside, West.).	Richard Cour do Lion, in plaster. Phryne, in marble.			
United Kingdom	103	Pradier, J. Wyatt, The late Richard J. (Main Avenue, East).	Glycera, la marble.			
		PRIZE MEDAL.	,			
United Kingdom	274	Appel, R	Ansatatic printing.			
_	6 & 7 28 & 53	Baily, E. H. (South Transept)	A youth resting after the Chase, and a Nympl preparing for the Eath, in plaster.			
Romo	28 & 53	Bell, John (North Transept, Main Avenue, West). Benzoni, Gio. Maria	Status of Lord Falkland; Eagle Stayer, in bronze Statue, in murble, of Gratitude.			
France	1369	Bernuger, Autoino (Main Avenue,	Head, on porcelain; and Portrait of Prince			
	8:97	East).	Head, on porcelain; and Portrait of Prince Albert, in china.			
Austria	737	Berrus Brothers	Designs for shawls. Painted window representing Dante and some or			
Austria	137	Bertini, G	of his ideas.			
Prussia	785	Boesche, J. C	Fountains; model of Magdeburg Cathedral.			
France	1369 176	Bonnet	St. John, in enamel.			
Saxony	176 23	Bucker, H., Castellini, Raffielle, Royal Manufac- tory at St. Potera.	Painting on percelain. Copy, in mosale, of medallion of Boniface II. also of Head of John the Baptist.			
France	1146	Chebeaux, J	Designs for cotton print and callen,			
United Kingdom	194	Cheverton, B	The Theseus, as exemplifying the reduction by machinery of statues. Designs and works in ornament.			
Franco	799 1700	Clerget, C, E	Designs and works in ornament, Works exemplifying reduction of sculpture.			
	1566	Colles, A	Shawl designs.			
United Kingdom	80	Day and Son (Fine Arts Court)	Chromolithography and lithography united. The "Premier Bercenu," in marble.			
France	45	Debay, Augusto Debay, Jean (Main Avenue East)	The "Premier Berceau," in marble,			
United Kingdom	10	(Fine Arts Court).	Death of the Stag, in bronze. Designs.			
France	819	Devors, J	Holy Family, on lava.			
Daniel .	1369 273		Painting on china, in the Sevres manufactory.			
Prussia			Cast, in plaster, of part of pedestal to monumen of Frederic Wfillam III. of Prussia.			
France	1869	Ducluzeau, A., Madame, (Main Avenue, East).	Painting of Holy Family, and of Her Majesty			
	& 96	Avenue, East).				
United Kingdom	241 1215	Essex, W.	Collection of enamel paintings. Various works of sculpture in plaster and marbi-			
Prossia	281	Fischer, K. Foley, J. H. (North Transept-	Medals.			
United Kingdom	47 & 19	Foley, J. H. (North Transcpt-	Youth at a Stream; and Ino and Bacchus, I			
Austria	710	Sculpture Court). Fracearoli, Innocenzo	plaster. Statues, in marble, of Achilles wounded, an David slinging the Stone.			
Belgium	465	Fraikin, C. A				
Prance	1235	Fratin	Group of engles, in bronze,			
Bavaria	91 711		Fresco, exhibited by J. Muhr. Status in marble, Susannah.			
Austria	466	Geefe, G	A lion in love, in plaster.			
	450	Geerts, C.	Carving in oak.			
France	231 95	Gerente, A	Stained glass. Model of Liverpool.			
United Kingdom	95	pool Local Committee (Main Ave- nue West).	Model of Liverpool.			
France	1369		Enamelled casket.			
United Kingdom	64	Honhart, M. and N. (Fine Arts Court).	Chromolit begraphy.			
	532	Hardman, J., and Co. (Cl. xxvt.) . Hogan, J. (Scalpture Court)	Painted glass window. Drunken faun, in plaster.			
_	71	Hullmandel and Walton (Fine Arts Court).	Chromolithography.			
France	271	Jacobber	Paintings of flowers, on china.			
	1369		Hend of Raphael.			
United Kingdom	81 39	Jennings, B. (Sculpture Court) Jerichau, J. A.	Statue of Cupid, in marble. Group, in plaster, bunter and panther.			
United Kingdom	54	Jones, Owen (Fine Arte Court)	Chromolithornuby.			
Bavaria	86	Keliner, 8	Glass painting of window in St. Lorenz Church Nuraberg.			

NATION.	No, in Catalogue,	NAME OF EXHIBITOR.	OBJECTS REWARDED.
Russia	318	Kernitoff, N	Painting on porcelain.
France	291	Laroche, E	Designs for shawis, bareges, muslins, &c.
	1369	Laurent, Madame Pauline	Three enamels on copper.
United Kingdom	22	Lawlor, J. (Sculpture Court)	Marble statue of a bather.
France	573	Lechesne, Augusta (Main Avenue, East).	Two casts in plaster, child protected from a
-	- 1	Lemereler, R. J.	Lithography and chromolithography.
	-	Lequesne, E. L. (Main Avenue, East).	Dancing Faun, in broase.
United Kingdom	24	Leighton, John, jan. (Cl. xvii.)	Variety of designs.
Rome	18	Macdonald, Lawrence	Iconie statue, in marble.
United Kingdom	22, 23, & 24	Macdowell, P. (South Transcpt)	Cupid, in marble, and Eve, in plaster; giri a prayer, lo marble.
France	329	Marechai and Guynon	Painting on glass.
Inited Kingdom	15	Marshall, W. C. (Sculpture Court) .	Sabrina, la marble.
Austria	746	Monti, Refferlie	Marble statue of Eve.
Spain	271A	Perez and Co	Inlaid wood table.
uited States	522	Powers, Hiram	Statue of the Greek slave, in marble.
Prance	1419	Ramus, J. M	Group in markie, Cephalus and Procris.
Saxooy	185	Rietschel, Ernst,	Pinster group "La Pieta"; bas-reliefs, in marble.
Inited Kingdom	353	Rogers, W. G	Cradle, carved in Turkey boxwood.
France	1689	Roucou, J	Inlaid work.
Coited Kingdom	221	Saiter, S. (Cl. vn.)	Model of St. Nicholas Church, Hamburg.
France	1369	Schilt	Painting on a vase.
'nited Kingdom	20	Sharp, T. (Sculpture Court)	Statue, in marble, of boy and lizard,
Praoce	374	Silbermann, G	Chromotypography.
Belgium	461	Simonis Eugene	Pinster statue of Godfrey de Bouillon, and other works.
Austria	713	Strazza, Giovanni	Marble statue of Ishmael.
United Kingdom	36 & 58	Thrupp, F. (Sculpture Court)	Boy and butterfly, and Arethusa, both in mar- ble.
Belgium	456	Tuerlincks, Joseph	Marble statue of Giotto.
Lustria	362	Vienna, Imperial Printing Office of .	"Paradisus Vindobonensis," in chromelithegra- phy.
United Kingdom	89	Wallis, T. W. (Fine Arts Court)	Carvings la wood,
_	60 & 81	Watsoo, the late M. L. (Sculpture Court-Main Avenne, West).	Statue of J. Flaxman, in marble; and Eldon and Stowell group, also in marble.
russia	306	Winckelmann and Sons	Colonre and lithographic prints.
-	307	Wolff, Albert	Marble group, Innocence.
Bavaria	92	Wustlich O.	Portrait of Charles IX., on chips.
nited Kiordom	30	Wyatt, M. Digby (Fine Arts Court).	Good taste in designs generally.
	285	Wyon, L. C.	Medals and medalion portraits of the Royal children.

	HONOURABLE MENTION.							
Prussia	:	309 10	Afinger, I. Bernhard	Medalions, Designs.				
_		10	Ashworth, Susan (Government Head School of Design)—(Fine Arts Court).	Designs.				
Anstria		616	Bagatti-Valseechl, Piatro	Painting on glass.				
United Kingdom .	- 31	115		Oil-colour picture printing.				
	-11	54	Behnes, W. (Sculpture Court)	Marble statue of a startled nymph.				
married.	- 4	249	Bell, W. C.	Enamel paioting.				
Tuscany	. 1	78	Bientti L.	lyory carving.				
Denmark	- 11	34	Bissen, H. W.	Orestes, to marble, and other sculptures				
United Kingdom .	- 11	238	Bone, H. P.	Enamel painting on gold.				
France	- 1	64	Boonassieux,	Cupid cutting off his wings, lo brange,				
		1554	Boyer, V. P., and his artist, Mariette	Painting on china, after H. Vernet.				
United Kingdom .	. [2	Bradley, - (Cl. xxv.)	Painting of ducks, on china.				
France	: 1	72	Broun, C.	Designs in calleo.				
United Kingdem .	•	10	Carter, J. (Government Head School of Design) - (Fine Arts Court).	Designs.				
Oldeoburg	. 1	1	Cassebohm, J. H	Model of Heldelberg Castle.				
United Kingdom .		60	Chance Brothers and Co. (Cl. xxrv.)	Painted chorch windows.				
	- 1	246	Chesters, S	Enamel painting on porcelain,				
France	. 1	451	Clesinger, T.	A bacchante,				
United Kingdom ,		10	Collins, Florence (Government Head School of Design) — (Floe Arts Court).	Designs,				
France		460	Cordier, C	Head of a Negro, in bronze.				
Tuscany	: 1	-		Marble statue of a dving gladiator,				
United Kingdom .	•	63	Cottingham, N. J. (Main Avenue West).	Spandril for Pereford cathedral.				
	1	10	Cuthbert, J. S. (Government Head School of Design) - (Fine Arts	Designs				

OBJECTS REWARDS

NAME OF EXHIBITOR.

NATION.

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market, with
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presenting the
other printing.
Dog. cakwater.
L

Russin	362	Dreger, F	Chromolithography.
France	90	Didier, F. Dunhill, Thomas (Cl. vii.)	Design for shawls. Model of a metropolitan cattle market, with
	51	Dunna B F (Cl vver)	abattoir. Designs burnt on tiles.
-	140	Dupps, B. E. (Cl. xxvrl.) Eckelmonn and Wüstish (Cl. xxirl.) (Main Avenue West).	Portraits on china; Her Majesty and the Prince of Wales, and Prince Albert.
	15	Encel, J. (South Transent)	Group of Amazons,
Tuscany	110	Frecein, P. Galimard, N. A.	Marble status of Psyche, Designs for stained glass.
United Kingdom	83	Gass S II and D (Cl water)	Silver ganntlet nielle bracelet.
Belgium	451	Geefs, J	Plaster statue, The Faithful Messenger.
Prussia	166	Grunthai	Berlin wool designs, Goblet of Ivery.
	85		Gnivanography.
United Kingdom	244	Harris, J.	imitation of ancient typography.
Belgium United Kingdom	197	Harris, J. Hart, L. J. Harrey, J. K. (Cl. xix.)	Medals. Designs for carpets.
-	237		Ennecl paintings.
Prussin	772 75	Henneberg, F. E., and Co	
United Kingdom	63	Heyl, C. W. Hulland and Son (Cl. xxiv.)	Goblet of carved Ivory. Stained glass, Life of Christ.
	67		imitation of onelent painted window glass.
	10	Ireland, Edwin, (Government Head School of Design)—(Fine Arts Court.)	Designs.
Belgium	451	Jaquet, Jos	Cupid disarmed, plaster.
Denmark	447 34		Brouze medals, Ivory casket.
United Kingdom	10	Kyd, J. (Government Head School of Design)—(Fine Arts Court)	Designs.
France	215		Ivory enrued vase,
Bavarin	258	Leeb, J	Marble statue, Giri carrying n nest of Cupids.
	306	Lucas, R. C	Nuremberg Fountain, in wood. Carvings in Ivory.
	565		Painted glass.
Austrin	716 638	Mnrebesi, L	Statue in marble, Eurydice. Designs for shawls.
United Kingdom	98A	Meynier, - Miller, F. M. (Main Avenue, East.)	The Orphans, in marble,
Prussia	292		Two groups, in bronze,
France	625 10N	Naze and Co	Designs for cotton prints, Murble statue of Barchus,
Austria	615		Flower-piece, and Holy Family, on china.
United Kingdom France	65 1660	factory, Vicann.) O'Connor, M. and A. (Cl. xxiv.) Pascal, Michei	Pninted glass. Model, in marble, of a Friar presenting the Crucifix to Two Children.
Prussin	2%	Pfeuffer C	Medals.
France	347	Picard, E	Designs for woolien, cotton, and other printing.
United Kingdom	10	Pfeuffer, C. Picard, E. Rawlings, J. (Government Head School of Design)—(Fine Arts	Designs.
Austrin	722	Court.) Rocchiginni, Antonio	Mosaic-Temple of Pastum,
	24	Sangiorgio, A	Bust of the poet V. Monti.
United Klegdom	10	Saulini, Thomas	Shell cameos. Designs.
		Sangiorgio, A. Saulini, Thomas Slocombe, C. P. (Government Head School of Design)—(Fine Arta Court.)	
	28	Stephens, E. B. (North Transept.) . Stuart, W. (Cl. vii.)	Piaster group, Deer-stalker and Dog. Limestone model of Plymouth Breakwater.
	13, 59,	Theed, W. (Sculpture Court.)	Sculptures, in marble and plaster.
	& 79 34	Thernveroft, T. and Mary, (Sculpture	Royal Children, in plaster.
Spaln	266	Court.) Toledo, The Royal Ordnance of	Inlaid arms.
Russin	328	Tolstoy, Count	Medals.
United Kingdom	75	of Design)—(Fine Arts Court.)	Designs. Design of iron tomb.
France	1504A	Turgan, Madama	Painting en porceisin.
United Kingdom	77 97	Underwood, T. (Fine Arts Court.) .	New process of lithography.
Wurtemburg	108	Wagner T	Designs for silver works. Statue in marble, Magazinen.
United Kingdom	73	Turgan, Madamn Underwood, T. (Fine Arts Court.) Vechte, A. (Cl. xxiii.) Wagner, T. Walles, W. (Cl. xxiv.)	Statue in marble, Muguilen. Painted glass for York Cathedrai.
Saxony United Kingdom	177 21	Waither, G. Weekes, H. (South Transept.)	Enamel painting on china. A Sleeping Child and Dog.
		MONEY AWARD.	
Prussin	785	Boesche, J. C.	Model of Magdeburg Cathedral, £30.

LIST OF AWARDS-LADIES' JURY.

			PRIZE MEDAL.	
CLASS.	NATION.	No. in Catalogue.	Name of Exhibitor.	ORJECTS REWARDED.
CLASS XII .	United Kingdom	172	Tetley, Mrs	Quilt.
CLASS XIX	Sweden	42	Alner, Anna	Portrait of Queen Victoria.
11	United Kingdom	343	Hrayshaw, J.	Mosaic needlework.
**		135	Bridges, W	Last Supper. Table-cover,
11	_	136	Bridges, W	Sofa pillow.
**		152	Diti, Madame	Tasso's return.
::	_	49	Davies, Mrs	Chess-board.
;;	_	159	Ellis, Sophia A	Tatting.
**	_	378	Fancourt, Catherine	Quilt.
**	Con No.	164	Flower, Ann	Flags of all nations Embroidered needlework.
11	Sweden United Kingdom	195	Harritree, E. and G	Peter the Hermit,
::	Cintes Magazin	330	Harttree, E. and G tlayes, E. J	Pictures of seed.
::		204	Hill and Co	Tintern Abbey,
;;	Sweden	23	ttorn, Mrs	Embroidery.
	United Kingdom	224	King, Miss	Mediaval embroidery.
11	—	229	Lambert, Elizabeth	Embroidery.
**	Sweden	96	Lindgren, Constance	Portraits of King Oscar and Duke of Wellington (in silk).
**	United Kingdom	-	Parr, Ceptain	Embroideries by a Spanish lady residing i Madeira.
	_	278	Robinson, Miss	Group of flowers
	-	283	Roome, Ann	York Cathedral,
**	_	2,18	Shuldham, Horriet	Lace scarf.
**		90	Stokes, S	Embroidery. Table-cover.
**		309	Sturmy, Maria	Table-cover.
**		321	Tawton, Mary	Child's cloak.
::	_	324	Veevers, Letitia	Articles manufactured from the fibres of plan
		319		and flowers (with Special Approbation.) Table-cover.
**	_	334	Vokes, F	Giant's Causeway.
11		347	Whitney, E.	Embroldered aprons.
11	_	356	Woolcock, Catherine	Screen.
CLASS XX		174	Linklater, Jeremiah	Shetland knitting.
**	_	86	Solomon, Sarah	Ball dress,
	ton the	213 154	Standon, Ann	Quilt. Articles made of feathers (Honographe Mer
**		134	Tollet, G	tion in Class XVI.)
No. of the last of		-	HONOURABLE MENTION,	
CLASS XII	United Kingdom	172	Clark, J	Table-cloth,
CLASS XIV .		12	Adams, Jane	Needlework.
CLASS XIX .	_	389	Barelay, Helen	For the wool only.
**		145	Blackburn, M. A.	Lincoln Cathedral.
***		161	Concrding, Mrs. Ida Von Evans, S. A.	Knitting. Death of Douglas,
**		174	Evans, S. A	Berlin wool-work (exhibitor blind).
::	_	198	Gardner, M. A	Carpet.
		t78		Vase of flowers.
11	_	223	Kettlewell, Mary	Knitting.
**		234	Digges, La Touche, Miss	Lace flounce,
**		230 228	Lanchenlek, Jane A Mowland, C. G	Table-cover.
		266	Mowland, C. G.	Wreath of flowers.
		273	Pearse, Clara	Quit. Hearth-rug.
**		373		Irish face.
**		233	Sibthorpe, F. L. Viall, S. A.	Death of Douglas,
**			Viall, S. A	Infant's robe.
**	==	144		
**	Ξ	47		Artificial flowers, in wool.
**	Ξ	112		Quilt.
** ** ** ** **	Ξ	1t2 1t3	Vischi, A. M. J. Wilson, Charlotte Brooks, E.	Quilt. Handkerchief embroidered.
CLASS XX	=	47 1t2 1t3 72	Vischi, A. M. J. Wilson, Charlotte Brooks, E.	Quilt. Handkerchief embroidered. Lady's dress with clastic sides.
CLASS XX		47 1t2 1t3 72 148	Vischi, A. M. J. Wilson, Charlotte Brooks, E. Gates, L. C. Haywood, Mary	Quilt, limbkerchief embroidered. Lady'e dress with clastic sides. Shawi.
CLASS XX		47 1t2 1t3 72	Vischi, A. M. J. Wilson, Charlotte Brooks, E.	Quilt. Handkerchief embroidered. Lady's dress with clastic sides.

CLASS L

REPORT ON MINING, QUARRYING, METALLURGICAL OPERATIONS, AND MINERAL PRODUCTS.

The figures after the Names (between parentheses), refer to the Exhibitors' Numbers and to the Pages in the Official Descriptive and ILLESTRATED CATALOGUE.

Jury.

Sir HENRY De LA Brene, C.B., F.R.S., Chairman, 28 Jermyn Street, Piccadilly; Director General of the Geological Survey of the United Kingdom.

OUT THE VESTIGATION OF THE CONTROL AND AND ASSESSED OF THE ASS

M. FARLOAT, D.C.L., F.R.D., ROYM Instrument, American successions of the Royal Institution.
C. J. M. Germaner, Bedgium; Engineer-in-Chief of the Corpus of Miners.
C. J. M. Germaner, Bedgium; Engineer-in-Chief of the Geological Survey of Canada,
Francis and Francis of Communication of the Conference of Communication of Communica to the Duchy of Cornwall.

Professor Tonnen, Austria; President of Imperial Mining School, Leoben, Styria. Associate.

GARRIEL KAMENSKY, Russia; Councillor of the Administration of Finances. (Juror in Class XXV.)

power of man, emnot be satisfactorily represented in an Universal Exhibition.

Its products possess immense ntility, and yet offer hat little brilliancy of appearance. Deprived of all that gratifies the eye by elegance of form and varieties of eolour, they can scarcely neutralize these disadvantages and arrest attention, unless by research into their peculiar conditions, their singular and strange forms, and their colossal dimensions, which excite surprise from the great difficulties overcome an their preparation. But such sources of interest are essentially fugitive, and generally harren of result, and the interest thus excited is no adequate reward for the labour, care, and expense that have been incurred in producing them, and they rarely introduce new ontlets for the industry which has been displayed in forwarding them.

These difficulties are inherent. An exhibition, m over, of metalliferous minerals cannot afford, as is the case with agricultural and manufactoring products, a complete comprehension of the ingenious and powerful methods which have either obtained or simplified their extraction, or the multiplied labours by which they have been procured. Agriculture ameliorates and increases the products of

the earth : the skill of the weaver is shown in the beanty of his fabrics, and it is easy for the observer, however inexperienced, to render an account of it, either to him-self or to the public. For minerals, on the contrary, an attentive and prolonged examination often only affords a somewhat incorrect idea of their real value, and of the advantages which may arise from their 'exploitation.' The beanty of the specimens is often only a deceitful guide.

If it be true that the importance and commercial value of an "exploitation" depend upon the riches of the raw material, and the facility of its extraction, it is only in the works themselves, or in the mine, that this double codition of its value can with any certainty be appreciated.

Certain mines of copper afford a good illustration of

• We may refer to specimens of lead ore consisting of cubes nearly 3 feet across, and blocks and obelicks of granite more than 40 feet high. Messrs, Bagnall and Jesson (23, pp. 13-117), exhibit a sectional column of the South Staffordshire thick coal nearly 40 feet high, showing the whole thickness of the seam.

Tux miscral kingdom, which play so important a part in this fact. Most of the specimens obtained from those modern industry, furnishing row materials for our raman—miner yield as much as 60 per cent, aft metal; but still they factores and tools for our works, and supplying fuel for our are not worked to profit, owing to the small quantity of straum-againes, the invention of which has accetupled the three or regularly distributed through reins of which the greater part is barren,

The mines of Cornwall, on the contrary, the ores of which afford only about 8 per cent, of metal, even after dressing, are very profitable to the adventurers.

The abundance of these ores is so great, that they

furnish nearly two-thirds of all the copper obtained from the mines of the whole world

These remarks appear useful at the commensement of this Report, as explanatory of the numerous omissions which have to be regretted in the Great Exhibition, in reference to the products of the mineral kingdom, out easting blame on the great establishments of Europe, and elsewhere, which have rendered themselves remarkable by their absence, they constitute the best enlogium of those who have had the courage to sacrifice all personal considerations to the honour of the industry they re-present. Without expecting any considerable benefit, without any prospect of opening new markets, they have been, nevertheless, desirons of offering their disinterested tribute, and of adding to the effect of an event which will form an epoch in the history of the industry and civilization of the world,

The exhibition of the various productions of the mineral kingdom presented in the Crystal Palace is therefore very incomplete. Saxony and the Hartz, those eradles of mining, which for so long alone in Enrope enjoyed the honour of possessing mining schools, have sent none of their products. Sweden and Norway, likewise very righ in mines, are chiefly represented by magnificent specimens of native silver, as remarkable for their dimensions as for the heanty of their erystallization.

Spain, which supplies so large an amount of mercury to the whole world, and of which the lead mines were once sufficiently important, in the ahundance and richness of the ore, to govern the markets of Europe, has only sent a few detached specimens, so that the exhibition from this ountry gives no evidence of the mineral wealth of the Peninsula. The Jury have thus been unable to award to

* These specimens (exhibited as No. 34, Sweden) are 34 in number, and we have particularly noticed smongst them, viz.:—1. A specimen weighing two ounces, having very distinct and well-formed cubical crystals, 2. One in cube-ociahedral crystals, weighing 67 ounces.

3. One in ortahedrone, weighing 48 ounces: 8 ml 4, one weighing at least 10 libs. composed of large twisted fibres.

[CLASS I.

the Spanish exhibitors more than a single Prize Medal and a few Honourahle Mentions. Even these have been given for the manufacture of iron and steel, and the working of marble,—classes of industry which are but of secondary importance in that kingdom

We ought here to remark, that the prices have been awarded entirely on the examination of the object exhibited. They do not, therefore, in any way represent the theorem of the control of the control of the control of the theorem of the entirely developed the control of the control tent, and often induced give no indication of the real importance of the establishments to which they have been may discover with regard to works with which he is himoff acquainted, are the result of this necessary condition cannot have a personal knowledge of the establishment whose products they cannot a sorted or the establishment whose products they cannot a control of the establishment whose products they cannot a control of the establishment whose products they cannot a control of the establishment of the control of the control of the control of the control whose products they cannot a control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the control of the state of the control of the control of the control of the control of the state of the control of the control of the control of the control of the state of the control of the

Several of the numerous copper-works of Russia, and also the pold washings of that vate empire, perhaps as irch as those which now strong attention in Cullibrata, and the company of the company of the company of the objects early Rysian, Identing its of the Class, consist of specimens of pg, how, and rolled from from the fingerial case, and the company of the company of the company or many of the company where they are forwarded, and permit a companion of the company of the company

The mineral industry of Austria, Belgium, France, and of Germany within the Zultvervin, or Customs' leading, although very imperfectly represented in the Exhibition, includes objects of the greatest interest. Each of these countries has obtained the Council Medal, and a considerable number of Prize Medals.

The Exhibition of Crust Britain in infliciently complete in those objects that have reference in the prediction of in those objects that have reference in the prediction of representing these important branches of industry, intending in most cases be over of iron, and deep predects called in the contract of the contract of the contract accompanied by models of the firstness in which the next in reduct. The research is a simple of the contract of the contract in reduct. The research is a simple of the contract of the contract in reduct. The research is a simple of the contract of the projection of all strates of from one verded in Great Infotuits. The study of this collection is equally interesting the contract of the collection is equally interesting the formation of the collection is equally interesting the contract of the collection is equally interesting the contract of the collection is equally interesting the collection of the collection of

Notwithstanding the omissions so much to be regretted, and which we have just alladed to, the exhibition of objects in this Class still possesses the greatest interest, and is in the highest degree instructive; and it results from it, on a careful investigation, that in all parts of the world, in Europe, as well as America, the mineral has everywhere followed the development of other industries, The difference of price of the raw material, or, to speak more accurately, the abundance of fuel, and its more or less favourable distribution, regulate in each country the cost of manufacture, although it is chiefly with regard to smelting operations and the working of iron that this influence shows itself on the largest scale. The methods of working are everywhere acquiring a certain uniformity of system, the old processes, where buman lubour was so largely introduced, being replaced by modern contrivances which diminish the amount of manipulation and the general expense. The only remark that one can venture to make is, that wherever fuel is ahundant it is more wastefully used; and that the countries where smelting operations and iron are the dearest, are perhaps, on the greatest extent, and where the work has really attained the greatest perfection.

The Royal Commission which presided over the Exhi-

The Royal Commission which presided over the Exhibition had the happy idea of including geological maps

among the objects which ought to appear in it, as one of the most useful means of advancing mineral industry. Many of these maps have been distinguished by the Jury, and will be honourably noticed in the summary descrip-tion of objects that have obtained rewards. The most tion of objects that have obtained rewards, important of all, however, that of England, prepared under the superintendence of Sir HENRY T. DE LA BECHE. Director-General of the Geological Surveys, could not receive any award in this class, that gentleman being the Chairman of the Jury; and it is, therefore, necessary to it in this short preliminary sketch of the ensemble speak of of the Exhibition. It is executed on the Ordnance man prepared and published by Government. The scale of this map (1 inch to a mile, or 1 in 63,360) is sufficient to represent in detail the ontline or the boundary of all the geological formations, and it even allows the direction of the principal metalliferous and other veins to be indicated when they are known for any distance. This great work, at present the only one of its kind, is a model which we may hope will be imitated by the principal Governments on the Continent. Science may then, within a limited time, be enriched by a complete geological map of the whole of Europe. It is true that France already possesses a geological map, which I may be allowed also to eite; and there are also a number of departmental geological maps, many of which are executed with great talent; but these are not all on the same scale, and the details are not of the same kind, so that there are certain discrepancies which prevent our being able to unite them all in a single sheet, and thus form a complete result. The new map of France, which is in no respect inferior to the Ordnance map of England, either in accuracy or execution, furnishes the groundwork for nishes the groundwork for a geological map equal to that which has been prepared by Sir H. De la Beche and the officers of the Geological Survey. England, which laid the first foundation of the true study of stratified deposits by the sections of W. Smith, and the important map of Mr. Greenough, has still the honour of giving to the world a model for the execution of a detailed geological map, applicable at once to industrial researches and agrieultural improvement,

Before commencing the detailed description of objects which have obtained Medial or Hosoumble Mention, we feel bound to mention also the interesting collection from Cannda, promeral by Mr. Leava type 568–681), Director Cannda, promeral by Mr. Leava type 568–681), Director operations of working these over, exhibited by Mr. Reman Tarkov, Mineral Surveyor of the Dueby of Conwall. These two greateness, being both them members of the Jun; phys., arguednesses, being both them members of the Jun; phys., arguednesses, being both them members of the Jun; phys., arguednesses, being both them members of the Jun; phys., arguednesses, being both them members of the Jun; phys., arguednesses, being both them members of the Jun; phys., arguednesses, being both them members of the Jun; phys. arguednesses, being both them members of the Jun; phys. arguednesses, being both them members of the Jun; phys. arguednesses, being both them to be a phys. arguednesses, being both them are the Jun; phys. arguednesses, being both them are the Jun; phys. arguednesses, arguednesses

geological map, which will, we hope, be very soon published.

The model, showing the mechanical preparation of copper ores, of which Mr. Taylor is the exhibitor (434, p. 161), presents remarkable differences when compared with

the incthods generally employed in Cornish mines. The method is mure especially intended for the poorest cores, called Holeans, and admits of a larger proportion of the copper being obtained than is the case with any other methods now in use. The Jury have considered that they are not justified in

The Jury have considered that they are not justified in adjudging any reward to those who have exhibited objects of Nutural History, unless these have been obtained by special researches on the part of the exhibitor. In consequence of this decision, isolated minerals and

geological specimens not connected with distinct operations have been excluded from competition; but we consider that it will be useful to science if we append, as a note to the above general resume, a notice of such specimens as are extraordinary for their dimensions or for the perfection of their forms.

Amonget such specimens must be mentioned, as of the first class in point of interest, a magnificent crystal of emerald, the property of the Duke of DEVOASSHIPE (14, p. 122), obtained from New Granada. It is a regular spisaided prism, perfectly well formed. Two of the parallel faces are more developed than the others, so that the hex-

3

agound base of the crystal has one side larger than the rest. The dimensions of the bose are 2.76 inches by 1.97 inch, and the height of the prism 0·165 inch. Notwithstanding these dimensions, almost gipmide for this kind of micerial, this emerald, which is of a fine green colour, is perfectly clear in the upper part. The lower part, which is attached to the rock, presents many flaws, probably the result of a blow by which it was detached from the vietaked round.

The Dake of Devoushire is also the exhibitor of two crystals of quart, attached by one of the vertical faces, the crystals being each of them 2½ for high by 8 inches in diameter. The pyramidal summittee of these crystals, which rise ocarly a foot above the pin, are completely transparent, but the prisma are cloudy. These magniflecent crystals were obtained from the Alps, lawing been discoted in the control of the control

has seedes of niterrals send by the Boxan Treasuracial SHITTER of Toxan's, we cannot go so over a preciaen of granter rode from Dibn, measuring about 19 acciaent of granter rode from Dibn, measuring about 19 acpression of the properties of a hundred in number. These crystals, which ecopy a fusion or analytic in the highly 14 1:17 commod between the force y their form, extremely well defined, in a tix-shell prima, composed in a certain primary of the primary of the primary of the rote continuous primary of the primary of the primary of the configuration of the primary of the first of an all y, given a returnated by the lase P, and the angle of an all y, the primary of the printerest of the primary of the primary of the primary of the prima

in those of 1 a Leabre and Le Force.

Doe Fasteries loxacio Ossa, Doe Micriz, Galzo,
and Doe Hixous Governous, have calibited together a
old Doe Hixous Governous, have calibited together a
obtained from the mine of Decentrion, earc Chaustcillo, in Coldi, It was found in this mine in 1800, at a
depth of 200 feb., in the voice called Angusta. The diable in satural history; lest it is especially interesting by
its structure, being formad of successive layers folded on
each other like some of the bels of the coal measures.

cervision, as is the case with history-shaped modules or
cervision, as in the case with history-shaped modules of

native arscoic.

The only other objects we shall refer to are a speciaren of a lead veio from the Lavey mines, and a magnificent lump of galeua from the mines of Scailbatch, near Shrews-

The fragment from Laxey represents the total thickness of the lode, which amounts to 23½ linches, nearly. The specimen is about 5 feet long hy 30 inches wide. It consists of five soid veins of galesia separated by this bands of sulphate of bartytes; and the specimen, which is one of the finest that we have reen; gives a complete idea of a of Practical Geology, where it will be of great interest as illustrating the formation of veins.

The specimen from Sealibatch mines is still more exrens. It is emorpool of an assemblage of large cakes of the state of the state of the state of the state of drait crystals of violet-coloured cake spar 29 inches long, the cigar being registed by large factors blooming to the the cigar being registed by large factors blooming to the state of the retired with high points consisting of the ordinary metastates arranged in their material position restrictly retired to the state of the three points are puralled. This specimen, remarkable but for the dimensions of the cubes of galean and the crystals inches, in the kilose being galout 14 inches but he of

ON THE PRIZES AWARDED AND THE MOTIVES BY WHICH THE JURY HAVE BEEN INFLUENCED.

The examination of all the objects relative to mines quarries, and metallurgical operations, and the collection of mineral products exhibited in the Crystal Palace, was carried on simultaneously by different members of the Jury. To give greater authority to their decisions, they obtained the assistance occasionally of persons whose special knowledge might assist them. This assistance they availed themselves of, especially with regard to the various specience of iron for the determination of which, they called in four qualified persons, whose practical persons are sufficient to the contract of the contract appreciation. After this circumstantial examination, the Jury divided the list of those whom they consider worthy of revard into three classes; the revards being as fel-

1008:—
1. COUNCIL MEDIALS, for such objects as, according to the terms originally decided on, exhibit either novelty in the mode of obtaining or applying raw materials and produce, or skill and excellence in known modes of obtaining, applying, or adapting them.
2. PRIES MEDIALS for consumntive excellence in the

2. Pairs Media for comparative excellence in the quality obtained, combined with utility.

3. Hoxourable Mention of those objects which, without attaining the superiority required for the Prize

Medal, offer notwithstanding, great merit of execution or the application of new and ingenions methods still requiring the sanction of long experience.

This hast class has been divided into two; but it would be difficult to define very assembled the difference bediener by the difference bediener by the difference bediener by the difference between the control of the difference between the difference bediener by the difference bediener by the difference bediener by the difference bediener bedi

Council Medals.

The Council Medals having been awarded in the manner above indicated, for novely in the mode of obtaining and applying raw materials, sanctioned by experience, or for undoubted superiority in unambienture, we begin by giving some details on the methods or kinds of the model of the model of the model of the contraction of the model of the model of the contraction of the model of the model of the contraction of the model of the conversal recovers will afterwards be given of them in the order of the respective countries to which they belong

MANUFACTURE OF BLACK-LEAD PENCILS BY MR. W., BROCKEDON, (65, p. 128.)

Drawing peneils of the first quality, known in com-merce as "Brookman's," are made with small prisms sawn from pure massive graphite, and placed in grooves in wood. Pieces of graphite sufficiently large to be thus used are very rare, and the mine of Borrowdale, in Cumberiand, whence they have been obtained, is almost en-tirely exhausted. Mr. Brockedon was long occupied in seeking for some method which might enable him to employ the powder of pure graphite without cementing it by any sobstance, which inevitably injures the quality. He endeavoured to reader the powder enherent by sub-mitting it to coormous pressure; but the different machines and apparatus he at first made use of for this purpose, however strongly they were made, were broken under the pressure, and his endeavours were thus unsuccessful, until the happy idea suggested itself of operating in a vacuum. But it was extremely difficult, if not impossible, vacuum. But it was extremely amount, in no impossible to introduce under the receiver of an air-pump au apparatus for compressing the powder of graphite. Mr. Brockedon overcame this difficulty by no arrangement as simple as it is easily executed, for after having comported the graphite powder by mederate pressure, and thus re-doced it to a certain size, he euclosed it in very thin paper, glued over the whole surface. He then piereed it in one place with a small round hole, permitting the escape of the air from within, when the block thus prepared was placed under an exhausted receiver, and the air having been removed, the orifice was closed with a small piece of paper, and in this state it was found that it might be left for 24 hours without injury. Being submitted theo to a regulated pressure once more, the different particles became agglomerated, and a block of artificial graphite was produced by simple pressure, as

solid as the specimens obtained from the mine. From such blocks the exhibitor was able easily to obtain small prisms for use, which have yielded pencils equal in quality to those manufactured from the purest specimens from Borrowdale

The objects exhibited by Mr. Brockedon are as follows, viz. :-

Specimens of graphite from Cumberland, India, Greenland, Spain, Bobcusia, and several other localities.

 Compressed powdered graphite.
 The same powder in the form of artificial blocks, prepared to the manner just explained. 4. The graphite in small solid cylinders for Mordan's pencil-cases, and other specimens of pencils for various purposes, especially for drawing,

METHOD ADOPTED OF MR. II. L. PATTINSON, OF NEW-CASTLE-ON-TYNE, FOR SEPARATING SILVER FROM LEAD,

(480, p. 165,) Most of the ores of lead contain a small proportion of silver, which may be obtained from them by capellation. This operation consists in oxidising the lead, and transforming it into litharge, during which the silver collects in the bed of the capel, and remains unaltered; but it costs so much in fuel, labour, and loss of lead, that it can only be applied economically when the lead contains at least 20 ounces of silver to the toa. By means of Mr. Pattinson's method, lead containing only 3 ounces of silver to the ton may be capelled with profit. This important discovery in metallurgy, which dates back as far as 15 years, has been adopted during that period in va-rious lead-works in England, and within the last three or foar years has been introduced into France, Spain, and Prussia: it has, therefore, the sanction of experience, and its application has enabled some lead mines to be worked to profit which must otherwise have been negleeted. The method is founded on the property which bodies possess to separate from each other during erystallization, and become to a certain extent pure by its intervention. It consists in fusing the argentiferous lead in a large vessel, and when the fusion is complete, arrangin a large vesser, and when the russo is complete, grang-ing the temperature to the point, so that the crystaliza-tion of pure lead commences. The crystals of pure lead are then removed as soon as they are formed by a large iron ladle pierced with holes, and the silver is concen-trated in a smaller portion of lead, becoming gradually more and more rich, mutil it is by successive operations brought to such a state that its further separation can be made with greatest advantage by cupellation.

The objects exhibited by Mr. Pattinson to illustrate the

include-1. A drawing, representing the whole of an establish-

ment where the work is carried on. There are here seven adjacent pots, heated by the same furnace, in which the lend is brought to contain, by degrees, 14, 24, 5, 10, 20, 40, and even 70 to 75 ounces of silver per ton 2. A large cake of silver obtained by cupellation from the curiched lead.

MANUFACTURE OF FINE SHEET-IRON, CALLED IRON PAPER. FROM THE WORKS OF THE BARON VON KLEIST, AT NEUDECK IN BOHEMIA. (Austria, 424, p. 1031.)

The Bason von Kleist has exhibited a series illustrating the various states of iron manufactured in bis works at Neudeck in Boliemia. It consists of iron ores. ig-iron, and several specimens of irou io bar and in

sheet, and tin-plate, These products are all of excellent quality, hat that

which has chiefly attracted the attention of the Jury, and even of those who are most technically familiar with iron, is a particular kind of sheet-iron meationed in the Cata-logue as "Iron-paper," a name completely justified by the specimens. It is remarkable for its extreme thinaess, flexibility, and strength, and is entirely without flaws,

According to Professor Tunner, the Austrian Member of the Jury, this material is used for making buttons, but it is equally applicable for any abjects that are stamped. It takes a high polish after being worked.

This sheet-iron, of which the method of manofac-

ture is not known to the Jury, but which is altogether peculiar from its beauty, is an ordinary object of commerce.

PRODUCTS OF THE MINES AND MANUFACTURES OF ZINC. EXHIBITED BY THE VIEILLE MONTAGNE COMPANY.

(Belgium, 26, p. 1152.)

Thirty years ago, the uses to which xioe was applied were very limited, and the operations of the Vicille Montagne Company have greatly assisted in extending them by the nunerous applications of the metal which they have introduced: the earliest and most important of these resulted from a sub-do of rolling sheet zinc, which at first presented conductable difficulties. Within this period the works of the Company have continued at the bend of the same branch of zinc industry, having introduced successively into commerce, very flexible and thin sbeets, zinc stamped for a variety of uses, mouldings manufactured by drawing, nails and spikes of various kinds and all sizes, wire of great flexibility and of all numbers. They have recently employed xinc for castings of large size, and we may oscution especially the statue exhibited of Her Majesty Queen Victoria, which, with the pedestal east of the same material, presents a total

height of 21 feet.

The Vicille Moutagne Company has also applied the oxide of sine to replace white lead in bouse painting, and oxide of sine to replace white lead in bouse painting, and for this purpose has recently opened two establishments for the manufacture of the white nod grey xine; one at Anières, near Paris, and the other at Valentiu-Coq, near Liege. The works of this Society have continued to increase, notwithstanding the formation of several new Companies for working calamine and bleede. At the present time it has 80 reducing furances at work, and employs 2640 workmen. The production to 1850 was

500 tons of zine

II, soo tons of zame.

We may add, as jostifying the high distinction awarded to the Vieille Montagne Company, that its zinc is of the best quality, and that the methods of working adopted differ essentially from those pursued in Silesia and England. The objects exhibited are very ounerous, as well in the Belgian as io the French department, but it is not thought necessary to enumerate them after having indicated the uses to which this Company has applied it; we merely repeat that they are remarkable both for quality of material, and for excellence of worknunnship,

PURIFYING APPARATUS OF M. BERARD, FOR REPARATING FROM COAL ANY POREIGN SUBSTANCES WHICH IT NAT CONTAIN, SUCH AS PYRITES OR SCHIST. (France, 51, p.

The washing of coal, a system introduced into France within the last three or four years, is a branch of industry of the highest importance, permitting the ase of coal which by its mixture with schist would not be otherwise employed. It may also be applied with advantage to certain coals, considered to be of good quality, but containing a quantity of ash, which diminishes the value. They are purified by this method in such a way as to allow of the manufacture of a coke from these coals, not containing more than three or four per ceot, of ash. The Great Northern Railway of France has recognized the efficiency of this method, and a considerable part of the coke which it consumes is manufactured of washed coal: there result from its em ployment a marked economy of fuel, and a greater durability of the locomotives,

The expenses of washing, which are considerable by the ordinary method, are reduced to ten or twelve centimes (about a penny), per metrical ton) of fuel by means of M. Bérard's method. A very important deside-ratum may, therefore, be considered as obtained. The apparatus consists of three parts, viz. :-

1. An elecutor, formed of an endless chain with bockets, * These Exhibitors were also awarded a Council Medal

† The metrical ton is equal to 1,000 kilogrammes or nearly an English ton, and contains 10 metrical quintals.— 1. W.

which lifts from a trough or pit where the coals are placed a certain quantity, regulated by means of a valve.

2. A separator, into which the fuel is thrown by the elevator. This is composed of a long box, divided into compartments, and containing perforated plates, in stages, the size of the perforations being smaller and smaller by stages from the upper to the lower, so that by the shaking which this box undergoes, the coal is at once divided into four sizes. The finest powder falls to the bottom, and each of the three sizes of lumps being thrown out through openings in the sides of the box, into separate fixed sieves, called "banes a lavage," which form the third part of the apparatus,

parmus.

3. These "banes à lavage" are long frames measuring 9 feet 2 inches by 4 feet, of which the bottoms are pierced with holes, the diameter of which is smaller than that of the pieces of coal thrown into them. They are cutirely filled with water, and divided in the interior into three parts. In one of these is a piston, which is worked up and down, and gives considerable motion to the water, which being communicated to the materials thrown on the bottom of the tank, these arrange themselves rapidly, in the order of their density, the heaviest being at the bottom. The pure coal alone comes to the surface, and by a current of water proceeding from a trough above, it is carried beyond the tank, and fulls directly into the waggon, whence it is conveyed to its dea-The substances heavier than eval, such as sebist, or pyrites, are deposited on the perforated bottom of the tank, which has a slight inclination towards a trap, and thus constantly advance towards an exit. By a poculiar arrangement, the rubbish is thus made to carry itself into a compartment prepared in the inside of the tank, whence it is removed by the mere opening of a valve,

It will be seen from this description, that the work is continuous throughout, and requires no manual assistance. According to the declaration of M. Bérard, the quantity of coal that can be cleaned in an hour by a machine, the total cost of which would be 10,000 francs (4001.), is ten to twelve metrical tons. The working of such a machine would not require more than about 2000 gallons of water

per day (8 to 10 enbie metres The various specimens exhibited are as follows:-

1. Coals classed in four sizes, and the foreign matters that have been separated from them, 2. Two specimens of coke; me made from coal as it comes from the mine, and the other from "washed roal

The first contains 26 per cent, of ash, the second only 21 per cent. 3. A drawing of the apparatns.

The specimens are from an establishment founded by M. Bérard, at Moleubeck St. Jean, near Brussels. M. Bérard states that his apparatus has been adopted by the mising companies of the Loire, Creazot, Epinac, &c., in France, and that, at the present time, there is one being erected at Newcastle.

VARIOUS OBJECTS IN BEASS, EXHIBITED BY MESSES, ESTI-VANT, BROTHERS, OF GIVET (ARDENNES). (France, 1214.

The Messrs, Estivant have forwarded a complete collection of their manufactures in brass; and the namerous objects which are included in it are all remarkable for admirable workmanship. We here mention only those which have attracted the attention of the Jury by their extraordinary dimensions, and difficulty of execution,

1. A sheet of rolled brass, measuring 15 feet 9 inches by 3 feet 7 inches, and less than a quarter of an incb (*2362 inch) in thickness; weight 561 lbs.

2. A sheet measuring 51 inches by 49 inches, nearly 2 inches (1.93) thick, weighing 1466 lbs. 3. A round bar of hammered brass, 8 feet long, and 4.88 inches in diameter, weighing 550 lbs.

4. A square bar of rolled brass, 11 feet 7 inches in

length by 4.75 inches square in the section, weighing

5. Two pans of hammered brass, each 7 feet 7 inches in diameter, and 15.75 inches high. The weight of the one is 101; lbs., and of the other 110 lbs.

6. A rolled sheet of Dutch metal (tombac), measuring 80.75 inches by 26.33 inches, and weigbing 7 lbs. 114 ouuces.

 Brass wire of different sizes, one specimen less than the twentieth of an inch (1½ millemetre) in diameter, measuring 3691 yards in length, perfeetly uniform throughout, and weighing 105 lbs.

8. A book of extremely fine Dutch leaf, very strong and very tough, and without flaws.

All these are objects of ordinary manufacture. The large pans are employed in dyeing, and in the manufacture of glue; the large bars are used in ship-building; the fine leaves are intended for plating and coating wood; the large rolled sheet has only been smoothed on one side, to show that the others are as they were run out, and the same is the case with the square bar, of which one end has been sawn. The dimensions of these specimens in-volve great difficulty of execution, both in first casting, and subsequently manufacturing; with regard to the former, Mesars. Estivant, although using nearly the ordinary proportions of copper and rine for the brass, adopt special precautions to render the alloy homogeneous. All brase manufacturers are able to cast slabs of about a hundredweight, and roll them into sheets weighing upwards of half that weight, but few of them are able to cust such masses as those exhibited bere, without flaw, and roll them into sheets without flaws, even to the edges. and rou toem into secest without flaws, even to the edges. This establishment, therefore, completely fulfils the con-ditions imposed by the regulation, which requires for the Conneil Media" excellence in known modes of obtaining, applying, or adapting the raw material."

The annual make of Mesars, Estivant exceeds 1800 tons,

and represents a value of about 80,000L

SEPARATION OF GOLD FROM ARSENICAL PUBLICA, BY . GUETTLER, ACCORDING TO PLATTNER'S METHOD. (Prussia, 6, p. 1048.)

The mines of Reichenstein, in Silesia, abandoned for more than five centuries, have been recently opened with advantage, in consequence of the application, on a large scale, of a method invested by Professor Plattner, for separating gold from the waste of arsenical ores.

The ore at Reicheusteiu is an arsenical pyrites, con-ning about 200 grains of gold in the ton. The ore is taining about 200 grains of gold in the ton. roasted in a reverberatory furnace, surmounted by a large condensing chamber, in which the arsenious acid is con-densed as fast as it is volatilized. There then remains, densed as fast as it is volatilized. There then remains, on the floor of the furnace, oxide of iron mixed with a certain quantity of arsenic, together with the whole of the gold. This is placed in a vessel so arranged that a current of chlorine can be passed through it, by which the gold and iron are taken up, and afterwards separated from the residuum, by the aid of a certain quantity of water, and the gold is afterwards precipitated from this solution by sulpharetted bydrogen. To prevent the admixture of iron at this stage, a small dose of hydrochloric acid is added to the solution before the sulphuretted hydrogen is introduced. The nuriferous compound having been separated from the liquor, is washed and heated in an open porcelnia crucible, to drive off the sulphur, by which the gold is reduced to the metallic state by fluxing it in the usual

This simple and ingenious method, which has made it worth while to re-open the Reichenstein mine, is equally applicable to the vast quantity of refuse accumulated near many other old works. In awarding the Council Medal, the Jury have desired in this case to associate the name of Professor PLATTNER, the inventor of the method, with that of M. GUETTLER, who has brought it into operation on a large scale.

STEEL WORKS OF F. KRUPP, AT ESSEN, NEAR DUSSEL-DORF. (Prussin, 649 & 677, pp. 1086, 1087.)

This establishment, which has been erected at great cost and heavy sucrifices by its founder, is distinguished for the superior quality of the east steel made there, and yet more ly the large dimensions of the objects produced. The Jury is not nequainted with the methods adopted by

vig :-

M. Krupp for obtaining pieces of all dimensions, which appear, however, to differ in many respects from those pursued either in England or Germany. Of the objects exhibited the Jury have remarked a pair of cylinders for rolling steel; a rough cylinder, nearly four feet long, and weighing 4,300 lbs.; the axle of a railway carriage, weighing 100 lbs.; and a cylinder 15 inches in diameter, broken across the middle. The last magnificent specimen has chiefly attracted the attention of the Jury on account of the fineness and homogeneity of its grain throughout, The Exhibition does not show from any other country a bur if east and forged steel of such large dimensions and of equal heauty. The members of the Jury do not re-member to have seen anywhere a similar example.

M. Krupp has also exhibited cuirsses and carriage springs, to show both the strength and elasticity of his stee L

PRIZE MEDALS AND HONOURABLE MENTIONS.

Most of those who bave obtained these medals, or who are honography mentioned, have exhibited objects of ordinary manufacture, but of good workmanship, Concerning these it has been thought sufficient to prepare a very shurt notice; but we have given more extended details in the case of those who have introduced a new principle, ur a new application of known principles; and we have also dwelt at some length on those objects which are instructive, and on collections from countries little known, their study offering a great interest in geological researches, and in the development of the industry connected with minerals. It is to be regretted that these collections are only accompanied by a few isolated notes, which give but very imperfect information as to the nature of the formations, and the position of the rocks which contain them. We propose, as mentioned in the beginning of this Re-

ort, to enumerate those exhibitors who have obtained port, to enumerate more camputers.

Modals or Honourable Mention, the respective countries to which they belong following in the same order as in the Official Catalogue of the Exhibition.

THE UNITED KINGDOM OF GREAT BRITAIN AND IRELAND. Great Britain is the most favoured country in the world for the development of mineral industry. Fuel, the indispensable agent in the treatment of metalliferous ores, and the most powerful element in the production of mutive force, is distributed unequally throughout the three countries of England, Scotland, and Ireland, coal formation in these three divisions of the British emnire occanies rich and widely-spread basins, several of which, especially those of Newcastle-on-Tyne, Scotland, and Wales, being situated near to the sea which surrounds the whole country, are enabled to export the coal to those places where the metalliferous ores exist in abundance, but where, as in Cornwall, the absence of fuel renders their being worked both difficult and costly. The ores of iron, abundantly distributed in several of the coal busins, add greatly to the value of these. Each one so circumstanced has become the centre of a metalliferous district, where numerous works produce iron at a price so moderate, that no nation can compete with this manufacture with any chance of success. The insular position of Great Britain, which allows the coal to be conveyed almost for nothing wherever it is wanted, is equally important in enabling the iron to be conveyed by its shire throughout the world. These highly favourable cond tions have given great development to the operations of coal mining and the manufacture of iron, and this has been especially felt since the application of cast iron for purposes of construction and the formation of the great lines of railroad.

The quantity of cast iron produced in England is as follows:-In 1836 . 1,000,000 tons.

In	the	follow	ine	YOUR.	owing	to earts	in	importan
		1845				1,512,500		
		1844				1,210,000	77	
		1840				1,336,400	99	

fiscal alterations, the trade received a great stimulus, and the make rose-

In I	184	8	to	1,998,588	tons.	
	184	3		2,000,000		
	183	9		2,250,000	21	

and in 1851 to an amount probably me quantity made in 1844—seven years previously.

The quantity of coal raised in 1840 is not accurately

known; but in 1850 it is estimated at 34,750,000 tons The increase must have accompanied that of the make of iron, of which it is one of the most essential elements The average price of coal at the pit mouth in England is estimated at \$4.7d., and that of pig iros at 48s. The produce of these two branches of industry amounts therefore to the anaual value of upwards of 15,000,0001.

34,750,000 tons of coal at 5s. 7d. per ton . £9,701,000 2,250,000 tons of pig iron at 45s. " 5,400,000 £15.101.030

Of this vast production about one-half of the iron and one-fourth part of the coal are exported to the colonies or to foreign countries.

These sources of wealth in coal and iron, which are alone sufficient to place a country at the head of mineral industry, are not the only ones possessed by England Nature, liberal to profusion towards this favoured country, has given it mines of copper, of tin, and of lead, also of great richness. Perhaps some day a formidable competition may arise in the case of copper, by the working of enormous musses of native copper discovered on the

shores of Lake Superior; but at present the Cornish mines furnish, as we have already remarked, two-thirds of the whole of the copper consumed throughout the world With regard to tia, England divides with Saxony and the Indian Archipelago the monopoly of the trade in Europe The annual production of copper in Cornwall may be estimated at about 12,000 tons, the value of which

amounts to upwards of 800,000/, sterling. The quantity of tin or obtained annually may be estimated at 11,000 tons, the average yield of which is 65 per cent., or about 7,000 tons of metal: this, at 90% per ton, would amount to 560 0007

It is often supposed that England, so rich in regard to iron, copper, and tin, is comparatively poor in lead, or at least that the lead-mines are of secondary importance. This is an error arising from the fact that the production of lead, instead of being concentrated like that of copper in one or two districts, is spread over a great number of mines. Some, like those of Alston Moor in Cumberland. of Snailbatch in Shropshire, or of Wanlock in Dumfriesshire, are indeed well known, but most of the others are comparatively anknown. Their number now ithat adding is considerable, owing to the wide extent of paleoneer rocks in Great Britain, and they raise the total of production in this metal to an amount which may perhaps place England also at the head of supply in this respect. Spain is at any rate the only country that can come into compe-

We were not felly aware of these results when the subject first came before us; but they have been communi-cated to us by Mr. Robert Hunt, who is well acquainted with the mineral industry of Great Britain. According to his statement it appears that the production of lead in England is distributed in the following manner among the principal metalliferous districts :-

tition with ber.

Comberian and West	i, i)	reland	n, Ne	rthur	nberh	and,	29,803	20,850
Derbyshire.	Sh	ropeh	ire, &	Som	crnets	hire	10:016	6,776
Yorkshire							7,506	5,596
Wales					- :		19,711	13,389
Ireland							2,739	1,653
Scotland							1,421	937
lsle of Man							2,826	1,535
							86,750	58,701

* To this quantity must be added 6,913 tens of copper from foreign ores, 1851, the value of which is 522,5900

In this statement of the value of the lead in England we have retained the account of the quantity of ore raised. The comparison of the two columns establishes the fact, that only 68 per cent, of metal is obtained after the mechanical preparations are completed, this being the average yield of the ores of lead in England; whilst, on the other hand, as much as 75 to 80 per cent, is obtained

on the Continent. This difference in the yield of the ores is the result of the low price of fuel in England. The brief account of the mineral wealth of Great Britain which we have here given previously to making known the results of the Exhibition, is sufficient to prove how great an interest the subject would possess if the statement could be made more complete. regret on our own account that, for the reasons given in the commencement of this Report, so many persons have declined sending contributions to the Crystal Palace. In consequence of this there are many blanks which prevent our being able to form a satisfactory idea of the immense development of mineral industry in the British Islands; and the existence of such blanks render it impossible to make a systematic classification of the objects exhibited, which would be of erest one in the statement we are about to make of the rewards decreed by the Jury. This difficulty induces us to describe in succession the several establishments which have obtained Medals and Honour-

able Mention. In each of these groups we shall combine the objects which offer the closest analogies. PRIZE MEDALS.

COLLECTION OF ORES OF IRON, ILLUSTRATING THE GENE-RAL IRON-MAKING RESOURCES OF THE UNITED KING-

вом. (427, рр. 150-159.) The production of iron in England, which was only 30,000 tons in 1750, suddenly increased to 180,000 tons on the important discovery by Mr. Cort of the process of puddling with coal. It is now 2,250,000 tons. This vast production is distributed nearly as follows:—South Wales and Monmonthshire 700,000 tons, Staffordshire and Shropshire 600,000, Scotland 600,000, and the remainder

in different proportions among the other coal districts of One of the chief causes of the development of the iron trade in England has been the occurrence of iron ores in layers amongst the coal measures, so that the ore and coal for smelting it are found in the same spot, while not unfrequently the coal measures also contain the refractory elay used in the construction of the smelting furnace, and

the limestone needed as a flux occurs at no great distance. the limestone needed as a flux occinisal to great distance. Mr. S. Blackewall. (427, p. 150), in the interesting col-lection which he has exhibited, has placed this important fact in the strongest light. He has broaght together the materials used in supplying each principal group of iron works, carefully imilicating the exact localities whence these materials are obtained. We may thus see that the ores are not carried far, execpt when there is great faci-

lity of transport by canal or railroad The ores from the coal measures furnish, as has been just remarked, the larger part of those used in the iron

works; but the resources of Great Britain are far from being limited to such ores, and Mr. Blackwell's collection farnishes with respect to this matter very interesting facts which we think it right to quote, and which the Jury fully considered in adjudicating to him a Prize Medal. The carboniferous or mountain limestone of Lancashire, Cumberland, Durham, the Forest of Dean, Derhyshire Somersetshire, and Wales, contains important veins of humatitie iron. This ore is worked in large quantities at Ulverstone, Whitehaven, and the Porest of Dean. The

brown hamatite and carbonate of iron exist in large quantities in Alston Moor and Weardale, but these over are not at present extensively worked. In the old rocks of Devonshire and Cornwall are found veins of hematite, of which a large quantity is exported to the ceal districts of England, and especially to Newcastle-on-Tync. The Forest of Dartmoor is rich in magnetic oxide of iron, The has and the onlite contain thick beds of argillaceous carbonate of iron, which are just now the object of extensive operations.

COLUMN REPRESENTING A COMPLETE SECTION OF THE THICK COAL OF STAFFORDSHIRE. (Outside 53, pp. 116, 117, 1

The coal formation of South Staffordshire and Dudley has a thickness of about 315 yards, and 11 beds of coal are known. That which occupies the sixth place in descending is designated as the "main coal," and is the principal object of working. It has a thickness of 10 yards I foot 6 inches, and is found near the town at a depth of about t20 yards. It is assally regarded as a single bed of coal, but really consists of 12 beds, separated by thin layers of sehist called partisys. The presence of these schutose portions, and the difference that can be traced in the quality and appearance of the coal, leaves no doubt about the matter. Messrs, Bacasta, and Jesson. doubt about the matter. of West Bromwich, near Birmingham, have thought that it would be interesting to show the whole of this enormons thickness of coal, and have prepared a column of the total height in which the schistose partings are carefully preserved. In order to strengthen it in its position and preserve it from injury, the column has been placed in a large box with one side open, and covered with a shed, within which is placed a sectional drawing marking the name and the thickness of each seum, and the use to which the different varieties of coal are commonly applied. Considered as an object of instruction and information, the bringing together these different materials is a work

of great interest.

COLLECTION OF TURQUOISES. (20, p. 122.) In the year 1849, Major C. Macdonald made a journey

into Arabia Petrera, with the intention of study geology of the country, as well as those antiquities of whose ence he had convinced himself in a previous journey in 1845. In the course of his investigations he discovered in the country of Soualby, sixteen days' journey S.E. of Suez, five or six localities in which turousises existed, all included within a range of about forty miles. They are situated on the further side of a chain of mountains having an east and west direction, and having a mean

elevation of five or six thousand feet. Major Macdonald collected most of his specimens of quoise from the ravines descending this chain, but ho found some in site. These latter are still attached to the parent rock, which is a reddish sandstone composed of quartz grains. It rescubles in appearance the old red sandstone of Brecon, and some schistone portions confirm us in the opinion that the rock belongs to the paleozoic series.

The colour of the turquoises discovered by Major Macdouald differs in the shade of blae from that of the turquoises of Persia, but agrees exactly with those brought from Abyssinia by M. Rochet d'Héricourt. Both exhibit small globular concretions, whose hardness is equal to that of agate. The nodules of turquoise form groups almost like current-seeds in the sandstone. The intensity of the colour of adjacent lumps is different; and when the groups are of tolerably large dimensions, zones of different tints may be observed. We have remarked in this fine collection of Major Macdonald—which contains more than 200 specimens cut and polished—one stone, an cabachon (polished without cutting), divided into three zones in which the colour varies from an intense blue to a bluish white.

This collection also presents, besides the small concretions, veins of turquoise from a tenth to a twentieth of an inch thick, which cut across the bedding of the sandstone like small threads.

Major Macdonald experienced many difficulties and rest fatigue in his journey through the desert country. he temperature was often as high as 110° Fahr, Besides those forming his escort, he employed for some geological researches; and in addition to the fine collec-tion of turquoises, of which we have just given some details, he brought away several specimens of iron and copper ore, which, from their nature, support the opinion we have offered as to the age of these mountains of red sandstone.

The analogy of external characters in the cuse of

the turquoises from Arabia and Abyssivia is a remarkable fact. It would be interesting to compare the chemical composition of both with that of the Persian turquoises.

HONES, GRINDSTONES, AND POLISHING STONES. (84, p. 130,)

Mr. C. MEINIG is the proprietor of one of the most im-portant establishments in England for the preparation and sale of hones, grindstones, and polishing stones, and obtains his materials from all parts of the world, notice especially among the hones (oil stones) which he prepares, those of Turkey, Persia, the Arkansas, the banks of the Niagara, Spain, Peru, Ireland, and Wales. All these stones, notwithstanding the difference of locality whence they are obtained, possess very remarkable analogics. They are of a yellowish-white colour, fine-grained, and all appear to belong to altered argillacous

schists of the palicozoic period.

The grindstones offer greater variety than the hooes, not only in the different localities whence the materials have been obtained, but in their respective uses. The establishment of Mr. Meinig has exhibited more than 200 kinds of grindstones, varying in size from half an inch to 24 inches, and adapted to all purposes, from the cutting of diamonds to the shaping of swords and bayonets. All of them are quartzose sandstones, of various degrees of fineness, according to the purposes for which they are in-

SPECIMENS OF CORNISH PORPHYRIES. (141, p. 136,) Mr. JAMES HENRY MEREDITH, of Cornwall (141), has exhibited a collection of porphyry slabs, remarkable for the beauty of their polish. They include—

- e beasty of their points. They include—

 1. A black porphyry slah, polished on both faces.

 2. A red porphyry slah, also polished on both faces.

 3. A green porphyry slab, polished on one face.

 4. A porphyry table, in which are inhalid 34 specimens of rocks, from the parish of Withiel, in the county
- of Conwell

These various slabs have been ent and polished in the granite-entting works of Fowey Castle Mine, in the parish of Ty wardreath. They are frequently used as paving-stones in the entrance-halls of large public hulidings or private mansions. The mechanical contrivances used in polishing reader the price very moderate,

COLLECTION OF ENGLISH GRANITES, MARRIES. BUILDING STONES (160, p. 137), AND CORNISH GRANITE OBELISK. (Outside, 14, p. 114.)

Messrs. W. and J. FREEMAN'T have exhibited a collection of granites and marbles, as remarkable for their varieties of colour as for the beauty of their polish; and the machines that they employ for cutting and polishing stones and marbles permitting them to supply them at a moderate price, it results that the slabs and paving-stones of granite and porphyry, which were formerly employed only in public edifices and hat for decorative purposes, on account of their great cost, are now to be seen frequently in private houses and for purposes of utility. As an example of the power of the machines which they employ in quarrying hard stones, Messrs. Freeman have exhibited an obelisk too large to be admitted into the interior of the Crystal Palace, and which is placed on the south side of the West façade. This obelisk is constructed of a large-grained granite from the Lamorna quarries, in Cornwall: its height is 22 feet 4 inches, and its weight 21 tons. It is placed on a pedestal of another granite worked in the Carnsew quarry, weighing 31 tons. The working of blocks of granite large enough to furnish these two magnificent specimens offers difficulties so considerable, that the Jury have thought it right to mark their sense of them by awarding a Prize Medal to Messrs, Freeman.

. This Exhibitor was awarded a Medal by the Jury of less XXVII., ln whose Award List his name appears, -1. W. + This firm was awarded a Medul by the Jury of Class XXVII , in whose Award List its name appears .- 1. W.

SLATES FROM THE FESTINIOG QUARRIES, N. WALES. (210, p. 141.)

These states, which are of superior quality, are chiefly in use for covering buildings. They are also employed as walls for cisterus intended to hold water; but in this ense large slubs are required. Several such slubs are exhibited some of which are more than 15 feet by 8 feet, Most of them are dressed to a rough polish, hat one is in the state in which it came from the quarry. Dendritic markings may be observed on its surface. The Jury markings may be observed on its surface. The Jury have awarded a Prize Medal to Mr, Jons W. Garaves, who is the proprietor of the quarries at Festiniog, and superintends the works, METHOD OF CONDENSING THE SULPHUR PUMES PRODUCED.

IN THE REDUCTION OF LEAD ORES. (509, p. 176.) From the chiumeys of the roasting fornaces in lead works there escape sulphurous vapours injurious to the works there escape surpairious vaporise in the first one to the health of the workmen, and producing great destruction to the vegetation in the neighbourhood. To obviate this mischief, the Duke of Breezeven has caused to be erected at his works at Wanlock, in Dumfriesshire, a large condensor, in which the deleterious vapours are collected. His Grace has exhibited a model of his furnaces and of the products obtained at his works.

nacce and or the products obtained at his works.
The condenar, constructed about 100 yards from the smelling furnacce, consists of a solidly-huilt rectangular hock of masonry, about 20 feet high. It is divided by a partition into two chambers, the first of which hy a partition into two chambers, the first of which the condensity chamber, receives the funnes from the furnaces directly through a large pipe; while the second, called the exhausting chamber, communicates with

a very lofty chimney constructed in the form of a tower, The condensing chamber is itself divided into two distinct compartments by a pair of vertical walls placed only two feet from each other, and forming a kind of flat pipe, open at the top, of the whole width of the chamber, and constantly receiving water falling in drops like rain. The water is thus broken into rain by passing through a filter of pounded coal placed in the upper part of the flat pipe at a height of six feet. Four horizontal partitions, or floors, divide the condensing chamber into five compartments, each six feet high, the last exactly corresponding to a bed of coal which forms a filter for the smoke, as the one already described does for the water. The smoke, at its entranec into the condensing chamber, is obliged, in order to reach the exhausting chamber, to pass oninged, in order to reach the exhausting channer, to pass in zig-zags across the five compartments, and then go through the bed of coal. The opening which conducts the smoke from the exhausting chamber into the chimney is placed in its lower part, so that the smoke has to pass through the whole of the exhausting chamber before eaching it, and in its course it needs an abundant shower of rain, which sweeps down all the insoluble portions which

are deposited along the walls of the exhausting chamber.
To obtain this shower in a regular and mi form manner. the following contrivance has been adopted in the upper part of the chamber. The top is covered with a large part of the channet. The top is covered with a large iron lid, having twelve grooves about an inch wide, giving it the appearance of a gridiron. On this lid is a slide, having openings of the same size, and moving upon it so as to open or close the grooves in the lid, and a current of water being conducted from the upper part of the chamber, falls at intervals through the openings, and produces a copious shower in the empty chamber.

The atmospherie pressure acts on each movement of the slide with a force resembling that of the librat of an iron firmace, and produces an action sufficiently powerful to mix the impure vapours with the water, so that the smoke at length passes into the atmosphere deprived of its injurious properties. The saturated water proceeding from these chambers is afterwards conducted into a reservoir, where it deposits the particles of lead salts that the fumes had carried off.

MODELS OF THE FURNACES, &c., OF THE EBBW VALE

COMPANY, (412, p. 149,) This Company makes use of the gases escaping from the smelting furnaces to supply a steam-engine, and has exhibited a model (on the scale of an inch to the foot) of a part of their establishment, consisting of two furness. The gases coveryed from their furness between six and other parts of the part

Model of a Contrivance for Opening and Shutting the Ventilating Doors of Mines by means of a system of Levers. (418, p. 150.)

Mr. Bousary Mitae has laterduced into the coal mine of Yoxhole, now Swansea, an arrangement of levers by which the doors connected with the vocalitation of the waggess through them. During 22 years that this method has been it use, there has not been a tingle explosion that have been to been a tingle explosion arrangement provides against the negligence of workness, causes good ventilation by keeping the doors regularly mining, have awarded a Prize Modal to this cabilities.

SAFETT FUSE FOR MININO PURPOSES. (423, p. 150.)
The safety fuses here exhibited by Musers. BUCKFORM.
The safety fuses here exhibited by Musers. BUCKFORM.
SHITH, and DAVIT, consist for small thread of fine gunpowder twisted into the middle of a rope, if which the strands have been separately larred, the whole rope being afterwards also turred. The different kinds of safety fuse vary according to the coating employed to enable them to

resist the pressure of water.

Safety fines, invested 15 or 16 years ago, have since
then been of great service, not only on account of the accidents they have prevented, that by the facility with which
they allow of stots being fired in mines, under water, and
in ite., They are lighted in the usual way, and communite
ite., They are lighted in the usual way, and communite
ite., They are not injured by exposure to
we, and effect a sarring in the quantity of powder required.
APPARATYS FOR CRISICISM OF THE DIRECTION OF ROTATION
ARCHITECTURE OF THE STATE OF TH

The model of stamping machinery applied to crushing copper and tin oces in Coruwall exhibits a peculiar method for reversing the direction of rotation, the invention of Mr. R. Hosking, to whom the Jury has adjudged a Prize Medal.

Onelisks of Coal and Building Stone, &c. (430, pp. 459-461.)

The carboniferous system in Wales contains a very compact fune-grained grit, which furnishes an extremely solid fecentors, resisting the action of fire. The Abercara and Gwythen Collisires Company has exhibited an obeliak of this stone (Abercara), having the faces differently worked, in order to show the grain of the stone and the manner in which it may be cut. The same exhibitors send also the different varieties of

ceals from their locality, and the tools used in quarrying the Abercara stocks as well as a description of the methods adopted by them in deepening the shafts of misses. Several of the tods are of most alway, and none apopure to be well adapted for use. The mede of deepening shafts has also that the special of the state of the shaft of the state that operation. This double reason has induced them to ward a Prize Medal to Mr. Farkstern Rockers, who represents the Ausencean ASO GWITTIS COMPANY. SEXMARTON OF WOLKEN FROM THE ORDING OF The IN THE PREVALENTS OF THE STATE, (485, p. 172.)

THE PREFABRATION OF TIX ORES. (485, p. 172.)
Mr. Romera Oxland, of Plymouth, who has invented
this method of separating wolfram from the oxide of tin,
has exhibiting a complete collection illustrating the successive operations of which it consists.

Wolfram having a specific gravity of 7 to 7:5, and

therefore but little greater than oxide of tin, which is about 65, it is wellnigh impossible to separate the two minerals by washing, and all that can be done by the usual modes of mechanical preparation of tin ores is to bring them to a state in which they are mixed with wolfram out.

After determining by mustysis the proportion they contain, a sufficient quantity of sulphate of soda is added to ensure an excess of soda relatively to the tangetic acid, and the whole is then maked with charced dust to deconsize the solid properties of the solid properties of sulphine. The mixture is placed in a reverberatory furnace, of which the bels in of cast iron, and is first exposed to a smally or reducing fusure; but afterwards doing flame.

The subplace of sold heige transferred into subplace to the transparent of son the contract the real terms and the contract the real terms and the contract of a very flar powder. The transpare of sods is after of a very flar powder. The transpare of sods is after sold of the contract o

Collection illustrating the Manufacture of Lead, (494, p. 173.)

Mr. Jossuz Byran, proprietor of a lead mine in the county of Durham, worked by himself, has exhibited a series of his products, which tocludes the lead ores as abtained from the Grass-hill Mine, the ores prepared for smelting, the lead in pig, sheet lead, and lead piping. There is also a cake or button of silver, and the different qualities of lithrage obtained during expellation.

quanties of simple obtained during cipetation.

The slags which accompany the common and refined lead illustrate the successive conditions through which the ore has to pass in obtaining the various merchantable commodities.

Collection illustrating the Iron Trade. (411, pp. 148, 149.)

Mesra, W. Bran and Co. exhibit an extensive collection of specimens of iron, illustrating the makes of different localities, from the lowest-priced, "pig." naunfaction of the control of the "cold-blat." Also specimens of these severally decarbenized into-related metal, and manufactured into the smith of the control of the control of the control and Sevaluad. The several stage of the manufacture are illustrated by exhibits of railroad bars, baller-plate, shrincashie, implates, serne-plates, boller-tubes, wire, &c. ex-mullifaction of the extent and viette of the iron masses.

emplification of the extent and variety of the iron manufacture of Great Britain, the descriptions exhibited being those of the sorts in every-day demand for bone consumption and fir export. It represents an annual make of not less than 500,000 tons.

of not less than 500,000 tons.

Forming part of the collection are two articles deserving

of special usides:—the one a round bar of irea, rolled at the works of John Baganil and Sons, of West Horowich, 20 feet 1 inch long, 7 inches in diameter, and weighing 20 feet 1 inch long, 7 inches in diameter, and weighter 10 feet inch long, 7 inches in diameter, and weighter 10 feet inches inches inches in the property of the the works of Selhy and Johns, of Sauchiwick. The Jury award a Priza Media to Mears. We Bars and Co. for their well-arranged and extensive collection, and to Mears, respectivity, for the excellence of their productions.

Specimens of Sheet Iron coated with Tin, Zinc with Lead, &c., by the Galvanic Process. (436, p. 161.)

These specimens, exhibited by Musers. Monewood and

ROGERS* (patentees), are good illustrations of the process peculiarly employed in their manufacture. The Jury being satisfied that the objects exhibited are of fine quality, and that some of them are difficult of execution, especially the sheets of galvanized tin-plate, which are of unusual size, measuring 8 feet by 3, have awarded them a Medal.

SPECIMENS OF RARE METALS AND METALLIC COMPOUNDS. (477, p. 166,)

Messrs, Johnson and Martiney, chemical manufacturers, have exhibited a complete collection illustrating the manufacture of platinum; consisting of erueibles, eap-sules, and a large pan of that metal. But that which has chiefly interested the Jury, and has induced them to grant a Prize Medal to these exhibitors, is the series of products, including palladium, iridium, rhodium, and nranium,

SHEFFIELD STEEL

The steel of Sheffield has long enjoyed an European reputation. Almost every country is a tributary to its works; and nutwithstanding that manufactures of steel works; and notwithstanding that manufactures of steft have risen up in different parts of the Continent within the last twenty years, Sheffield has not ceased to develop its beautiful industry. Six firms have sent contributions to the Crystal Palace, and the Jury, after having made a careful examination, have decided to give a Medal to each of them ; and notwithstanding that two have sent a more numerous and more neatly-arranged collection thon the others, they are thus all placed on the same footing. These respective firms are

JOHNSON, CAMMELL, and Co. of the Cyclop Steel Works (XXII., 109, p. 605.) Cornen, S., and Son, Porter Steel Works. (XXII., 115,

p. 606.) Tuston and Sons (xxii., 190, p. 614), and

Evar, Wann, and Co., † (xxxt., 203, p. 615). The objects exhibited by these two firms represent the

same manufactures. me manumentes.

Butches, W. and S. (xxii., 192, p. 614.)

Navios, Vickess, and Co. (xxii., 199, p. 615.)

These different manufacturers have exhibited various samples of steel in ingot and bar, and adapted for all pur-

Two manufacturers, Messrs, Johnson, Cammell, and Co., and Messrs, Naylor and Co. (p. 605), have also exhi-hited models of their works. That of Messrs, Johnson is rather a general plan than a true model, but Messra Naylor (p. 615) have forwarded a model complete in all the furnaces, on a senle of an inch to a foot. It is finished with much care; the furnaces are so contrived that they can be opened, thus showing their internal arrangement as well as their external furm. The works of Messrs, Naylor with 90 "holes," or 180 erueihles. They employ 150 workmen, and produce annually 2,300 tons of steel. This

is about a sixteenth part of the whole quantity of steel made in Sheffield, which may be taken at 35,000 tons, of which 18,000 are cast steel, Besides the instruction which the study of Messrs Navior's model is calculated to afford, the exhibition of their products is remarkable for an arrangement which admits uf the different processes of steel making, from the cementation to the final production of hars for sale, being

We must also mention, as amongst the objects exhibited hy Sheffield, two ingots of steel which may bear comparison in size with the fine specimens exhibited by M. KRUPP, of Dusseldorf (649, p. 1086). One of these, from the esta-hlishment of Messrs, Cocker and Son (115, p. 606), weighs 6 cwt, 3 qps. 18 lbs. The other, called the monster ingot, financiar of seesaw, Cower, and con (110, p. 100), angu-feewt. 3 qps. 18 lbs. The other, called the monster ingot, weighs 2,688 lbs. It is 5 ft. 11 in, long, and nearly 14 in, in diameter, and was manufactured at Messrs. Turton's works, (190, p. 614.)

esamined.

* These Exhibitors receive a Moial Io Class XXII., in To recider this collection more interestion, and really a summer Award List their names are inserted—I, W. In Superior Moial of the Class XXII. in Janv of Class XXII., in Janv of Class XXII., in Janv of Class XXII., to whose List their names are inserted—I. W. In Janv of Class XXII., to whose List their names appear.

MANUFACTURE OF PEG AND BAR-IRON. LOW MOOR IRON Wurks (XXII., 85, p. 601), AND Howeling Iron Com-PANY. (XXII., 83, p. 600.)

[CLASS I.

The Jury has awarded a Medal to each of the establishments mentioned above, which have both exhibited their products, consisting of ores of iron, pig-iron, sings, coal, and bar-iron of different kinds, most uf the specimens of the latter being bent and twisted, illustrative of the uses to which they may be applied, and of their respective

Although the Jury have placed these fine establishments together, it is only right to say that the exhibition of the Low Moor Works belonging to Mossrs, Hird, Dawson, and Hardy (p. 601), is the more complete of the two. They have added to the raw materials and the iron, seeral objects manufactured in cast iron, especially a gun of very large calibre, solid and other shut, and cylinders or erushing rollers used in sugar mills.

GALVANISED IRON AND COPPER WIRE ROPES. (XXII.,

30, p. 595.)
Nessrs. Wilking and Weatherly bave exhibited various samples of their manufacture of metal ropes and eables made according to Mr. Smith's patent. The Jury have recognised the excellent workmanship of these cables by awarding a Prize Medal to the manufacturer.

COAL TRADE OF NORTHUMBERLAND AND DURBAN.

(273, pp. 146, 147.) The COMMITTEE of the Coul Trade of Newcastle-on-Type has exhibited several jostructive documents on the geology of their district and the methods adopted in work-

ing the mines. These include 1. A map of the coal field of Durham and North-umberland, on which are marked the position of

each shaft, the railways connected with each, the faults and other remarkable accidents which have disturbed or removed the beds. 2. Two sections of the field, one from north to

south and the other from east to west, showing the 3. A synopsis affording explanatory details of the man and sections.

4. A model, or relief plan of one of the principal mines in Northumberland, in which the mode of working and ventilating the mines of the district is indicated in detail. 5. Safety lamps used in the Darham and Northum-

berlaud mines, and models of apparatus employed in raising the coal to the pit mouth, and conveying it to the place of embarkation.

 Lastly, a complete collection illustrating the coal formation, including all the varieties of esal found in this important field, the rock associated with them, and specimens of the vegetable markings. We have noticed in this splendid collection, containing 36 well-marked specimens of Ulodendron mains and Uledendron misses, fossils extremely rare in many coal fields

This eollection affords, therefore, a most useful series for instruction, by completely illustrating the most im-portant coal field of England, which gives employment to 26,000 workmen, and annually supplies about eight millions of tons of coal.

COLLECTION OF LEAD ORES AND LEAD MANUFACTURE. (484, pp. 168-172.)

Mr. Thomas Sorwith, F.R.S., has exhibited a complete series illustrating the production of lead, consisting of ores from several mines in the north of England, and specimens showing the different mechanical preparations and smelting processes for obtaining merchantable lead, These specimens are placed to eases with the products obtained, so as to show at a single glance everything belonging to the establishment.

e Allenheads mine in Northumberland, and of Alston Moor in Cumberland, while the faults and disturbances of the beds in the districts where these mines exist are represented in models which Mr. Sopwith has had made after a method invented by himself. The collection includes

1. Sections of the strata at Allenbeads and Alston Moor

2. Models to illustrate mineral veins, &c. 3. Minerals associated with lead ores

4. Examples of the various stages of progress from the mine to the market. 5. Lead and silver prepared for sale.

This interesting collection illustrates almost completely the lead veins of the north of England; and if similar colections existed of the copper and tin mines, these, with Mr. Blackwell's (p. 150) fine collection of iron ores, would form a complete series illustrating the chief metal-

would furm a complete series illustrating the chief metal-liferous districts of England. This collection is highly interesting for the purposes of instruction, and the Jury have awarded a Prise Medal to Mr. Sorwith. HONOURABLE MENTIONS

GRINDSTONES FROM THE ARDSLEY OAKS QUARRY, NEAR BARNSLEY. (Outside, 22, p. 115.)

These grindstones, exhibited by Mr. James Haywoon, which are of excellent quality, are chiefly in ose in Laneashire and Yorkshire, where they are employed in cutting certain parts of machines, and in grinding and mend-ing tools. The sandstone of the quarries also furnishes a good huilding material.

BLOCKS OF COAL, ETC.

We mention here, together, the columns and blocks of coal placed outside the Exhibition Building along the South Side of the Western End, and numbered 34, 41,

47, and 48, namely:-No. 34, exhibited by Mr. EDWARD OARELEY (p. 115),
from the Coed Talon Mines, near Mold in Flintshire, North Wales No. 41, exhibited by Mr. RICHARD BARROW (p. 116), of

Staveley Works, near Chesterfield, Derbyshire. blook of coal of which the weight is estimated at 24 tous, was extracted from a depth of 454 feet. No. 47 is a block of coal from the Brymbo Mines, near

Wrexham, North Wales, and is exhibited by the Bayano CONTANY, working the mines No. 48 is a column intended to give a complete section

of the thick coal of the Barnsley Mines. The different nature of the coals is here indicated, especially those for steam engines, mannfactures, and domestic use. This column, which is from the Elsicot Colliery, is exhibited by the EARL FITZWILLIAM. COLLECTION OF MINERALOGICAL SPECIMENS AND FORSILE

FOR EDUCATIONAL PURPOSES. (14.)

Mr. J. TENNANT has exhibited one tolerably complete collection of minerals, and several smaller collections, to promute the study of mineralogy in colleges, and for general educational purposes. The principal collection con-tains rather a large number of specimens remarkable for their fine state of preservation, and for the distinctness of the crystals, and is earefully arranged and catalogued. The small collections offer on a smaller scale the common minerals, and those of which the knowledge is most useful for the study of geology, and its application to agriculture.

NATURAL AND ARTIFICIAL CRYSTALS OF SULPHUR, AND THE EXTRACTION OF SULPHUR FROM ITS ORES. (23, p. 122.)

Mr. Samuel Highley, jun., has exhibited a series of specimeus of native sulphur, and the ores (such as pyes) from which this substance is generally obtained. He has added the different products obtained in the pre-paration of salphar, and also some crystals of sulphur, produced artificially in the following ways:— 1. By fusion

2. From solution in hisulphide of earbon. From solution in camphine at various temper-atures from 170° to 280° Fahr.

4. From sulpho-pentachloride of phosphorus.

These crystals, which correspond to the two forms ohtained by M. Mitscherlich, possess a true scientific interest. COLLECTION OF GEMS. (24, pp. 122, 123.)

The owner of this magnificent collection, Mr. H. F. TRISTLETHWATTE, has chiefly had in view in its formation to exhibit the great variety of colours presented by each kind of eem, and the close resemblance of tint found in stones of very different kinds, as in corondom, aircon,

and spinette. The cut gens, to the number of upwards of 200, are accompanied by some crystals. We may mention particularly those of the diamond, which present a great variety of forms, and furnish very interesting materials for study to the mineralogist. PHOSPHATE OF LIME, AS EMPLOYED FOR THE IMPROVE-

MENT OF SOILS. (36, pp. 124, 125; 46, p. 125.)

It is now twenty years since there were discovered in the marks of the line and in the lower beds of the cretaceous series, nodules of phosphate of lime due in great part to coprolites. These nodules are tolerably plentiful in the gault of Surrey, and it has been attempted to make use of them both in the production of phosphorus, of which a large quantity is now consumed, and for agricultural purposes. It appears that the large proportion of bone phosphate which they contain, reaching some-times to 70 per cent., produces a valuable manure. At the same time, there are no sufficient data at present with regard to the cost of this substance, which requires to be reduced to a fine powder in order to mix uniformly with the tillage soil, to enable us to determine whether it can be regarded as an available source of improvement.* Experiments on a sufficiently large scala have been undertaken within the last two or three years, and the Jury, wishing to hasten the solution of this important question have made Honourable Mention of the following exhi-

1. Mr. John M. Paine, of Farnham (36, p. 124), who has exhibited a varied collection of nodules containing phosphate of lime from the county of Surrey, and samples of the same substance prepared for the market, 2. Mr. J. C. Nassur, of Kenaington (46, p. 125), whn has exhibited the phosphate in powder as used for

manuro STOURBRIDGE CLAY. (91, pp. 130, 131.)

The Stourbridge clay, obtained from the coal measures is one of the most refractory clays known, and if has long been employed almost alone in the manufacture of bricks used for lining smelting furnaces. For some years past similar clays have been found in several of the Eaglish coal-fields, and Mr. Logan, who has made a special study of the coal measures, has observed, that the beds in contact with the coal, and especially those designated black bond, gene-ally yield refractory clays. That of Stourhridge has thus lost part of its importance, but the facility with which

it is worked makes it still very much sought after.

Messrs, King and Co. (p. 130) have exhibited sperimens
of the raw clay, bricks, and different objects manufactured of the clay, and a model of a glass-house, the interior of which is constructed of refractory bricks

PORCELAIN AND POTTERY CLAYS FROM THE MOBILEY WORKS, PLYMPTON, DEVONSHIRE. (101, p. 131.) These clays, exhibited by Mr. W. PHILLIPS, are obtained from a large deposit recently opened on an extensive scale a few nules from Plymonth, and in the southern extremity of Darimoor. The granite of Darimoor is in some places decomposing, and the china clay has been obtained, as in Cornwall, from a natural process of wash-

 Phosphatic nodules are found mixed up with fossil bones in Norfolk and Suffolk, in large beds irregularly dis-tributed in the Red Crag, one of the lowermost beds of the upper tertiaries. They contain, on an average, about 55 per cent, of phosphate of lime, and are sold at the rate of per cent, or prospinate or lame, and are soon at the last of 25x to 30x, per ton, being used extensively in the manufacture of artificial manures. In the lower greensand of Surrey they are also met with, but their occurrence is neither in such large quantities, nor do they contain so neither in such large quantities, nor do they contain so regular a quantity of phosphate, which, consequently, render them of less commercial importance. ing. The quality is extremely good; and there are exhihited with the raw material numerous objects in porcelain manufactured of it in Staffordshire.

SAND EMPLOYED IN THE MANUFACTURE OF GLASS. (125, p. 133.)

The greenand formulon at Stone, mera Ayleshury, emnian a tolerably thick deposit of foous sand, in the middle of which is a hed remarkable for its whiteness, it is compared of transparent quarts and almost pare, of crown and flist glass. Dr. Lee (125, p. 133; the prepieter of the pits, has exhibited specimens of the sand, besides prima and two spheres of finit glass, in which when the prima and two spheres of finit glass, in which are prima and two spheres of finit glass, in which are prima and two spheres of finit glass, in which are prima and two spheres of finit glass, in which are prima and the prima and

Collection of Oaks of Tin and Copper. (468, 469, 473, pp. 165, 166.)

The Local Committees of Tauno, St. Australi, and Swanner, have exhibited specimens of tin and copper ore from the principal Cornish mines, and have rendered the collections more complete by including the products obtained by the mechanical preparation and fusion of the

The study of these collections will give an idea of all the operations which the ores of tin and copper undergo, from the time when they are detached by the miner from the parent rock to their actual metallurgical treatment. They thus afford considerable instruction to the student, and this has induced the Jury to grant them severally Honourable Mestion.

In the first of these collections there may be observed an interesting nilyer, consisting of an ingot of tin found by Mr. J. N. Simmons in the nines of Ladock, near Truro. Its presence in the old and abundanced works have suggested the probability that this tin was cast by the Phenicians at the time when they carried on a commercial intercounce with Coruwall.

SPECIMENS OF LEAD ONE FROM SNAILBATCH, NEAR SHREWARLEST. (495, p. 173.)

We have given in the commencement of this Report (aste, p. 6) some details concerning the magnificent specimen natural from these mines, and exhibited by Mesars. Throws, William, and Grosars Benn. We may add that its weight is no less than twelve bundredweight.

ORES OF ZINC FROM ALSTON MOOR, CUMBERLAND. (506, p. 175.)

Mr. John Gart has exhibited a series of ores of zine from Alston Moor, including specimens of several varieties of calamine and blende. He has added samples of sheet sine abstained by the treatment of these ores. The Jury has granted an Honourable Mention to Mr. Grey, on account of the good quality of the zine, and some improvements in the method of obtaining it.

PATENT FUEL COMPANY. (230, p. 143,)

The patented invention known as "Warish's Patent Feel" has fer its object the manufacture of bricks made with coal-dast, and thus affords the means of readering resultable amental which is otherwise of every little value. As of the patent is the patent of the patent in the patent i

Model of a Coal-Mine, worked by the Hetton Company at Newcastle. (431, p. 161.)

Mr. J. Water, of Newcastle, have a likely a model, on the scale of an ine's to a flow, of the thickness placed above ground connected with one of the pits worked by the above Company, consisting af the steam-engine with its boilers, the lifting apparatus, the waggons for conveying the coal, &c. The arrangements for bonding the coal are also represented with accuracy. All parts of this manner of the conveying the coal, &c. The arrangements for bonding the coal are also represented with accuracy. All parts of this model are also the ropes, are accusted with much fidelity and care and the conveying the coal and the conveying the coal and the conveying the coal and the coal an

MECHANICAL PREPARATION OF THE VERY POOR ORES OF COPPER, CALLED "HALVANS." (434, p. 161.)

Mr. BICKLAM TAXION, Director of the Tyward-sake mines in Corwayd, belonging to HLRIL the Prince of Wales, has introduced important modifications in the three of the control of the control of the control of the three control of the control of the control of the control have rendered available certain ores hitherto regarded as worthless, and have even obtained from them a considernation of the control of the control of the control of the worthless and have even obtained from them a conoring the control of the control of the control of the model of this mode of preparation, executed with much control of the medium of the control of the control of the control of the medium of the control of the control

It would be almost impossible without a plan to explain the details of an operation so complicated as the mechani-cal preparation of copper ores. We shall give a mere sketch. The ore, after being picked by the hand, is submitted to a crushing mill, different in some respects from that generally made use of. It is then arranged in sizes, and washed on a very long table, where, in a series of sieves shaken by an oscillatory movement, a kind of horizontal broom turning on an axis lightly sweeps the surface of the ore, and removes the finer parts which are at the surface. The netion of this broom united with that of the water, completes the cleansing of the ore; and this apparatus, which the Reporter had not before seen in any mining establishment, has a useful effect, and constitutes a marked improvement in the washing of copper ores. Mr. R. Taylor being a member of the Jury, cannot receive a Medal, as has been stated in the commencement of this Report, but the Jury bave thought it right to make a special mention of his contrivance

APPARATUS FOR ADAPTING THE PISTONS OF PUMPS IN MINES. (462, p. 165.)

Mr. J. Arriva's has remarked, the other in nines the pumps do their produced all the effect regired, in consequence of the warring out of the pistons, thus consists, and the warring out of the pistons, thus consists reviewed, the has proposed as arrangement with that for to object to force the instate framitive of the pistons or the object on the pistons of the object of object of the object

PRODUCTION OF PIO AND BAR ISON AND STEEL. We insert under this title the Hononrable Mention granted by the Jury to six establishments which are similarly circumstanced, and of which the products, all

of excellent quality, are the result of ordinary methods. These are—
The BUTTERLEY IRON COMPANY, of Alfreton, Derbyshire (400, p. 147).

Cautwell, Allies, and Co., Blaina Iron Works, Abergavenny (402, p. 147).

Solly and Co., Sealrook Iron and Steel Works, Tipton,

Staffordshire (410, p. 148).
WINGERWORTH IRON COMPANY, Derbyshire (416, p. 150).
MONELAND IRON and STEEL COMPANY, Lanarkshire

(426, p. 150).

BEECROFT, BUTLER, and Co., of Leeds (415, pp. 149,

These establishments have combined with their products, consisting of pig iron, iron, and steel of different qualities and various samples, the raw underials which they employ, as the ores of iron, coal, and flux.

The series of products exhibited by the Butterley and Monkland Works are more complete than the rest. The proprietors of the former have added a considerable num-ber of fossil remains of plants from the coal-field to their collection, taking care to specify the different beds in which they are most frequently found.

CWM AVON WORKS, GLAMORGANSHIRE. (417, p. 150,) Mr. JOHN BIDDULPH, manager of these works, has

exhibited a series of specimeus of pig and bar iron and tin-plate, which are of excellent workmanship. The tinplate has specially attracted the attention of the Jury by the evenous of the tin coating, its lustre, and the quality of the sheet-iron which forms the basis, IRON AND TIN-PLATE OF CARMARTHENSHIPS, (500, p. 174,)

Messrs, PHILLIPS, SHITH, and Co., of Llanelly, have exhibited a collection of tin plate, remarkable for the branty of its manufacture. It is accompanied by sheet iron manufactured with wood fuel, and especially intended for this purpose.

COLLECTION OF ALLOYS. (487, p. 172.) Mr. C. Jonnan, of Manchester, has exhibited a series of several metals, and the alloys that may be obtained by mixing them, vis., gold, silver, platinum, nickel, lead, copper, tin, zine, bismuth, antimony, arsenie, cobalt, man-ganese, iridinm, cadmium, and pulladium. Each of these metals and its alloys is represented by a small hutton with polished faces, and even by broken specimens, to show the lustre and texture. For scientific and industrial pur-poses, this collection offers much interest. A notice accompanying the collection states the ex-

osition of the different alloys made by Mr. Jordan, and the temperatures at which they are obtained,

REDUCTION OF ARSENIC. (488, p. 173.) The ores of tin are mixed with rather a large pr tion of arsenical pyrites. The arsenic is separated by a preparatory roasting, and deposited in the state of white exide in the condensing chamber above the furnace. T. GARLAND, of Redruth, who has devoted himself to the manufacture of arsenie, has exhibited a series of specimens of his products. He has arranged them in such a way as to show the different processes employed for obtaining the pure oxide and metallic arsenie.

GEOLOGICAL COLLECTION OF THE BRISTOL BASIN. (29, p. 123.)

The Bristol basin offers examples of all the geological formations from the upper colite to the lower paleozoic deposits belonging to the Silurian system. To give a real interest to his collection, Mr. T. Howard has accompanied it with a detailed geological map of the district, and with sections which show the position of the different

beds and their relations with each other, Ores of iron, zinc, and lead, and specimens of coal, complete this interesting collection; they are arranged according to the formation, so as to present the useful minerals peculiar to each geological group,

SECTIONS OF THE SCOTCH COAL-FIELDS. (220, p. 142.) Mr. D. LANDALE has exhibited four sections of the Scotch coal-fields of Ayrshire, Lanarkshire, Mid-Lothian, and Fifeshire, respectively. These sections are not the result of direct observations, but they have been constructed by comparison of the different mines or natural sections observed along the coast, or in the numerous sections observed along the coast, or in the summons escarpments always existing in mountainous countries. According to Mr. Landale's observations, the Mid-Lothian coal-field, in which Edinhargh is situated, contains 36 seams of coal, and the Fifeshire field 37.

These sections are the most complete that are known of the district. They illustrate the whole ceal basin of Scotland, one of the largest and richest found in the British islands. They possess, therefore, much interest for the geological study of Scotland, and may in certain cases be referred to as affording a useful guide in working the coal.

We may state here once more that Ordinary Mention or a special notice, has been given for productions of

good workmanship, but which have not attracted the attention of the Jury by any nequestionable superiority or novel process of manufacture.

However, not to lengthen out this Report unnecessarily, we shall simply mention the objects thus noticed: BLOCK OF SERPENTINE (p. 113), from the Lizard Rock, Cornwall, Exhibit (Outside, West, 1), Exhibited by Mr. Junn Ongan, of Penzance

SLATER (p. 114). Exhibited by the OLD DELABOLE SLATE COMPANY (Outside, 8), and by Mr. T. STIBLING, jun., of Lambeth (Outside, 9). jun., of Lambern Contoure, 2).

Specimen of Anthracitz (pp. 115, 116), weighing several hundred weights, from Cwmllya-fell in the Swansen Valley, South Wales. Exhibited by Messrs, James and

Acmusy (Outside, 37). Specimens of Anthracttic Coal (p. 147), from Gwendracth, Lianelly, South Wales. Exhibited by A. WATNEY

(p. 276). This coal is estitled to notice, from the fact of its being the coal selected for the use of the boilers in the Machinery Department of the Exhibition.

Marniles of Ireland. Exhibited by Mr. P. L. Frank-

LIN (Outside, 28, p. 115), and Mr. MANDERSON (148, p. 136).

Taissi Stones employed in decorative sculpture. Con-nicus and other objects manufactured of them. Exhi-hited by Mr. J. C. E. Lono (78, p. 129). Punners Mannie, from the Woodyhide Quarries, used in decorative architecture. Exhibited by Mr. J. Voss

(135, p. 135).
Collection of BUILDING MATERIALS, from the county of Scher (152, p. 136).
PORPHYNY, described as ELVAN STONE, from the arries of New Quay, in Cornwall. Exhibited by Mr. JOHN NICHOLLS (162, p. 137).

Very fine EMERALDS, in the veinstone. From the Muso Mine, in New Granada. Exhibited by Mr. J. Nelson BONITTO (4, p. 120). Collection of Ores of Copper, Lead, and Argen-Therway Lead, from various mines in Pertheshiae, Exhibited by the Marquis of Breadalbane (7, p. 120).

The specimens from the Tyudrum Mines are remarkable for their large size, and for the beauty of the crystals of galeus, which form the principal mass. The Marquis of Breadalbune, the owner of these mines, has added to the ores, specimens containing rocks and various minerals that accompany them. This interesting collection offers, therefore, an almost complete history of the lend and copper veins of Perthshire. pecimens of JET from WHITBY, in YORKSHIRE (11.

p. 121).

The jet of Whithy, specimens of which are exhibited by Messrs. SLATER and WRIGHT, forms part of a thick bed of lignite found there in the upper lias morts. It differs in this respect essentially from the jet worked in France and Spain, which is found in irregular veins in the lower marls of the cretaceous series corresponding with the gunlt of Sussex,

Collection from the Salt Mines of Chesaure, with the products, as purified. Exhibited by Mr. W. Wontming-TON, of Northwich (57, p. 127).

Collection of different kinds of Soria, from the neigh

bonrisod of Newbury, in Berkshire (60, p. 127). The town of Newbury is situated in a basin of lower tertiary beds reposing directly on the chalk. The nature tertiary betas repossing directly on the chair. The nature of the soil is greatly varied by the mixture of London clay, plastic clay, and sand, associated together. The collection, exhibited by Mr. J. W. Roaks, possesses an agricultural importance which is recognized by the Jury. Collection of Saxbas from Conswala, employed for building or agricultural purposes. Exhibited by Cuptain Rouse and N. Whitler, Esq., of Truro (79, p. 130). Fine and coarse Pottery Clay, from the Isle of

Persecution to the control of the co high celebrity, which the Great Exhibition has brought into yet more prominent notice. A plastic clay is used in the manufacture, which forms thick beds in the small peninsula called Purbeck Island; Messrs, W. and J. Pikk, the proprietors and workers of these pits, have exhibited samples of different qualities of the clays, especially those adapted for fine carthenware, stone ware, and drainage

pipes.
Carcunius for metallurgic purposes (118, p. 133), exhibited by S. Asstrey.

These erucibles are employed by copper and brassfounders. Long experience has proved their excellence of mannfacture, and the quality of the clay of which they are made.

MATERIALS used in the mannfacture of POTERN and

GLASS, from the county of Coars, INELAND (12), p. 153),
Mr. J. DESSINO, Of Middleton, has exhibited a collection of clays from the Rostellas pits, of which he is the
porprietor. These clays are employed, according to their
quality, in the manufacture of porcelain, fine pottery, and
term cotta. Other materials found in the same place are
much used in the manufacture of glass.

nach ased in the mannfacture of glass. Buttish Colonies and Dependencies.

The East India Company has exhibited a collection of minerals and rocks, consisting of about 450 specimens, most of them belonging to erystalline formations.

We have, however, noticed amongst these marbles, which have every appearance of being of the palecozoic age, some specimens of tertiary rocks: there also exists coal of good quality.

It is to be regreted that the labels accompanying these specimens contain no information as to their relative position, while the muses of the localities are fur the that great difficulties are in the way although the conmake out their geographical locality. It would be very make out their geographical locality. It would be very arrangement of this collection to some one who knows the spots where the specimens were collected, as it would hen become of "prest value for the study" of the geology

With the exception of the tin ores of Malacca, and some sulphurets of antimony, and several specimens of ochre, also from Malacca, the various mineral products of India are not even indicated in the Official Cotalogue; but the Jury have satisfied themselves that the collection contains several objects of much interest. They have noticed especially the iron and steel of Salem, a district in the presidency of Madras, whence a carefully-selected series has been seut, including not only the ores, but the roducts obtained in the various stages of manufacture. The Jury have awarded a Prize Medal to the Indian Inon and STEEL COMPANY (pp. 860-869), for this collec-tion, and have also awarded to the Honoranne East INDIA COMPANY (pp. 868, 869) Honourable Mentions for tin working (Singapore Committee), for specimens of conl, and for the treatment of antimony, the latter process being represented by specimens of the sulphuret of autimony, and of the antimony in the metallic state.

The collection that illustrates the methods of iron and steel working shows that two distinct operations are involved-the formation of blooms or lumps weighing at most 22 lbs., and the refining, or rather forging, these into flat bars from ten inches to a foot long. This iron is nlways steel-like, some bars being truc steel. The work resembles that of the Catalonian forges, except that it is on so small a scale, and the process might be partly understood by considering the size of the blooms; but additional proof is obtained as to this mode of working, since we find in the Indian Collection a series of models executed in the country, of a considerable number of industrial processes, amongst which is one of the forges of Salem. By looking at this model a sufficient idea may be obtained as to the nature of the iron manufacture. The forges appear to be temporary establishments,

The ergos appear on the employer, estimation and an another. The hearth, hollawed out at the bottom, is round, and may be about 18 to 20 inches in diameter; it is surrounded by a rim of each about aix inches high, in its arrounded by a rim of each about aix inches high, in the state of the contract of

bloom is obtained. Two hlacksmiths, with a man to work the bellows, complete the number of those employed in one of these little establishments, and the forging is done cutirely by hand. The ore, which is principally a metalloid form of the kind called oligist, is broken into small fragments, none of them larger than a walnut, and

few larger than a basel nut, before it is smelted.
The collection also includes buttons of cast-steel from 2 to 2½ inches in dismeter; this material being the Work. The collection is limited by the preparation of Damascus blades. There is nothing to show directly in what way they have been prepared, but it is impossible to doubt from their form that they have been obtained in small crucibles.

The specimens of tin ore are all water-worn pebbles, and it is therefore very probable that the mining operations in Malacea are confined to stream works. We may conclude that there are very extensive deposits of such nees in this part of India, since a large quantity of tin is

exported.
The coal exhibited is from four localities, which belong to two distinct deposits. One of there is situated south the coal to be a second of the coal to be a second of the coal to be a second of the coal to be seen exposing out in the valley of the Soon event, which empire itself into the Ganges a little above Patan the other is in the valley of Damosold, empiring itself which is of very good quality, is in cubical lumps about 18 inches a side; the other, exhibited by H. H. MARUNDO (p. 861), belongs to a bed fine fleet thick, the position of which in the coal measures will be understood by the

	n.	in.
Vegetable earth and alluvium	3	0
Sandstone	35	0
First bed of coal	- 0	9
Clay, with vegetable markings	1	6
Argillaceous schist and clay	- 4	6
Second bed of coal	1	2
Argillaceous schist, micaceous schistose		
sandstone, &c.	20	0
Third bed of cosl (worked)	4	0

Mr. Williams, who long occupied the post of geological surveyor to the East India Conspany, drew up a very interesting geological report on the valley of Dannoodah, in which some details of the carboniferous leasin of the valley are given. Of this deposit, which is likely soon to have an important influence on the industrial progress of India, we willingly give a short notice.

The coal basin of the valley of Damoodah is situated in longitude 82 kg, and in Intitute 22 kg. Ne Recommences a little west of the point where the Barkust flow on the property of the point where the Barkust flow to lespons adong the valley. Towards the north it reaches as far as the river Adjl, on whose banks the coal formation is seen outeropping for a distance of mywards at 25 miles. It is included between the town of Nagore other to the south of the valley of Damoodah.

The coal measures rest on crystalline and metamorphic rocks, coasting of disrite, guess, and mice schist. In the hills to the north on which the actual contact is seen, there are also aclose achists with tourmaine, and schistosochlorites with magnetic iron ore. Towards the east the beds are covered up by a ferruginous sand, which is an extension af the alluvium of the plains of the Ganges. Extensive researches have been made by the Bengal

Coal Company, and by Measrs, Enskine and Co. The latter have explored chiefly in the neighbourhood of Bucktennaggru and Mangulpore, and have made known the existence of five beds of coal having a total thickness of 22 feet, as seen in the following shaft-section of one of their pits:—

7. In.

Whitish and brown fine-grained sandsto	ae, c	000-			
posed of quartz, felspar, and mica			11	0	
Schistose micaceous sandstone			2	0	
First bedSlaty coal, called Top roal			6	0	

* The report alluded to was written in 1847, by Mr. Williams, and published by direction of the Bengal Government after his death, which took place in 1848. Black shale, very carbonaceous Second bed.—Coal of good quality. Best coal. Black shale with vegetable impressions Third bed of coal Black carbonaceous shale

hat they execute to be consistent or second under plate, but they execute to be consistent or second under plate, but they execute the plate of the besin, as the plate, spench allow whether Munimudopre and Dassal by the Dhala Company, have made known three other seams, one of which is 10 feet thick. But, more than this, a commission sent by the governeut to estimate the value of the Damocolah basis, with his reported that there is a total thickness of at least 54 feet of worksheld coal, via; ...

The island of Cartons (p. 937) is represented in the Exhibition by a collection of minerals obtained for the most part from erystalline rocks. We may mention particularly the crystals of quartz, corrudum, yanophane, aircon, tourmaline, and garret. There may also be noticed magnetic iron over, titaniferous iron over, such over (crystalline carbonate), and the ores of manganesee.

The island of Boxtox (p. 988) has sent for exhibition

coals from Lahuan on the north-western side, besides some specimens of sulphuret of antimony, and some pepites of

gold, and rolled diamonds.

The cast and west shores of AUTRALIA are not repersated in this Class, and the over of expept from South seasons and the control of the control of the control seasons are control of the control of the control of the seasons are control of the control of the control of the seasons are control of the control of the control of the seasons are control of the control of the control of the seasons are control of the control of a control of the control of the control of the control of a control of the control of the

Meers, Ganacs and Halasery is Australia 3, p. 2013.

While a similar read of over from the Brav-Burra mises, which have yielded \$\times\$, 450 to m. of our, revenging 0 to perfect the property of the propert

The copper ores from Australia are strictly analogous to those from the Oural; they occar in nodules disseminated in a slightly coherent sandstone or ochrey elay, and the surface of the nodules is studded over with crystals, the intercises between which are filled with clay or sand.

the surface of the nodales is studied over with crystals, the intervises between which are filled with clayor sand. Some of the nodales are of large stay; one of them in the Barra-Barra collection measuring §§ left by f feet inperfetal, with a thickness of 6 inches. In the specimen the nodal content of the same metal forming an attention and his exchanges of the same metal forming an attention conting; but the three minerals are not superimposed in more, the red calculation of the same metal legality in the cuttre, sending out shoots in every direction. A fittin antire copyer also occurs with the coldic.

The reporter has observed with some surprise prospants and chlaride of copper among the specimens exhibited by the Burra-Burra Company (3, p. 991). These cupricerons combinations, which are chiefly found in Corawall and Chili, usually ocour in veins, which suggest the query

as to whether there are in Australia both kis ds of copper ground, ar whether these specimens are accidentally mixed. The labels do not enable us to reply to this query, which is of some geological interest.

source of the control of colors of the control of t

appears to have been the subject of a serious geological study. Eight persons have exhibited ones which are the result of their explorations, and some of the ones are already the object to fpractical workings. We may particularly refer to the coal of Walkato, and the copper misses

of Kawaii.

The Jury have awarded an Ordinary Mention to the

different exhibitors whose names we proceed to quote in the order of the Catalogue. Haronkayus, Mr. J. (8, p. 1001). Lignite worked on the banks of the Tamski river, New Zealand, Judging

the banks of the Tamaki river, New Zealand, Judging from the specimens, this lignite exhibits a passage to cannel coal, and it is stated that the bed is 5 feet thick, GREENWOOD, Mr. W. (9, p. 1001). Coal and building stone; the last-named are referred to in the Catalogue as No. 17.

Connet, Mr. (10, p. 1001). This exhibitor represents the Auckland and Waikato Coal Company (of which he is secretary), who have exhibited specimens of coal from the Waikato mines.

TAYLOR, Mr. J. (11, p. 1001). Geological series from the copper mines of Kawaii. REEVE, Mr. J. (12, p. 1001). Specimens of enpriferous

RENES, Mr. J. (12, p. 1001). Specimens of capriferous pyrites and blue carbonate of copper, from the mines called Whitsker and Heale's near Kawaii. Lawas, Mr. T. (13, p. 1001). Specimens of copper ores

I Liwis, Mr. T. (13, p. 1001). Specimens of copper ores from the mines called Great Barriar Island Mines, situated 35 miles N. N.E. of Auckland.

Surru, Mr. J. A. (14, p. 1001). Specimens from Brothe's neopper mines, nitotated 100 miles north of Auckland. The same exhibitor has also shown sulphur from White Island, in Plant. Mey. and somehous of a service process instrument.

same exhibitor has also shown sulphur from White Island, in Plenty Hay; and samples of an argillaccous linestone, adapted for the masufacture of Roman cement (19, p. 1001).

MEZHANG, Mr. E. (18, p. 1001). Pumice-stone from the banks of the river Wakkato.

the banks of the river wasking.

The Cape or Goon Hope (p. 949) has sent fine specimens of galena, worked at the Maitland mines at Port St, Elizabeth. It also exhibits graphite from Cape Town, and iron ores from Uttenhage.

Of all the Birdin colonies CALARA [p. 997] is that below calculated in the most careerings and the most careering with the most careering with the most careering with the contribution of the mineral kingdom is concurred, to all countries that the colonies of the mineral kingdom is concurred, to all countries that the fine of the colonies of the col

nical, includes eight divisions, via.:—

Metalliferous minerals, and metals obtained from
them.

Minerals which require complicated operations to render them fit for use, Lithographic limestones and minerals employed in

jewellery, and in the manufacture of glass of various Various kinds of clays, and refractory clays.

Rocks furnishing whetstones, hones, and polishing

Rocks and minerals in use for improving soils. Materials used in construction, and rocks serving for architecteral decoration,

Combustible materials. All these classes include materials of great interest for industrial purposes, and we think it useful to mention some more specially. The ores of iron require notice first of all for their abundance and excellent quality, as the nagnetie oxide is worked in upwards of ten different

The mines of Marmorn, the most important of all, are situated in the west of Canada, and are worked in a mass of ore more than 100 feet thick. The magnetic ores obtained from them (4, p. 961) are accompanied by pig and bar iron from the works established on the spot, and belonging to the Marmora IRON COMPANY. The Jury has recognised the good quality of their products by making Honournibe Mention of this Company; and the same is awarded to Dr. J. Wilson (2, p. 961), who has exhibited magnetic iron ores from South Sherbroke, and phosphate of lime from Burgess.

Ordinary Mention has also been made to Mr. LANCASTER Orumary accusion has also been made to Mr. LANCASTEM Of VADBROUL (6, p. 961), Captain Monta of St, Vallier (9, p. 961), Mesers, L. SEGR of St. Eustache (16, p. 961), E. Carnos of St. Aus. Montimoreouy (19, p. 962), G. Deusaniza of Murray Bay (21, p. 962), and R. W. Killier of Gaspé (22, p. 862), who have exhibited ores of iron of

different kinds

Massive hydrous exide of iron is an important mineral amongst the iron ores of Chunda, and is worked in large masses in several localities. We may mention, particularly, that of St. Maurice, which for more than half a century has supplied the iron works and foundries of that name. The Honourable J. Franker, the proprietor of the mines whose products are exhibited in No. 5, p. 961, has added to the ores specimens of pig and other iron, besides slags and ashes obtained during the working of the ores.

The iron from St. Maurice is of good quality, and the products exhibited show that this establishment proceeds with regularity, in a metallurgical point of view: these usiderations have induced the Jury to award a Prize

Medal to the proprietor

The exhibition of Canada includes the ores of zine, lead, and copper, from several localities. The ores of copper from Lake Superior and Lake Huron are remark-Inde for their richness, and that called 'Bruce Mine,' on Lake Haron, has been worked for some years. The Minino Company of Montrical (the proprietors of this mine) have erected an establishment for working the ores on the spot, according to the methods adopted at Swansea, and the objects sent by this Company (10, p. 961), exhibit, by the side of the ores, the various products of smelting, by the sate of the cree, at these process of smering, besides the specimens of black and refined copper. Specimens of copper and native silver, from the Island of St. Ignatius, on Loke Superior, are added to these, and the Jury has awarded to the Company a Prize Medal for these one objects.

The existence of spangles and pepites of gold has been proved, by actual investigation, in several rivers of the east of Canada, and Honourable Mention is made of the CHAUDIERE MINING COMPANY (12, p. 961), who exhibit pepites of native gold collected in the washing those streams. Messrs. Borpoin and Lerank (15, p. 961) are also streams. Messes, Roudon and Lerank (15, p. 961) are also rewarded with n Mention for the white quartzose sands which they exhibit, which are used with advantage in the manufacture of flint and crown glass.

The last award that we have to mention in the case of Canada, is the Honourable Mention adjudged to Mr. Logan (1, p.958), who has exhibited iron ores, lithographic stones, minerals, and various rocks. Our colleague has not thought it right to add to these the geological sump he has made of Canada, a matter which the Jury greatly

regret, not because they would then have been able to adjudge a higher reward for this beautiful work,—for the position of Mr. Logan, as member of the Jary, would render this impossible, -but because of the great interest it would have udded to the Canada exhibition.

The lithographic stones exhibited by Mr. Logan (1, 958) belong to a palmozoic rock, occurring at Marmora. where the unguetic iron ore has been mentioned as forming n deposit of enormous thickness. These stones are remarkably homogeneous and fine grained; the degree of finish of the drawings that Mr. Logan has caused to be made upon them giving every promise of the quality being good. The geological position of the stones is interesting, and the reporter is not aware of such material having been previously found in the old rocks, since, up to the present time, these who practise lithography seek for stones from rocks of the solitie series. The discovery of Mr. Logan, proving that the palacozoic rocks may also furnish good lithographic stones, increases the resources available for this important bruneh of engraving and

We must also notice, amongst the articles exhibited by Mr. Logan, a cast of the footsteps of un animal discovere in one of the argillaceous schists of the palgozoic period. When this schist was first laid hare to a certain extent. Whole this school was instituted to a consideration of footsteps repeated several times, and he lind the upper bed removed to satisfy himself as to whether they were continued. Their existence, under these circumstances, fully proves that the markings were made at the time of deposit of the bed, and thus entries book the existence of quadrupedal animals to the earliest Silurian epoch. The length of the animals to the earnest couragn epoch. The reagon of one track discovered is eight feet, and as many as twenty impressions of each foot are traceable. Besides these is an impression between the footmarks, which may be regarded as the trail either of the abdomen or the tail of

the animal. It would carry us boyond the proper limits of this Report if we were to give even a sketch of the geology of Canada, and those who wish to become acquainted with the subject must be referred to the Report for the years 1848-49 and 1849-50, addressed by Mr. Logan to the Governor-General of Canada, and published by order of the Legislative Assembly of the colony. We must, how-ever, mention the presence of phosphate of lime and gypsum; the former disseminated in large prismatic erystals in the metamorphic limestones occurring in thick beds at Burgess, while the gypsum is found in many localities forming large irregular masses, intercalated in the upper members of the Silurian series, especially at Oneido Scucca, on the Grand River. This gypsum has an even fracture, is foliaccous, and of a fine white colour, and being very pure, may be used for the manufacture of

plaster for easting.

New Baunawick and Nova Scotta (pp. 969, 970), which are only separated from Canada by the River St. Lawrence, possess a similar geological structure, and the mineral productions are identical. The first of these colonies is only represented by some specimens of lignite and asphalte, recently discovered on the shores of the Peticodiac. There are, on the other hand, two rather interesting collections from Nova Scotin, one (3) exhi-hited by the Central Committee of the colony, the other by Mr. S. D. ABCHIBALD, F.R.S. (2, p. 970). The Jur-has awarded a Prize Medal to the Committee, its collec-The Jury tion including the whole geology of the colony, and offering a more general interest than that of Mr. Archibald. In the latter collection (2), the object has been to illustrate the resources of New Bronswick, with regard to the manufacture of iron and steel by means of char-coal fuel; and for this purpose Mr. Archibald has added to the specimens of magnetic and specular iron, which exist in thick masses, pig iron, wrought iron, and steel ande from them, lossides many manufactured objects worked at Sheffold, to prove the excellent quality of the irou and steel of the colony. The Jury has granted a Prize Medal to Mr. ABCHUBALD likewise.

In the collection of the Nova Scotia Committee, we may notice very good specimens of sulphate of barytes, ores of manganese, coal in large blocks, having all the characteristics of bituminous coal, and ores of iron and copper. There are also blocks of bluish gypsum, of even fracture, and several basaltic minerals, especially stillite,

chabasic, apophyllite, healandite, and mesotype.

The gypsum exists in several localities, grouped, for the most part, round the large inland bay called "Mines Bisin," which communicates with the Bay of Fundy by a small strait. Numerous quarries are opened where this gyponm is worked in the south of the Bay, near Fal-mouth, Windsor, and Couept, and in the north in the county of Cumberland, near Tower Hill, the material being exported to the United States, where it is chiefly employed as a mineral manare. The gyps-cous masses in Nova Scotia, as in Canada, are interculated in the paleo-zoic rocks, and are chiefly found associated with beds of

sandstone in this formation The coal appears to form two distinct basins, one at the northern extremity of the county of Cumberland, and on the shores of Chignecto Bay, and the other in the Picton district, near the town of Egerton. The latter is Scotia collection are from it. They are accompanied by numerous vegetable impressions, especially of 'Lepidodeudron elegans,' but there are also sigillarize more than two feet in dinneter, one specimen of which is very remarkable, an account of the arrangement observable in the roots. This has been the subject of special description by Mr. Richard Browo, according to whose investigations it appears that this trunk of the sigillaria was erect, and penetrated several strata. This remarkable arrangement, quoted in support of that theory of the origin of coal which supposes it to be due to an accumulation of vegetable matter is sits is not, however, a solitary example, as Mr. Jackson, in his valuable work on Nova Scotiat says,

they are invariably found traversing one or more of the strata at right angles with its layers The ores of iron are in the state of magnetic oxide, red harmatite, and oligist in compact masses. The human tite appears to form a considerable mass, in which the ore presents the various peculiarities common to concre-

tions; some are remarkable as containing crystals of arragonite in geodes occupying the centre, while in the same deposit sulplant of barytes occurs in tabular white crystals, connected at the base, and forming sometimes considerable masses. Occasionally, also, ores of manganese occur in radiated lumps, of a grey metallic appearance, without apparent crystals, the strenk and other characters

connecting the ores with pyrolusite. Among the ores of iron we noticed particularly the

massive oligist, which is studded with a multitude of fossils of spirifers, &c., and which is a palerozoic deposit in this state. It is more than 16 feet thick, and quite continuous, as, according to Mr. Jackson, it is seen at the eastern extremity of the Picton district, and ranges westwards as far as Anzapolis; the specimens in the Exhibition, one of which is almost enhical, measuring 2 feet on each side, being from the latter place. In this deposit, so remarkable for its richness and extent (ranging for upwards of 100 miles), the ferruginous bed is not constantly traceable at the surface, having only been noticed from place to place at intervals, but the red colour of the soil, prace to prace at intervals, but the red colour of the soil, and the regularity of the stratification, reader it highly probable that the bed of ore is continuous. It is intercalated among shales of the palmosoic period, traversing Nova Scotia in a direction bearing N. 60 E., with a remarkable regularity. The dip, which is about 50° to 60° towards

the north, is equally constant.

The ISLAND OF TRINIDAD is the last of the British Dependeucies to be mentioned in this Report. The Governor, Loan Hanns, has exhibited (1 to 35, p. 972) a series of useful minerals, which sither have been the object of research or are now worked. They consist of ancient rocks, yielding good building material, and the following minerals, viz., magnetic iron ore, hematitic iron, yellow ochres, pyrites which exist in sufficient shundance to be employed in the manufacture of sulphur, and lastly bitumen.

Quarterly Geol. Journal, for 1849, vol. v. page 539,
 † "Mineralogy and Geology of Nova Scotia," by Chr T. Jackson and Francis Alger, page 70.

latter mineral is collected on the surface of a lake, around which are extinct and active volcanoes, and is represented by a collection of specimens of bitmmen of various degrees of parity. The Jury has awarded an Honourable Mention to Load Haants, as an acknowledgment of his interesting exhibition of the geology of Trinidad.

UNITED STATES OF AMERICA.

The geological works that have been published on the United States, among which must be mentioned as of the first importance the Reports addressed by several distingnished scientific tuen to different legislative assemblica of the Union, have satisfied as that this part of North America is destined to occupy an important place in the levelopment of mineral industry.*

It results from these Reports, that magnetic iron ore and specular iron ore or oligist occur in many states of the Union in an abandance not in any way inferior to that of Sweden. In America, also, as in Northern Europe, forests exist almost autouched, which will provide for centuries the fuel required to supply numerous iron-making establish-ments. The immense blocks of native copper discovered

in the trup formations of Lake Superior exhibit a degree of richness surpassing that of all known ores; and if the working of these remarkable deposits confirms the expectation raised by the investigations and researches carried on for some years under the direction of Mr. Jackson, Michigan will soon become one of the richest metalliferons districts in the world.

The exhibition from the United States does not, howver, completely illustrate these sources of wealth, for we find them represented by only four iron-works, one manufactory of zinc, and some isolated specimens from iron nines in the states of Penrsylvania, New Jersey, Massachusetts, New York, and New Hampshire. We may add to these some fine blocks of anthracite from Pennsylvania, and the ores of copper from Lake Superior, one specimen of which weighs 2,544 lbs. The iron exhibited by these different establishments is

f excellent quality, and reminds one of the soft iron of Berry, and the iron so highly valued from Sweden. regret not to have been able to procure any information, either as to the quantity of iron produced annually in these works, or the mode of manufacture. We know that the operations are carried on for the most part with charcoal fiel.†

The series exhibited by three of these establishments are nearly identical, and the Jury have not been able to distinguish any superiority between them. A Prize Medal has therefore been granled to each, viz.:-

Messrs. Morris, Jones, and Co, Philadelphia, Pennsylvania (44, p. 1435).
TRENTON IRON CUMPANY, at Treaton, New Jersey

167, p. 1448).
ADIRONDAC MANUFACTURING COMPANY. New York 344, p. 1456).

Mr. Hitchcock.

† The annual make of Iron in the United States is esti-

y 1 ha samma make or iron at the thirted States is estimated at 400,000 tons. This quantity is the produce of about 298 Guraces, which are in constant eperation, the low price of foreign (chelly English) iron in the market baving thrown exerts out of blast. Of these 298—35 are authorselfe furnance, and make 20 tons each per compared to the product of the produc

week (average); 7 are bituminous coal formsees, and make 22 tens each

4 are coke furnaces, and make 48 tons each per week; 85 are charcoal turnaces (hot-blast), and make 21 tons each per week;

145 are charcoal furnsecs (cold-blast), and make 14 tens each per week,

The objects exhibited consist of iron ore, slags, pig iron, and different specimens of iron. The Admudae Company has also added manufactured iron and bors of steel, remarkable for the delicacy and evenness of the grain. The Treaton Iron Company has exhibited iron and iron wire of different numbers. One of these, of extreme delicacy, is also oot less remarkable for the

The exhibition from the iron-works (202, p. 1450), belonging to Messys. Morrill, Stewart, and Co., of Cincinnati, in the state of O.io, is less complete, containing neither ones nor pig iron, which makes it probable that this Company has not exceted smelting formaces, sheet iron produced by them is of good quality, but the difference we have mentioned has induced the Jury to limit their acknowledgment to an Honourable Mention.

The ores which supply these several works consist chiely of magnetic uxide, ofigist, and spothic iron. dimensions of the blocks of ore, and especially of the spathic iron, which are upwards of 20 inches a side, afford satisfactory proof of the riebes of the deposit: and with regard to some particular localities, we have descriptions which seem to show the presence of ores even on a larger scale than in Sweden and Elba, and where the magnetic oxide and oligist appear to have been erapted.

According to the description of Mr. Emmons,* the mass of magnetic ore which sapplies the works at Adirondae is the most remarkable of all for its thickness and extent. It would seem to occupy, at the height of Lako Henderson, the whole of the valley of Adirondae for more thna 15 miles in length, reappearing on the shores of Lake Sandford, and having a range of more than eight miles. In each of these localities there is a band of magnetic iron ore more than a mile wide, not stratified, but forming three distinct veins, manifested by differences of grain, and even by the quality of the iron made from each, without the chemical composition indicating any distinction. Often these veius are cut by others of a different kind; just as we sometimes see voins of large-grained granite peactrating masses of fine-grained rock of the

It is an interesting fact, and one we feel it right to mention, because it may to a certain extent throw light on the caases which determine ores of a similar auture yield iron of various qualities, that in the Adirundae mines, a contact with trap rock is observable. Mr. Emmons states that, "when the mass of ora is intersected by a tens dyke, its appearance is more erystalline, the reduction of the ore is a slower operation, and the iron obtained is hard and difficult to work."

A Prize Medal is also given to the New Jersey Ex-ptoming and Mixing Company, the sent of whose operations is nt Newark in New Jersey, and which has exhibited (166, p. 1447) sine obtained from "franklinite," and some fine crystals of this mineral. The composition of franklinite, which is oxide of zine combined with oxide of mangauose, probably requires a different treatment from that pursoed in Belgiam, Silesia, and England, to obtain metallic sinc. We should have been glad to learn obtain metatre and. The should have not able to obtain any information on the subject, arither were we able to obtain a specimen of it, which we wished to possess in order to repeat the analysis made by M. Berthier on speeimens mixed with magnetic iron ore and veinstone.

Honourable Mention has been awarded to seven exhibltors, whom we shall meation in the order of their insertion in the Catalogue.

Mr. C. W. PEALE, of Hicksherville, in Pennsylvania (74, p. 1498), for very flac specimens of anthracite, and the accompanying rocks. These specimens agree with an interesting description given of the mines of Peonsylvania, I place this feel among the earboniferons series.
Mr. W. Darling, of Reading, in Pennsylvania (19),

p. 1449), for iron ores and metallic iron. Mr. A. J. Roussnau, of Troy, New York (314, p. 1454), for iron ores.

* Geology of New York," Part II., by Mr. Emmons, Professor of Natural History, at Williams College, p. 246

Mr. W. LEE, New York (322, p. 1456), for spathle iroa ore, each spezimen measuring upwards of a foot every This are contains a little manganese, and passes into the state of bydrons oxide on decomposition. forms a vein of great thickness, and has been followed to a considerable distance

Mesers, W. and J. W. Waro, of Boston, Massachusetts

408, p. 1462, for specimens of copper ore.

Mr. G. H. Rugglars, also of Boston (416, p. 1462, for sheets of mich of very large size, used for the doors of stoves, as being transparent and ullowing the fire to be seen through them. The construction of the stoves is such, that the heat, which is probably enried to the back of the fire. does not attack the mica, and it often lasts several years

Dr. FEUCHTWANGER 469, p. 1464), of New York, for a collection of minerals, fassils, and fresh-water shells, col-lected in America, In this large series of speciment, which are in rather a bad state of preservation, perhaps occasioned by their transport to Europe, there are several rare minerals, especially xonlites from trappean rocks, There are also cystalline diamonds, some fine topazes, and specimens of native copper and silver. The mass of pative recommens as sattree opper and silver. The mass of native copper from Lake Superior, mentioned at the beginning of this account of the United States products, and weighing 2,544 lbs., belongs to this Exhibitor, and beans marks of the ebisel which prove it to have been part of a still larger piece. It will be seen, indeed, from the brief notice here salijoined on the deposit of native copper in Lake Superior and the life Royale, that masses have been extracted whose weight execeds 10 tons.

Deposit of Copper on the Shores of Lake Superior.

The poculiar nature of the deposit of copper in the state of Michigan, and the inflaence that this discovery may have on the production of that metal, have induced the Reporter to give some details on this inportant fact in relation to the mineral industry of the United States, They are extracted from the interesting Report published by Mr. Jackson," on the researches that have been instituted to make known the circumstances of this deposit, and the well-founded expectations to which it gives rise. We must first remind the reader, that the discovery of

empper on the shores of Lake Superior is not so recent as is generally imagined, as it dates from very shortly after the establishment of the French in Canada; and if at that period it led to no results, the reason was that the countr being then occupied exclusively by the Indians, was little themselves were concerned, very ancient superstitions prevented them from making any long stay at Keweenaw Point, where the existence of the native copper was first

determined.

The untiquity of this discovery is attested in a work published in Paris in 1636, by M. Logarde, who states that M. Truebesaoat Bruslé had given him an ingot of copper, obtained 100 lengues west of Lake Huron, second notice of the existence of a mass of copper in this part of America is given in the account published in 1666, by Futher Claude Allonez, of the Mission of tho Holy Ghost ot Outaonoes, in Lake Tracy or Superior, the there states (chap, ii., p. 32; that copper exists in abundance on the south shores of this lake, at 50 or 60 leagues beyond the Leap of St. Mury, on the other side of the place called Missipiconatong.

is clear from later publications, that the trace of

this discovery was never lost, and several travellers, amongst whom may be mentioned General Cass, have personally verified its correctness. But the first scientifie researches commenced only in 1842, and were made by Dr. Douglass Hongbton, attached to the government of the state of Michigan as geological surveyor, but who died on the coast at Kewcenaw Point before his observatious were published. The details that we have at present concerning the deposit are due to Mr. Jackson. who has made a detailed study of the district

According to the description given by this distinguished geologist, the native copper exists on the shores of Lake

* "Geological and Mineralogical Reports," by Mr. Charles Jackson, November 1813.

Superior in two distinct deposits, one towards the northern extremity of the state of Michigan at Keweenaw northern extrusity of the state of Michigan at Newceaux Point, which firms a projecting bendland Inwards the middle of the south shore of Lake Superior, and tio-other in Jake Royale, sinanted in the lake, about 50 miles north of Kewenav Point. This island, which ranges tortheast and south-west, lies exactly parallel to Cape Keweenaw, and to the strike of the beds of which it is composed. It presents also a geological construction identical with that of the shores of the lake. The two deposits occur in the same formation, and nader circumstauces precisely similar.

Mr. Jackson's geological map shows that the Michigan shore of the lake consists of granite, trappean rock, and red sandstone belonging to the lower Silurian series, The trap, like that of Scotland, is composed, according to Mr. Juckson, of an aggregate of crystals of horableade and feld-par, mingled with erystals of magnetic iron ore. There are also found, occasionally, presite, datolite,

lanmontite, chlorite, and lanimated cale-spar. The sandstone and trap form parallel bands, running due north-east and south-west. At Cupe Keweenaw the sandstone is seen to the right, and the trap to the left, At Isle Royals the south shore is the only one on which the saudstono can be traced, so that from this arrangement the trap would seem to form two parallel hands. separation of the sandstone and trap is marked by a conglomerate, called by Mr. Jackson, trap-tnff, which consists of fragments of sandstone, compact trup, melted trup, umvedaloid, and sometimes pebbles of old rocks. In many localities, especially at Eagle River, this conglomerate is of considerable thickness, and has been falsely regarded as belonging to the palmozoic epoch. Near the junction the trap is anaygdaloidal, and seems to have undergone a certain modification of texture at its contact with the sandstone. The cavities are filled with chlorine. agates, laumontite, pectolite, and laminated calc-spar, in small concretionary nodules, the size of which varies from that of a grain of millet to a musket-ball. The surface of the included cale-spar and agate is covered by a film of chlorite, so that when first removed they look like small nodules of chlorite, and their true nature can only be determined by breaking them. It has been noticed in the course of the operations carried on by tha Lake Superior Company, that when the envities were filled with chlorite nodules, "there was always a grain of copper in the centre. Elsewhere, and near the veins of copper, the included minerals in the same amyedaloid

Native copper and silver are found at Cape Keweenaw and Isle Royale only in the trap formation, all the important veins forming together a narrow zone in the amygdaloid. When a vein of copper penetrates the trap once thins out, and only affords a thin film not The sandstone and conglomerate form worth working. also another limit of the metalliferous band, and when the veins do not terminate at the contact of the sandstone. the part extending into this rock is filled with cale-spar instead of copper. It hence results that the thickness of the amygdaloulal band intervening between the trap itself and the sandstone becomes the limit of the cupriferous veins, and this thickness rarely exceeds 2,000 feet. The depth of the veins is unknown, but Mr. Jackson imagines that they extend below the saudstone.

were occupied by copper or native silver, or by these two metals at once."

At Keweenaw Point the espriferous zone may be about 120 miles in length; and in 1-le Royale it ranges through the whole extent of the island, which is about 45 miles The richer portions are unequally distributed; and Mr. Jackson states that his numerous researches, extending over several years, have made known to him almost all the places where workings may be carried on with advantage.

The trap forming a band in the middle of the sand store, there occur, of course, two amygdaloidal access at the coutact of the rocks. A marked difference is always observed on the two sides, both in the quantity of copper and the state in which it is presented. The difference may, however, have reference to the nature of the trap. Metallie copper is chiefly found in the north zone at

Keweenaw Point, while in the south the copper is in a state of sulphoret. The trap here a a porphyry, consisting of a compact felspathic lane with crystols of felspar. On the small lake called "La Belle Mine" near the extremity of Kewceanw Point, and which belongs to the southern zone, the trap rock is very crys-

talling, and resembles syenite.

We will not follow Mr. Jackron in relating the details of the veins, of which he has explored upwards of a hmdred, merely stating that these veins are generally transverse to the amygdaloidal hand. In Copper-full's mine they take a direction from N, 25° W, to N, 30° W, and S, 25° to 30° E, almost at right angles to the line of separation of the trap and candstone, and the dip is here 70 W. These veius are 18 inches wide, of which metallic cupper occupies at least a fourth part, Mr. Jackson states that he has seen a tures 20 feet long, 9 feet wide, and from 4 to 6 inches thick taken from these mines

The mass weighed about 10 tons.

These masses of large dimensions are not rare, and to give an idea of the richness of the mines as d the expense of working them, Mr. Jackson states in a Report, dated 25th September, 1848, "that the preduce of the mines for one year had been nearly 43 tons (95,994 lbs.) of ore, containing 70 per cest, of metal, or about 30 tons of copper in all. This produce was the result of the labour of 33 men, of whom 20 were miners and the rest labourers. Among the masses of copper obtained from these mines, he mentions four whose respective weights were 7,018, 7,484, 7,678, and 14,000 lbs.

AUSTRIA.

The Exhibition affords but a very imperfect view of the mineral resources and mineral industry of Austria for the working of mines is really very scrively carried on in the different states of this vast empire. The diffirulties we have referred to at the communicement of this Report, and which have prevented so many persons from taking a part in the Exhibition, have been sepecially felin a country whose territory reaches the sea in only a few points, and whose average distance from London in rous industrial occupations earried on in Austria, and referred to the excidention of this Jury, are represented by only 50 exhibitors, 30 of whom are occupied exclu-sively in the production of iron and steel. Of this number again, Carinthia, Styria, and Upper and Lower Austria, have farnished two-thirds, and the mires of copper, mercury, cohult, and nickel in Hungary, those of pyrites in Bohemia, and of assenie in Salzburg, complete the list. Among the objects missing, and of which the absence is most to be regretted, must be mentioned the various methods of mechanical preparation so well nuderstood in Germany. These would have been especially instructive; for ut the present time, when mines formerly abandoned as yielding ores too poor to pay for working are being re-opened in order to draw from their rubbish are being re-opened as the state of the ancients, it is much more by improvement in mechanical preparation that economy can be introduced into these difficult operations, than by any metallurgical processes which have long since been carried to a high degree of perfection. In order to give some interest to the coumeration of the establishments who have obtained Medals or Honourable Mention, as well as to indicate their relative positions. we here give a rapid notice of the principal sources of mineral wealth in Austria.

Almost all the states of the Empire possess important deposits of iron ore, and the abundance of wood has rendered it possible to introduce everywhere numerous establishments for working these ores. Styria, Carinthia, and Lower Austria are the most important districts, and deserve special mention on account of the abandance and quality of the ores as well as for the peculiar methods of manufacture adopted there.

The most common of the ores of iron is the sparry earbonate (spathie iron), which forms very thick beds, intercalated amongst the granwacke and Alpine limestones on the north and south flanks of the axis of the Alps. Of those in the northern district we may mention the deposit

at Erzberg, near Eisenerz, in Styria, which has been celebrated for many centuries, and which has furnished appears of two millions of security, equivalent to Hiefflan, Eisenerz, and Vorderaberg. Other deposits, not far off, supply the adjacent works of Neuberg, Mariazell. &c. On the southern side of the central chain the deposits of spathic iron are equally ahundant, and furnish ores to the works in Carinthia, of which we may mention Lölling, Hüttenberg, and Wolfsberg.

The brown luminities, without being so abundant as the spathic ores, perform a very important part in the production of iron in Austria, and chiefly in the southern districts. In Carinthia they occupy veins and form beds in the granwacke, and in the micuceous schists,

The hydrous oxide of iron, which is a third ore worked abundantly in this country, exists in more modern formsations, or at least in rocks which have been less altered, and have not been subjected to metamorphic action. The principal establishments in the south of Austria are supplied from this ore.

The spathic ores and humatites are well adapted for the manufacture of steel and strong iron. They occur in stances found with them consist of a small quantity of metallic sulphirets, chiefly copper pyrites disseminated in patches amongst the spathie iron. The presence of these sulphurets requires sometimes a careful picking to separate the fragments in which they are most abundant, and also an exposure to atmospheric action, by which they are decomposed. The spathic ores are, however, always roasted before being smelted, partly in order to get rid of any sulphur that they may contain, although the chief ubject of this operation is to decompose the earbonates, and thus render the ore more porous and more easily reduced.

The rapidity with which these ores are smelted is ultimately so great, that more than 20 tons of pig per day are obtained from the furusces at Lölling with an unusually small consumption of charcoal, the proportion heing indeed less than one part of charcoal for one of pig; the result in one case ranging as low as 0.83 charcoal for

I'0 of pie. In Styria are still used occasionally the small Styrian

forges; but the principal establishments have adopted reverberatory formaces for puddling, forging, and other purposes in iron-working. The employment of these reverberatory furmaces is interesting on account of the different kinds of fuel consumed in them: thus at Schlegelmülle, near Glogguitz, they use gases produced in special apparatus; at Neuberg and Wolfsberg, wood, either simply air-dried or baked in ovens, is employed; at Mentern, ueur Loeben in Styria, air-dried turf; and at Prevaly, in Carinthia, lignite. In the further processes of irou-making, and especially

in the manufacture of sheet-iron, the use of turf is com-mon in the Styrian works. We may especially refer to those of the valley of Marz, where we have had the opportunity of observing the operation,

The refining for steel is performed in small Styrian hearths, and the steel thus obtained is of excellent quality. It is indeed only necessary to refer to the Styrian scythes. whose reputation extends over the whole world, as suffi-

cient proof of the excellence of this material. Irou and steel are by no means the only sources of mineral wealth possessed by Austria. In Carinthia, and especially at Raihl and Bleiberg, are mines of lead greatly valued for the remarkable purity of the metal. Hungary, Transylvania, the Bauat, and Bohemia, also

Huggary, Transylvania, the Bouat, and Bonemas, and possess important mines of galena, grey argentiferous copper, tellurium ore, gold and silver, antimony and tin. The mercury mines of ldria in Illyria are almost as rich as those of Almaden in Spain. These two mines thraish nearly the whole of the mercury employed transish nearly the whole of the mercury employed. throughout the world in reducing the ores of silver, and throughout the world in reducing the ores of enver, and other purposes for which this metal is needed.

The copper mines of Agordo, in the Lombardo-Vencian ierritory, must also be mentioned among the

mineral resources of Austria. They are not, at present, in an active state, but everything leads to the conclusion that the deposit is an important one. We must also refer in this enumeration to the salt mines of Transvivania and Wieliczka, edebrated not less for the enormous extent of the excavations than for the thickness of the deposit.

We have just stated, that the Austrian exhibition referred to this Jury, is chiefly remarkable with regard to iron, and we have also observed, that the iron-works being grouped into intural districts determined by the position of the ores and the abundance of forest, the working in iron and steel must necessarily present very similar products. The Jury have thus had some difficulty in the distribution of the rewards, and they have been for the most part guided in their decision by the greater or less care shown by the different proprietors to greater or less care snown by the different proprietors to exhibit their methods of working, and by the elaborate-ness rather than the nature of their products, which are all generally of the finest quality. There is, indeed, only one exception to this, the case of the Baron von Kheppt (424, p. 1031), to whom a Council Medal has been awarded for a sheet iron, called paper iron, of extreme thinness and great strength. This beautiful material, which is altogether peculiar, has been manimously considered by the Jury, as well as by those gentlemen whom they associated with them, as worthy of the highest distinction, details already given at the commencement of the Report on the sheet iron of this Exhibitor have made known the motives for this decision of the Jury, and we only now, therefore, refer to them.

Of the other iron-masters the Jury have more especially distinguished eighteen, to seven of whom Prize Medals have been granted, while the others, whose exhibits were less complete, have been Honourahly exhibits were ress compress, more over aroundary Meutioned. We proceed to speak of each in the order of their occurrence in the Catalogue. The objects exhibited being, for the most part, similar, we only give details where there exist some essential points of difference,

Zos, Widow, Cart, of Tanerburg, in Carniola (405, p. 1030). This exhibitor has added to the iron ores used in her foundry the grey pig for wrought iron, white pig for steel, and the different qualities of iron and steel which she manufactures. She has also sent some manufactured iron, especially uails, and has accompanied these objects by the slags and einder obtained at the different periods of the process,

Most of the products of the Tanerburg works are Most of the products or the language works are exported to Italy, where they are much valued. Till within a few years, there was only a small quantity of iron annufactured at this establishment, but latterly it has much increased. The difficulties experienced in developing an industrial occupation so complicated as that of iron, in a poor country where everything has tu be provided, speak at once in favour of the excellence of the products of these works, and the wise and enlightened spirit which conducts them.

COUNT FERDINAND YON EGGER, of Carinthia (409, 410, 425, p. 1031). The Jury have associated in one notice the products of the works at Lippitzhach, Freibach, and Felstritx in Carinthia, all belonging to the Count you Egger, and exhibited by him. The pig and bar iron are made at Lippitzbach, and the other two establishments are intended for the manufacture of irou and steel. The products exhibited in Nu. 425 include blistered steel, rolled steel, and steel wire.

The puddling and reheating furnaces in these works are supplied with wood fuel, and the work proceeds with great regularity and great economy. The establishments of Count Egger were the first in Austria in which the English arethods were introduced, and they have served as models, their proprietor having, in the most disis money, their proprietor inving, in the most dis-interested manner, permitted them to be copied.

Disputate Depot or how Mixes and Iron Works at

Vienna (408, pp. 1030, 1031).
The Austrian Government possesses several iron and steel works in Styrin, the products of which have been collected and exhibited together under this title. They include-

1. Spathie ores, for the most part passed into the state of hydrous oxide, and vielding an ore of very fine

^{*} The "measure" is equivalent to 56 kilogrammes, or about [234tis.-], W.

 Grey pig, from the foundries of Zell, in Styria, which enjoy a high reputation in the country.
 White pig, from Eisenerz, in Styria, of different qualities, from a finely-propus to a large laminated grain.

4. Specimens of steel, raw, forged, and cast.

5. Slags and einder produced in the various processes of suchting and preparing iron and steel, according to the different ways in which the furnaces are worked.

6. Manufactured iron and steel. We may especially notice here the rails, of whose admirable quality the

the different ways in which the Irrances are worked.

6. Manufactured iron and steel. We may especially notice here the rails, of whose admirable quality the Jury have satisfied themselves, and which afford a fracture remarkable for the homogeneity of the grain.

Toeren, A., of Scheibbs, Lower Austria (411, p. 1031).

Among the unnecesse objects sent by this exhibitor, we specify particularly the bellow rice makes at his foundry. The tubes are of excellent quality, and we learn from Priessor Tussers, the Austrain neurable of the duty, that fees the surface of the surface of the duty, that the manuser in which it is directed, as well as for the excellence of its produce. The work is carried us in a very economical manner, and for 13 years the gases of work or control of the duty of th

operations. CHM-BALEMBERG, Of Murna, in Upper Styria (417, p. 1621). The foundry of Moran is intended for (417, p. 1621). The foundry of Moran is intended for instance of the following state of the followin

Kingdom,

Fischta, A., of St. Ægide, in Lower Austria (420.) Brown spathie iron ores; white, grey, and speckled pig, obtained from charcoal facil, but ron of different kinds; steed, raw and forged; iron wire, rolled and drawn. All these are of excellent quality. The mechanical arrangements in M. Fuscher's works are remarkable for their finish, and for the facility with which they admit of the

and the description of the state of the stat

This is considered to be the largest establishment of its

hield in the country.
The different bine-consulties, whose various products we The different bine-consulties, whose various products we are also as a substance of the proceedings to give a few details concerning those other establishment of the few details concerning those other establishment of the time, we desire to notice see more to which the Jury base warded a Prize Medial. It belongs to a R. Egger. "In Registration of the products training the process of the products training the process of the products training the product of the pro

following Exhibitors:—
The Comments of Radmeister, at Vordernberg, Skyria (400, p. 1030). A collection of ores, pig free, slags, iron, and steel. The furnaces, which have been recently eularged, are worked with hot blass.
The Paixer Ferseyremeno, Bohemia (412, p. 1031).

The PRINCE FURSTENNERG, Bohemia (412, p. 1031). The products of his foundries in Bohemia, especially the boiler-plate, are all of very excellent quality.

The Count von Bouquot, Kallich, Hohemia (414,

p. 1031). In these works bar iron is obtained from the fuel. The sheet iron, both black and white, appears very fine.

The COUNT G. ANDRASST, of Dernö, Hungary (410, p.

The Count G. Annassa, of Derno, Hungary (415, p.

This Exhibitor receives a Prize Medal in Class XXII., in whose Award List his name appears.—I. W. 1031). In these works the puddling and reliquing of the iron are carried on by the aid of reverberatory furnaces, supplied with the charcoal of brushwood, otherwise of no value. This important modification, which has introduced a great economy in the manufacture of the iron, is not alluded to in the collection of products from the

Dernö foundry.

Fischer, B., of Traisen, Lower Austria (421, p. 1031).
These works chiefly manufacture cast steel; their pro-

a new worse enterty manufacture cast steel; their products are carried into all parts of Germany.

Iliranas, F., of Josefattual, Styris (428, p. 1031). Iron and steel wire of different kinds. The Jury have noticed

and steer wire of uncrent kinds. The Jury have noticed steel wire of very excellent quality, one specimen being remarkable for its extreme finences and great tenneity. SCHEDA, CARL, Wasserluy, Lower Austria (429 p. 1031.) likewise exhibits from wire of fine quality. Onlinear Montion is made of the 641 are

JUST 1, likewise exhibits iron wire of fine quality.

Ordinary Mention is made of the following:

DIPERIAL FOUNDMES OF PILLIBSE AND TENNAGE.

in the Tyrol (407, p. 1059).
FOUNDRY OF THE CHAPTER OF GURK, at St. Magdalenc, Carinthia (416, p. 1031).
STELL WORKS Of Mr. J. PERIFFER, at Spitzenbuch, Styrin (418, p. 1031).

STEEL WORRS OF THE COUNT VON THURN, at Streileben, Schwarzenbach, and Müss, Carinthia (419, p. 1031). Forders of Mr. II. D. Lindheim, at Plan, in Bohemia (422, p. 1031).

Other Metals besides Iron.

Of the whole number of collections which relate to the

production of other metals than iron, the Jury have remarked six as possessing interest from the methods they indicate and the objects they exhibit, each of which has been decored worthy of Honourable Mention. They are as follows:—

INFERIAL ADMINISTRATION OF MINES IN VIENNA (2, p. 1006). For a collection illustrating the processes of obtaining mercury in Idria and lead at Hleyberg, and for extracting sulphur from pyrites at Sworzowiez, in

for extracting surport from pyrites at temperature, in Gallicia, and at Radobo, in Creatia, Szz.mank, J. F., of Neusoh, Hungary (4, p. 1006). Ores of coluit and oickel from Boira, with metallic nickel and cobaltiferous products. This collection illustrates the preparation of nickel, the oxides in Cobalt and nickel.

and the different smalts obtained from cobalt, Kochmeister, F., of Pesth, Hungary (5, p. 1007). Similar products obtained in the preparation of nickel and

combination of cobalt.

Volumeration, G., of Salzburg (13, p. 1007). Preparation of arsenic, of the white oxide of arsenic, and of

yellow and white glass made with this metal. CRENT FERDINAND VON ERWEIN SCHÖNDOM (15, p. 1007), and the PRINCE VON LORKOWITE (16, p. 1007), who have exhibited a fine collection of pyrope garnets, rough and cut.

Minsuacu, A., of Vienna (1, p. 1006), for a collection of lightes from Upper and Lower Austria, Styria, Moravia, and Hungary. These lignites, all of which are worked by the exhibitor, belong to various formations. The are now meth and widely used for many purposes, and

To complete the list of objects in Austria, considered by the Jury worthy of Ordinary Mention, we have still to record those exhibited noder the five following numbers, viz.:—

The Proprietor of the Mine of Zemberg, in Hungary (7, p. 1007), for ores of cobalt and nickel. Hatra, W., of Prague (9, p. 1007), for ores of uranium, nickel, cobalt, and vanadium.

SEZOO, M., of Roseau, in Hungary (10, p. 1007), for ores of antimony and metallic natimony. Hocumenors, J. (14, p. 1007), for the manufacture of sulphate of iron and alum, and the production of sulphur

from pyrites,

Court G. Eggen, of Krappenberg, Carinthia (401,
p. 1030), for a series of crystals of sulphate of baryles.

Велогия (р. 1150).

The mineral industry of Belgiom is represented in the Crystal Palace by 58 exhibitors; but the most important department of all, in d that which has furnished to this country a source of wealth altogether disproportionate to its superficial extent—we mean the working of coal—in the superficial extent—we mean the working of coal—in the superficial extent—we mean the working of coal—in the superficial extent of the superficial extent of the superficial extent of the different rewards granted by the great account of the different rewards granted by the Jury, we shall group them according to the nature of

the products.*

We must first recall attention to the fact that the Conneil Medal has been awarded to the Company of Zinc Muses and Foundries of the Vielle Muntager. The high several production of the Vielle Muntager. The high several products of the world, fully justifies this receptored to all parts of the world, fully justifies this distinction, and we will not here repeat the reasons which have guided the Jury in its judgment, and which we have already stated at the commencement of this

Report:
The first object that has attracted the attention of the Jury is the safety-lump, of which two kinds are exhibited; one by Mathien Louis Musesler, milionity engineer (24, p. 1151), and the other hy Felix Eloin, associate engineer (11, p. 1151).

Long experience has established the advantages of M. Mueseles's lamp, more than twelve thousand of these instruments being at present in use; and we may attribute partly to its adoption the sensible dimination that has taken place in the number of selections from the explosion of carborretted hydrogen gas in those mines, where gas is constantly given off from the coal.

In this lamp, a part of the metallic overeing which arrounds the fine and firms the chimney, is replaced in a constant of the control of the control of the light than that given by the Davy Immp, and which is preferred by the miners; but the essential peculiarity of M. Mucceler's arrangement consists in the mode in which of the control of the control of the control of the informal above, through two wire gauzes at right angles to each other, and afterwards escapes, with the products The chief objection that at first suggests to self-to this

The chief objection that at first suggests itself to this lamp, is the brittlenes of the plans, and on this seconst the Jury for some time hesitated in admitting any marked superiority in it over the Davy lamp. But the Belgian government having commanisated the official reports of experiments made by a special commission, their doubts have vanished, and they have granted a Price Medal to M. MUSSAKEN.

It results from these experiments "that the resistance of the glass has been found to be infinitely superior to that which could be presented by wire gauze, and that in this respect it offers a greater search;; that the instances of fracture have been very rare, and that on so occasion, or resulted in the introduction of the external air to the introduction of the external air to the interior of the lamp. O the other hand, the fragueous of glass have always reminated in their place until the

lamp was opened." The lamp of the provided with a gloss as The lamp of M is because the given it is exceeded to the control, the disperse the rays of light, and diminish a much as possible, the ounsermed induces produced by between this lamp and that of M. Meevler consists of any appropriate for a halling the air out distributing the road of the relation of the fluor. The appearant for a halling the air out distributing the road of the relation of the fluor of the relation of the relation

b This outline is borrowed in great part from a note addressed to the Chalrman of the Jury by M. Gernaert, lugenture on Chef des Muses Beiges, and Member of the lury.

of an inch (18 to 22 millemetres) in diameter, placed about three-eighthas of an inch above the bottom of the wick. This arrangement makes it necessary that the air introduced to feed the thome should post quite close to the wick, which is that, and the cumbustion is thus rendered more active, while the inflammable gas is more

or less coastmed as soon as it enters the Isony.

The Jury have examined with interest the Isony
arbitrated by M. Elois; but as it is at the present tron
submitted by the Belgian government to a special consthat it may possess, they laxe thought it best not that it may possess, they laxe thought it best not to
publish an opinion with regard to it. They thisk it
right, however, to ratte that the experiments made by
or Abertaan, near New port, and of Shipere, in Destry shipe.

have satisfied them of the value of M. Eloin's lump. Munifacture of Iron.

The Jury have awarded six Prize Medals and three Hocoarable Mentions to the Belgian exhibitors in iron. They have been obtained by the following establish-

ments:—cre. F. and A., jron-masters of Acciouse, in the volume of Name (366, b. 165), who have exhibited sigiron made with charcool, and various speciment of iron bearing the mark [JiHH] also mole with charcool. A part of the iron exhibited by this firm is intended for an anather of the properties of the properties of the manashatery of the Belgian governance). Mr. Timmerhans, inspector of weapons for the governance, isocrified in an official document handed to the Jary, that

not a single gun munufactored of this from has burst at the proving-loose, even under the most extreme triol. AMAND, J. tron-muster, of E-medos-sur-Bérce, Namur (368, p. 102). This manufacture resembles that of MM, Moscheur, and part of the iron is also intended for

anking fire-arms.

Onans, J. M., and Sox (372, p. 1162). These exhibitors annufacture iron with coke, and also with charcoal fuel; and besides merchantable iron, they make uso sheet iron and iron wire. It is especially for these latter products that the Jary award the Medal, and they wish to meation particularly—

A piece of rolled coke iron, measuring 1063 feet in length, and half an inch (14 millemetres) in

diameter, and weighing 86 lbs.

Another specimen, only one-fifth inch (6 mille-

metres) in dimmeter, corresponding to No. 4 of the English gauge, measuring 282 feet in leogth, without a joint, and weighing 42 lbs.

A specimen weighing 55 lbs., the length of which is 3751 feet.

and a present parameter time wire, No. 8, seephing 910s., and meaning 1476 for, med of the construction of the electric telegraph. Smillar wire is not received by the Belgian government till a secession of trials prove it to be capable of supporting at least 1,700 h, without breaking, a strength corresponding to 141 lbs, per sq. millemeters (= 301.55 and 161 lbs, per sq. millemeters (= 301.55 and 161 lbs, per sq. millemeters (= 301.55 and 161 lbs, per sq. mill eye, see a consideration of the strength of t

dimensions and thickness, but all of the first quality, REMACLE, J., and PÉRAND, of Liege (371, p. 1162), have whilited sheet iron of different numbers, munufactured

exhibited above on tradition of the contract of common and polished sheet iron and steel, whose high degree of excellence will pechaps be most restly seen in their small thickors compared with the dimensions, their perfectly-coordinators surface, the absence of all oxidation, their ductility, and their

The Pommeneut Shelting Company (6, p. 1150), for the specimens of pig and rolled iron, produced at their works, and exhibited by them.

orks, and exhibited by them. Honourable Mention has been awarded to J. Cockebill.

f See an'e p. 3.

of Seraing, Liege (119, p. 1155). The Company has exhibited specimens of pig as d wrought iron, wheel tire for locomotives, manufactured iron, and especially rails This Jury, not taking into consideration the manufactured articles, which it is not their province to judge of, and regarding it as almost certain that the Cockerill Company would obtain honourable distinction for the admirable construction of its unchines, have been guided, in some Mesors, Pinano and Mineus, of Couvin (18, p. 1151).

for their iron ores and bar iron.

The Marcinelae and Coullett Smelting Company (20, p. 1155). The iron which this company exhibits is of very excellent quality; but they are placed in the same entegory as the Cockerill Company, exhibiting machines as well as raw produce.

Zine and Braza Works.

THE NOUVELLE MONTAGNE ZING MINING COMPANY,

at Verviers (7, p. 1151) The exhibition sent by this company includes lend and zine, in pig and manufactured articles in zine, the latter consisting of sheet zine for various uses, such as engraving. smoothing paper, sheathing for ships, zine tiles of different surcounting paper, scenting for supe, and utes of different forms, &c., and sine powder (oxide of sine) for pointing. To illustrate the uses of the different kinds of tiles, the company has added two models of roofs remarkable for

compainly has adocted 14 on mosters of roots remarkable not their lightness. The Jury recognize the great quality of these by awarding the Prize Medal to the company. Catarborn, Messre, Cand II, of Later (377, p. 1198-116), have also obtained a Prize Medal, for boiler-shape 162, competives exhibited by them. These transfers of the competives exhibited by them. drawn and completed without joint, are of very beautiful manafacture.

Terra Cotta, Bricks, Crucibles, Refractors Clavs, and Kaolin. This department of mineral industry is well represented

is the Belgian Exhibition, and has obtained several Honourable Meutions. Notwithstanding the interest belonging to such products, on which the success of some establishments, as of cast steel or glass, may depend, we must be contented with simply naming the Exhibitors as worthy of Honourable Meution. PASTOR, B. & Co., of Ardennes, Namur (395, p. 1163),

have exhibited :-

 A gas-retort, weighing 14741bs.
 The hearth of a blast furnace for coke fuel, made of refractory bricks, and weighing 504 lbs. 3. A series of refractory bricks, for haing different

parts of blast furnaces, also burning coke fuel, 4. Drainage pipes of various dimension

5, Specimens of clay of different qualities, especially refractory clay,

The same distinction is awarded to F. Costr., † of Tilleur, Liege (397, p. 1163), who has exhibited two sets of crueables, the one made of a mixture of plumbago with elay, and the other of refractory clay only. The former are intended for fusing steel, and are divided into three parts, the lowest of which only is the cracible, properly so ealted, the intermediste portion serving to contain an additional charge, so that when the fusion is complete, the true crucible is entirely filled. The Jury notice this arrangement as presenting some interest.

The Exhibitors having the numbers 12, 14, 15, 396, and 353, have obtained Hosoarable Meution TOMBELLE-LONDA, E., of Bonneville (12, p. 1151).

Specimens of porcelain elay. DE-GAIFFIER D'IlESTROY, the Baron of Mullien, near Namur (14, p. 1151). Specimens of porcels in clay. De Ferrare, F., and L., of Wierde, near Namur (15,

p. 1151). Specimens of plastic clay, employed in the ma-nufacture of fine pottery. * This Company was awarded a Prize Medal by the Jary

of Class v., in whose list its owne spicers. I. W.

† This Exhibitor has been awarded an Honourable Mention by the Jury of Class XXVII., in whose list his same appears .- l. W.

TENSONNET and Danter, of Namicle, Namer (394, p. 1163. Samples of fire-clay. Connectat Commission of Marchin (396, p. 1163).

A quarterse convlousinte with a s.l.ciors cement, forming the Lase of the ceal measures, and violding a material absolutely refusetory for the construction of the hearth or cracible of blast furnaces. Blocks of this couplemerate cul and arranged for the construction of a crucible

Botchin, T., of Pandour (399, p. 1163). of refractory clay; gas retort manufactured of this clay. Saggers, for baking porcelain.

States, Grindstones, Hones, &c ..

Belgium, a country which consists in great part of palayoxoic deposits, possesses a great number of rocks adapted to the manufacture of grindstones and hones; and as the slate formation (one member of the group) is especially developed, the working of slates is also very active in this country. The geological constantica, which always has a great influence on the commerce of a country, here exercises a powerful action, and this depart-ment of industry is represented in the Crystal Palace by several exhibitors. Since, however, slates, whetsteads, and other products of this kind, require no clunge in preand other presents of this kind, require to example in pre-paring them for the market, the peculiar form in which they are wanted involving the only modification they mudergo, so that there are thus no very great difficulties in the way of their preparation, the Jary twee only thought it necessary to distinguish them by Heasurable Mentions, except in the case of M. E. Di. St. HUBLET 8, p. 1151; to whom a Prize Medal was swarded. count of them would be almost exclusively technical; so that, notwithstanding the interest which attaches to this branch of industry, it is impossible in this Report to do more than enumerate the products. COLETTE-DOUGHT, F. L., of Bertrix, Laxemburg (3),

has exhibited -1. Writing stones 'slate pencils?

2. Hoses from differentrocks, and for various purposes 3. Specimens of slate of various qualities and sizes. JEAN ANTOINE GUILLAUME, of Bovigny (1, p. 1150), Charles Joseph Otte, of Vielsalm (2, p. 1150), Christophe Lamberty, of ditto (3, p. 1150), PILEME JOSEPH OFFERDELS, of ditto (4, p. 1150), AMBERTY BROTHERS, of Stavelot : 25, p. 1152), DUPLERRY, jun., of Vielsalm (494, p. 1166),

have all exhibited very good collections of whet tones, as remarkable for their dimensions as for the care taken in

their preparation.

J. B. Falton-Pinon, of Numur (10, p. 1151), has exhibited a fine block of black markly, peculiar to the district, which can be produced in large masses, sad at a low

ED, DE ST. HEBERT, of Bouvignes (8, p. 1151), and J B. MORIMONT (9, p. 1151), have exhibited millstones of good quality, the cellection of the fermer being on a him for the award of the Prize Medal. This source of industry was only introduced into Felglum since 1846, but has already become insportant. The mills tones from the province of Namur possess qualities which reader them comparable with those from La Ferte-sons-Jouarre, in France.

CHINA.

China, so righly represented in the Crystal Palace by its silk stuffs and porcelain, has only obtained a solitary its sifk stuffs and porcelain, has only ortunate a solitary theomership Mesticas for its mineral productions. This is granted to R. Auccex, Ego, H. B. M'ss Counul at Shaughni (1, p. 1418), for a cellectin of materials em-ployed in porcelain menufacture at the great porcelain works of Kning Thit Chin, near the Poyang I also.

This collection includes specimens of prepared clays, and also a series of pigurant employed in percenti-work. In their present state it is impossible to determine the acture of the materials without analysis; but they are exactly analogous to a more complete collection. forwarded to the Ecole des Mines in 1846 by Mr. Stanislas Julien, nember of the French testistic, who had received the specimens from Mr. Jueph Li. To the prepared elays, Mr. Li had radied some compact febapatite rocks resumbling the Conside clauss. These rocks are reduced to a paste under n mill, and serve partly for covering the porcelin with a plane, but are also mixed in various proportions with the paste intended for the percelain, making the procedure of the pro

CHILI.

We have already, at the commencement of this Report, referred to a unguificent specimen of native silver, weighing 154 lbs., nhtained from Chili (p. 1429).

The mines of request without refutility to important mapping of timent results in Civilia and was of silver, was requested results as clean in Civilia as those of silver, year, and this regulate in one placed among the smaller special control of the civilian and the regulate in Civilia and of two kindes—trivinos proportion of the opport small as manufacture. The zero of this metal worked in Civilia and of two kindes—trivinos proportion of the copy and into, which was it is, different control of the civilian and the control of the civilian control of th

The copper parties over in voice in the grains, and manufacted with two protes, gates, nation does of gold an according with two protes, gates, nation does of gold a very fine specimen lost numbered, stared to contain a very fine specimen lost numbered, stared to contain the protestal to specimen of a quarter top saintig into grows, in which the copper and true parties from a process, in which the copper and true parties from a grown of the parties of the process, in which is composed to the parties of the part

sequence of there being an admixture of metals, supposition of there being an admixture of metals. This fine specimen is from the mine of Madre Lios, near Coquimbo, and was obtained at the depth of 49 yards below the surface, and weighs 300 lbs. An Ordinary Mentium is awarded to the exhibitors.

ECTPT.

The Egyptian Government has exhibited (1 to 18, p. 1412) some infinency, which would be n' interest if they were accompanied by indications of their origin, hut, with the exception of the antron obtained from likes in Lower Egypt, we are ignorant of the localities whence the various apecianes coine. They belong in elays for the most part orchrosis, list one, notwithstanding this common construction of the control of the co

The Jury, while regretting not to have been able to procure details concerning the position of these minerals, have still testified the interest which they feel in the discovery of sulphur in the Egyptian territory, as well as in the extraction of natron, and they make Honourable Mentium of these two objects.

FRANCE (p. 1168),

The mineral industry of France is at present almost eatirely concentrated in the working of coal and the production of iron, which is the working of coal and the production of iron, which is the production of iron, which is the production of iron, which is the background of the production of iron, which is not less rich in inetalliferous deposits than neveral other countries in Europe eclobarted for the prosperity of their mines. Official documents, recently published by the Freuch Government, show that the number of

known and worked mining localities amounts to 500, which, in relation to the erystalline rocks, may be grouped into five metalliferous districts corresponding to the five mountain ranges of Brittsey, the Centre of France, the Vosges, the Pyrenees, and the Alps. These communicates to France a perculsiar geological character, and in some degree qualitie the climate, the higher monstains being situated in the southern part of the

country.

It is clear from written decounterly need yet more from the list clear from written decounterly need yet more from the last clear from the last clear from the last clear from the clear from t

for the production of autimony, and 3,2001, for the reopened copper mines of Nt. Bel and Chessy.

The working of ceal and the production of iron form a happy contrast to the workings of metal mines, and we proceed to make known in a general way these products.

Working of Coal.

About the commencement of the eighteenth century this branch of mineral industry, now so flourishing, hardly existed at all; the coal known at that time at St. Etienne, Alais, Vigan, and St. Gervais, in the department of Hernult, being used only by the blacksmith; and it was not till this time that any serious researches were made for coal deposits. In 1734 was first discovered the existence of mineral fuel at Anzin, now the centre of one of the finest coul districts in Europe; while in the same year commenced the workings at Crensol, a spot which has become the cootre of the important coal district of the Soone and Loire. From the date of these discoveries the use of coal became more widely extended, and it was soon applied to the manufacture of glass and the hurning of lime; but it is only since 1802, a period when industry made rapid progress, that the extraction of coal acquired an important development. In 1789 the total production in all France barely reached 215,000 tons; but in 1802 it had already increased in 900,000. Stationary then till 1829, it rose in 1830 to 1,600,000 tons. In 1845° the ufficial returns show that it reached to 4,202,091 tons, and now France occupies the second place in reference to the production of this mineral, im-mediately succeeding England, whose production is, however, eight times as great.

The vast development of the extraction of coal in France attest the corresponding development of all those industrial occupations of which coal is one of the elements of production. It affords a startling proof the progress made in all the useful arts during a period of a third of a coutary passed in perfect peace.

Production of Iron.

The mounfecture of troe has always been tolerably active in France. The error of this metal exist there in almost all the geological formations, but are especially excluded the property of t

Comptes rendus des Travaux des logenienes des Mines, toure xiv., 1846, p. 21.

this position of the irru ores in the midst of forests has following tabular statement establishes this interesting always been taken advantage of for the construction of fact:-foundries. Each of the tertiary plateaux has thus long been a small metalliferous district where the manufacture of iron was active in proportion as the wood was abun-

dant: and these districts have for many ages been the

y sources of the supply of iron. Within the last 25 years, since the manufacture of iron has been carried on with coal fael, the position of those establishments where wood was employed has been essentially modified; and, in fact, the introduction of iron made with coal, the cost of which is so much lower than when made with wood, and which is only limited in quantity by the extent of the demand, has changed the conditions which nature seemed to have established Charcoal iron could not have borne up at all against the furmidable competition of that made with coal, had there not been an important modification of the methods of treatment, consisting of the introduction of coal in the ultimate processes adopted to produce wrought iron from the pig, the use of charcoal fuel being retained in the first production of the pig itself. These further pro-cesses with coal fuel are carried on in works specially constructed for the purpose on a large scale, situated where the coal can be obtained at a moderate price. This mixed method has produced a great reduction in the price of iron, which has fallen from 70 to 27 france for charcoal iron, and from 52 to 22 for that made with coal; and the difference in price has been obtained without the superior quality of the charcoal iron being at all offeeted

This method, while lowering the price, has also given a great development to the manufacture of pig and wrought iron. If, for example, we take the production of pig as the term of comparison, we find that between 1819, when it amounted only to 112,000 tons, and 1845, when it reached \$22,385, the increase was in the pro-portion of 100 to 465. Even this is only the fourth part of what is produced by Great Britain; but on the part of what is produced by Ocean in the first rank of iron-Coalineat, France is now placed in the first rank of ironmaking countries. It appears, from statements unde in the annual report of the Corps des Mises, that the three countries on the Continent which come next in order to France in the manufacture of iron, are Russin, Sweden, and Pressia, and that the make of the first from 1835 to 1838 was 189,000 tons of pig; of the second, in 1839, The average in France of the three years 1835 to 1838 was 239,000; in 1839, 305,000; and in 1840, 348,000.

The mixture of fuel adopted has allowed of the use of part of the vegetable foel, formerly employed in the manufacture of wrought iron, for the making of pig; but, at any rate, the statistics of the iron trade in France distinetly show that the use of cosl in preparing wrought iron is very far from having diminished the consumption of charcoal. Thus we find the quantity of pig iron made with coke and charecal respectively thus stated:-

	made with Coke.	made asth Charcoal.			
Years.	Tons.	Tons.	Total To		
1819	2,009	110,500	112,50		
1830	27,103	233,258	266,30		
1840	77.063	270.710	347.77		
1846	233,703	282,683	5.44.91		

Whence it appears that while, in 1819, the amount of pig iron made with coke was only one fifty-sixth part of the whole production, it amounted in 1830 to a thirteenth part, and in 1846 reached to 46 per cent., or searly half

of the whole amount.

A similar fact may be observed with reference to the refining of pig; but the proportion of wrought iron manufactured with coal, being much larger than in the former case, the equality of production from the two sources was established between 1835 and 1838; after which latter date, the consumption of charcoal in this branch of the manufacture has been nearly stationary, the proof coal has, however, continued to increase, and in 1846 70 per cent, of the wronght iron was thus made.

Quantity of Iron made with Coal		Quantity of Iron re with Charconi.	ade
Years.	Tons.	Tons.	Total Tow
1819	1,000	73.200	74.200
1835	101,380	108,159	201.531
1835	115,110	109.085	224,195
1846	254,325	105,865	360,190
The p	roduction of pig	iron requires at	least 130 p

ent, of charcoal, " for making, rething, and rolling; and the different processes of manufacture of charcoal iron consume at least 145 per cent. Combining these figures with those which precede, we find that the total consumption of charcoal, in the production of east and wrought iron in 1819, was only 250,137 tons, whilst in 1846, it might have risen to 519,991; the latter amount being, however, in all probability, too great, since even in the charcoal foundries they frequently use coal in the re-heating process; but if we grant that this substitution diminishes the consumption of wood by one-half, it still results that the total consumption, in 1846, reached 443,239 tons, being almost double that of 1819. The use of coal in the manufactore of iron has not therefore, as is commonly enough supposed, done away with the use of charcoal. The two methods of operating have increased together, and on the same scale; and, on the whole, the production both of cast and wronglit iron has been quadrupted.

After this general summary concerning the manufacture of east and wrought iron in France, it is right to observe that the weak point with regard to the metallurgiral industry of that country consists in the dearness of fuel. It possesses inexhaustible stores of ore distributed in numerous localities, easy of extraction, rich, and in almost all cases of excellent quality. But so long as

* In many parts of France, only equal quantities of pig and charcoal are used, but the quantity stated in the text is a general average. We find, in fact, from the "Comptea rendus des Travaux des Ingénieurs des Mines," for the year 1846, p. 57, that the production of charcoal pig, and the consumption of fuel, were as follows;

Which shows a consumption of 130 parts charcoal for 100 of metal. With regard to the further processes of manu-facture by charcoal, we find, p. 59, that the refining at-Met, Quintate Met. Quincal

Nivernais " 874 454 1 273 289

Whence it follows that these methods combined show a consumption of 145 parts of chargoal for each 100 parts of wrought iron Applying these figures to the production of pig and wrought iron in 1819 and 1846, we find—

110,500 of pig iron, requiring 143,650 of charcoal 1816 242,683 366,487 73,200 of wrought iron " 1819 106,140 105,865 1846 153,504 The consumption of charcoal being therefore-Tons. Total Tons.

1819 . . For pig iron . 143,650 } 249,790 For pig iron . 366,487 | For wrought iron 153,504 519 901 If we suppose that in 1846 the charcoal foundries have used half charcoal and half coal, we shall still find the con-

sumption of chargeal to be-Tons Total Tone.

For pig iron . . . 366,487 443,239 For wrought iron . . . 76,752

char at exist 80, 1.0, and even 120 fairs - 64s, 10 feet, per ton, and out from 3-to is of fairs exist, 16 st, 16 st, before the second of the control of the cere is very master must be directed towards economising fact, Great improvements have already been made in this second of the control of the control of the control of cert improvements have already been made in this way are quite and in asserting, from the knowledge we sure an exist of the control of the control of the way are quite and in asserting, from the knowledge we succeed in predicting from by these mixed methods at the same piece as it is made in in those places where the called at the even possible of the control of the control of certain the control of the control of the control of the certain the control of the control of the control of the certain the control of the control of the certain the control of the certain the certain the control of the certain the ce

An exhibition in London of the various modelecture, as present introduced into the manifecture of rion would have been very interesting for the study of metallurry, and it is greatly to be regretted that so few of the and it is greatly to be regretted that so few of the from England on this occasion. We are suntified from the good feeling that has been shown to all Presedectibilities, and the friendly relations that have constantly persisted amongst all the insenders of the Jony, that their persisted amongst all the insenders of the Jony, that their improvements which they have introduced within the last versally years would have received becomparile revands.

The almost ensire theorem of two from the French period of the Circu Exhibition, and the anal number of the Circu Exhibition, and the anal number of the Circu Exhibition, and the anal number of soft, have prevented this branch of industry in France control period of the circuit of the Circu

jects have the nearest analogy one with another.

We must first recall attention to the two exhibitors to
whom the Council Medal has been decreed. These are
Mr. Brinanu (5t, p. 1173), for his coal-washing appa-

Messes. Estivant, Brothers (1214, p. 1235), for the size and quality of the objects exhibited by them in

rolled and hammered hrass.*

Mr. J. M. F. Mehr, tolding engineer, of Auxin (627, p. 1208). Apparatus for the extraction of coal, and for

the descent and ascent of mines. It is now some years since a contrivance was introduced into the mining districts of Germany, England, and Belgium, the object of which was to prevent the great fittigue and frequent accidents experienced by miners on account of their having to descend and ascend the shafts of deep mines by means of vertical laiders or by the tubs and tackle used in lifting the produce. This apparatus consists of two wooden beams placed in the same shaft opposite to and balancing each other, and moving up and down by an alternate vertical motion communicated by machinery. On each of these beams small sets of horizontal planks or steps are placed, the distance between each being twice the length of one lift. The miner then standing at the bottom on the ascending being in order to come to the pit-mouth, steps to the apposite plank as soon as by the motion of the frame he is brought to its level, taking advantage of the short interval that elapses while the levels of the two steps are the same. He is then lifted again by the rise of this part of the frame, that on which he first stood descending, and again steps off when the lift is concluded. He thus rises step he step till be reaches the top, the best of these machines has been erected by M. Abel Waroone in a shaft of a coal mine at Marimont, between Mous and Charlerny

This apparatus was a great improvement in working

mines; but it is exposed to a serious inconvenience, as it

is impossible to life ore or coal from the shaft in which it is fixed.

Mr. Nikin has constructed a similar marbler, which were at the anni time in this theor or each, and converse at the anni time in this theor or each, and conbert in operation for three years in the "law"; pit an electric properties for three years in the "law"; pit an interference of the western of a pair of consected on, provided with new pit control or useful for wear of the pit and the pit control or useful for wear of pit and the pit control or useful wages, and the other of rade serves to risis the leaded wages, and the other pit to leave the expect on in the like the wages pit to leave the expect of the pit of the pit of the pit of short intervals of rest, during which they remain restings on other seasoes, exict in the inlies of the adult, and

length of one atroke of the vertical rods.

For lowering or raising the nuizers, the men step on moveable planks, in the place of the waggoos, and the descent or ascent is canducted in the same manner. The depth of the Davy pit, where this machine by M. Mébu is in operation, is 200 feet, the beans traversing 50 feet.

The Jury, considering that Mr. Mcha's apparatus is likely to be of important service in the working of mines,

have awarded to him a Prize Medal.

Mesers, Galliculus and Conyany, proprietors of the foundries of Bigny, department of the Cher (229), 1187, The exhibition from these foundries consists of various kinds of merchantable iron. Both iron and wire have been found to be of excellent quality, and a Prize Medal has been awarded to the exhibitors for the excellence of

their products.

Mr. A. T. Likturr, proprietor of the steel works of
Ahn Mona, department of the Seine and One (1071,
p. 122). The skeel-ords of Alini Mona, whose criping
p. 122). The skeel-ords of Alini Mona, whose criping
p. 1220. The skeel-ords of Alini Mona, whose criping
p. 1220. The skeel-ords of Alini Mona, who criping
p. 1220. The skeel-ords of Alini
p.

iron, and of first and second quality for entitery. The steel made by this exhibitor is of uniform and homogeneous grain, and the quality line been considered to merit for this establishment the Prize Mevla. Honourable Mention has been granted to the follow-

ing:M. C. Lapevnilae, proprietor of the works at Broniquel, department of Taru and Garonne (1710), who has exhibited iron of various kinds, admitted to be of good

quality.

Monet, Bactures, * of Charleville (1686, p. 1256), who have exhibited a collection of cast-iron vessels, many of them conted inside with enamel.

Dixtracts and Sox," of Niederbeam (188, p. 1183). The objects sort by these exhibitms consist periody of monified cust-tree, not coming within the cognitance of their produces, the Jury do not feel justified; as wording more than an Honourable Mention in Mesors. District, They drain to direct attraction to several objects remarking, in the first place, as iron figure of Con Section 1889, the second control of the s

In the second place, the motion reduction of clicks for lithography, which introduce a new application of iron-casting to the art of engraving an stone with machinery. Very fine impressions are thus obtained; and in this particular matter the justly-eel-braide Berlin iron ware is equalled by Mesers. Dietrich.

By means of the engraving-machine there may be

* These Exhibitors have been awarded a Prize Medal by the Jury of Class XXII., in whose list their names appear, -1, W. obtained, with these clickés, delicate vignettes, which would seem difficult to inside, and some of which have already been used fur hank choques and letters of exchange. They have socceeded at Neidechroan in giving great

softness, tenacity, and flexibility to their cast-ten, and Messrs. Detrick have exhibited a sheet of this material, nucsuring 7 feet by 2½ inches thick, which is very flexible. The exhibitors consider that, for some purposes at least, these plates of cast-iron might be substituted for sheet-iron.

GANOILLOT and COMPANY, Rue Bellefond, No. 49, Paris (230, p. 118.) Hollow iron and tubes. The objects exhibited by Messrs. Gandillot consist of

The objects estimate by Mediri. Caladitot eessal to we distinct set; the one of tubes called light foles, intended for such purposes of construction, furniture, écc., and he or require that the joints should be close; and the and not require that the joints is should be close; and the being carefully supercy, are expalled of resitting a present of at least purpose, are expalsed of resitting a present of at least purpose, for conveying gas, or for warms for chemical warks.

These tules are manufactured in two different ways, seconding to the purpose for which they are intereded, and the pressure they are to bear. The cammon kinds which have to resist a prossure of only fifteen to wenty-five atmospheres, are united at a white heat, being welded by juxtuposition in a series of three to five decreasing draw-plates. The degree of resistance of the weld in these tubes depends on their greater or less thickness.

For purposes requiring a nauch higher pressure, M. Gamillet makes double tubes, and there the designates "without joint." To make these, he provides two comman tubes, such that one will just catter the other with effection. The number is then inserted into the larger, of the summer out at we will be summer of the summer of

mandage, a saggle state, unter in term without point, made, it lears it in some part of the circumformer, but not in the direction of the welding of the external tube; and if the trial is repeated in different portions of the same tube, which has been previously sawn into several parts for the purpose, at each trial the tear will commence in a different part, so that the answare of resistance of the contract of the contract of the contract of the or count histories.

MM. Gandillos. have added to their collection of obpetes exhibited, fragments of these has have been tested, and these show that in fact the testing does the place in various directions. For some purposes, especially fact the reasting of animal black, where the vapour requires to be very intensity heated, these those, described as "without joint," have perfectly neceeded. MM. Gandillott have, therefore, rendered service to industry by diddle have, therefore, rendered service to industry by the properties of the properties of the properties of the price Media.

Messrs, Gnother and Company, Paris (531, p. 1201). These exhibitors manufacture brase tubing of all sizes, from 1-24th of an inch to 6 inches (6**000) to 0**150) it diameter, the thickness being so graduated that all the sizes can be placed one within the acet above it. They also exhibit tubes for cutton printing, for telegraphic uses, and for focomotives.

The Jury have remarked with interest, amongst the products exhibited by Mears, Grantl, best tubes obtained by these ingections manufacturers, by a combination of the ordinary work of tube-drawing, with a regular rotation given to the principal tool used in the operation. These tubes tear less readily than jointed tubes, and are beginning to be used for conveying gas, under the same of the control of the control of the control of the conception and C. A. Prize Medal is avaried to Mears.

M. DEYECK, of Liancourt (Oise) (476, p. 1200). Crucibles for fusing metals The crucibles manufactured by M. Deyenx are of two distinct kinds, according to the

uses for which they are destined; those intended for fusing broaze, copper, gold, and silver, are marked with the letters [A.D.]; the utness, manufactured expressly for the fusion of cast-iron or steel, are marked No. 28.

These crucibles have been in use for the last tey gern, and certificates forwarded with the objects exhibited, and signed by the Baron Theward, and Musers, Barred, and Muser, Barred, and Muser, Barred, Muser, and the second state of their judgment in the matter, the opinion of men so termed and so competent to decide, and have accordingly to the second state of their judgment of the second state of their judgment of their judgment

constr., s. F., Para (1983, p. 1257), manufactures of span lead, The happy lead of employing span lead, of span lead, The happy lead of employing span lead, to Mr. Poulet, the resistance offered congressed titled to Mr. Poulet, the resistance offered congressed to the span lead of the span lead

Monator M. Fource, "Maries (162, p. 1181). Maries, The quarrying of unlarles, which formerly praspect in France, especially under the reigns of Lonis MV, and XV, land bors unsuch to spected from the commencement of the present century, Italy within that period having atomic reclaimedy snapified the attanay mariles, while lelipious frankised the greater quantity of the metales lelipious frankised the greater quantity of the metales Per tome years past, however, there has been resunced, under the influence of Government, a considerable number of neglected, marble quarries, especially in the beer of neglected marble quarries, especially in the

vrenees and the Vosges, The exhibition of Mesars, Derville is more particularly directed to illustrate the marbles from the Pyrenecs, their collection including upwards of 100 slabs, 16 inches high, and offering at least 20 varieties, among which may noticed those called Campan marbles, the marble called "griotte" (spotted with red and brown), and the white marble of St. Beat; all remarkable for the variety of their colonrs, and the beauty of their polish, The Campau marides also possess a peculiar geological interest in the namer of goniatites which they enclose, and which are often mixed confusedly with the paste; an arrangement which evidences the great amount of change which these limestones have undergone at some period, and which supports the theory of metantorphism. The Jury, taking consideration the different circumstances alluded to, have awarded a Prize Medal to Messra. Dervillé

J. H. Cours. Marthe-dealer at Epinal (1544) p. 1231.
The markles of the Vouce, to the restream of which the chaldren has especially derived wimself, the a fine that chaldren has especially derived wimself, the a fine the Pyrocew. M. (calin has the worked the grantee, systeme, perplyrice, and diories, of which there is a recommendation of the Justy, and have lasticed the estimate of the Justy, and have lasticed the estimate of the Justy, and have lasticed them to give M. Colin a Pixe Nodel, had hard passed on the property of th

is the jernery.

Mears, Gerrayys Borrness and Co. Millstoness of rock of La Ferré is a nicious rock, full of interctiers, processing a multicule of reputy sposes and lawler processing and the processing the control of the fundamental sposes and the processing the control of the fundamental processing the control of the fundamental processing that no part of the stone becomes united with the grain, and this quality has collect united for grinding, so that they have become a collect much for grinding, so that they have become a

somewhat important branch of export trade to nowing countries; and in Sey war age they forther a very high price, borses under the old system of managing milit, and the second of the old system of managing milit, or judging and home are server and difficult of extraction. Within about 30 years, however, there have been subtant to the second of the second of the second of the board by term hoops. These segments, to which in board by term hoops. These segments, to which in earlier's appreciated the single millshome, as will be seen by referring to the following table, and it has resulted that the second of the second of the second of the second of the law yet, few some year, parallel counter two trans-

than at a former period.

The following table will give m idea of the extent and importance of this manufacture:—

		of the 3	Hillsto	ve Trade	at I	a Fen	te in 1833.
Militate	mer.					Fr .	Pr.
151	pairs.	diamet	r 6 ft.	1st omal	ity st	1,200	18,000
250				2nd		BHO	208,000
300	"			3rd "		600	180,000
300			5 ft.			300	50,000
300	21		4 ft.			350	105,000
	- 1	90,000 s	eginen	te at 3 fr	. 50c.	each	685,000
			Tota	l value l	n 183	з.	1,286,000

Total value in 1849 .

1.025.000

The quarries of Turarel are the most important, the number of worknet constantly employed there exceeding 200. The arrangement of the interstices and solid portions of the stone from these quarries is considered are almost all regarded as of the finest quality. The working and trule in these milistones is in very few hands, and of these the bosse of Mesen. Lineau is all very complete collection to the Kshibition, cellealated to

give a proper appreciation of this branch of industry, and the Jury have awarded to them a Prize Medal. Honourable Mention is also made of Messrs, Galilland (225, p. 1187), and Rouze (1248, p. 1245), who have exhibited similar objects, but not of such fine quality. The collection they exhibit is also less complete.

C. Torallos (1906, p. 1248). This exhibitor has also forwarded millstones, but he is not himself a producer, being occupied more particularly in the operation of reducing lines. When the stones have been so long are won smooth, they are put right again at a modernic cost by this exhibitor, who employs in restoring them a machine of great simplicity invested by shimself. The Jury have granted Hossonardle Meution for the double

C. Lanvirán, blase merchant of Angere (200, p. 1190). The alst quarrier of Angere (270, p. 1190). The alst quarrier of Angere (270, p. 1190) and the production, the angere of the angere (270, p. 1190). The alst quarrier between the angere (270, p. 1190) and the angere (270, p. 1190) and the angere (270, p. 1190) and the case with several of the coast torus, and as In Brobelli, Beckeler, and of their being reduced to a very small flakkness, and the case which are the case of t

The exhibition of Augers states in Loudon does not do justice to their high character; and without intending to institute a comparison between products of similar kind, the Jury have found it very inferior to that of the Welsh slates. They have, however, made Honourahle Mention

of the Angers State Company, as represented by M. Larivière.

Chavor and Selox (448, p. 1200), Viganittiers

M. A. stand Co. (1344, p. 1240). Vigna (faral). Homerable Mention is made of these two-shiltions from Vigna for their lithographic states. These, which are obtained, from the beds of the upper lins, called Blenmira sharper of very good quality, and since they have been worked, upwards of 12,000 stores per annum have been worked, and of 12,000 stores per annum have been existed to the contract of the contract of

M. ALKAYN, sen. (1951, p. 1229), assumeteurer of processin at Linguages. This manufecturer has sided to his exhibition of white processin ware the kanins and expensities, which he employs in preparing his present icks and glaze. The manufactured objects exhibited one coming within the employed manufactured objects exhibited on coming within the result of the control of the contr

We ought to said, that the knolin of Limoges has long been regarded as of excellent quality, and that the superiority of the white porcelain of this place, which is largely exported, especially to the United States, is due to the purity of the clay. M. Alhand, sen., is to a great extent the promoter of this important branch of industry

by the discovery he has made of considerable deposits of kaolin, which he works, and with which he supplies other porceion manufactures. Paris (1907, p. 1933), M. Zoffe has exhibited—1st. A collection illustrative of agricultural geology. 2nd. Two talection illustrative of agricultural geology. 2nd. A general collection for technological geology. 2nd. Two tales, cuttled "Geotechnological geology", 2nd. A general collection adopted by the minerals, recks, and feedils peculiar to them, the minerals, recks, and feedils peculiar to them, the A mineralogical collection adapted for travellers, including 1000 specimens arranged in compartments in Defreso; in the "Treatice on Mineralogy"; and 3d.

Two small collections of miseralogy and geology, of 120 periumes each, intended for studenty, is intended to the cluster, in intended to intended to illustrate the materials capable of being used for the improvement of soils, and sufficiently abundant to be supplied at prices justifying their employment on a large superior of the collection, states that the most of them are absolutely inexhaustible. Their me is shown by an experience of the collection, states that the most of them are absolutely inexhaustible. Their me is shown by an experience convirtance which coasiant in pitcing together them.

which turnish the miseral manures proper for them. The general collection of rechnological geology is extra the property of the control of the property of the same time as a emalogue. This table, cuttled when the control of the con

The interest presented by this table has induced the Jury thus to make mention of M. Boerfar, although the Jury thus to make mention of M. Boerfar, although the Jury thus to make licensism, but they have not drought have also make Homerston Mention of M. Exzorre for the whole of this collections, in that have not drought the stable and the discount of the collections and by the tablear lims of mineral massared wave not sperceived the embrids of experience; and they feet that in matters serious consequences, it is necessary that the result of any proposed improvement should be fully proved before Optimizery Mentions have being granted to the following Optimizery Mentions have being granted to the following

exhibitors:—

M. CHENOT (119, p. 1177). Iron and steel produced by means of metallic sponges.

emalt the circler

M. Louts Fralkt, of St. Omer (211, p. 1184). Various elays for the maunfacture of fine and course pottery. M. A. Basis (758, p. 1215). A kind of tripoli called "tellurias," being a very fine silicious deposit from the

mines of Mayaune, department of the Drome.

M. Favarl (835, p. 1236). For the beating of gold leaf.

M. Markey (915, p. 1223). For a model of apparatus for the distillation of oils from schist. M. Seguty, marble manufacturer, Rue d'Assas, Paris

M. Signis, marior mannaturer, nuc of assas, Paris (1993, p. 1257). Most of the objects exhibited by M. Seguin are sculptured, and the Jury have only taken into consideration the rough marble and mawn or polished 8hb.

polished 8nh.

We think it desirable to offer a few remarks on the objects exhibited by M. Chenot, and on the apparatus of M. Maghlat for distilling oil from schist.

M. Cheust has endeavoured to solve a very important problem, which has for its object the obtaining of iron directly from the ore without passing through the intermediate condition of pig, as in the Catalonian method or without being obliged to perform two operations, and

To do this, the over is deoxilised in a closed vensel at a dull red best by the contact of a reducing gas, and there and a substantial reducing gas, and there are not required to the contact of a reducing gas, and there is a reducing to the case to bring this into a massive form by simple compression at the usual heat employed in forging, but histerio his extend to the contact of the contact o

very sold content.

The appearans of M. MALITEN, for the distillation of oil from schist, comists of a kind of sheet-iron hox placed in a mutthe, and made to alide along a little relavey, where the property of the property

rest has been exposed to a similar and sufficient heat.

When the distillation is completed, the box full of ealeined schist is removed and replaced by another; the
inventor considering that this arrangement causes a great
saving of full, since there is no need to cool the furnace
after each operation, as is the case with the ordinary
method.

ALGIERS (p. 1259).

The investigations corried on in Algiers within the last twelve years by the mining engineers charged with this duty, and by several industrial companies, have proved the e_sistence of a large number of metalliferous localities. The operations conducted at these places are not yet sufficiently complete to ensure profitable returns, although many observations reader this result probable.

and the district of the distri

the province of Algaes, and are working of mines of copper and lead.

The mines of Mourana include three groups of veins, composed of aniphate of barytes, carbonate of iron, and grey copper ore. They are situated on the southern side of the first mountains of the Atlas range to the north of

Medenh, and have been worked since 1844, employing

The veius of Cape Tenés are altogether different, the veintone being a ferriferous delionitie, mixed with best of clay and ore, consisting of copper pyrites. These veins have been worked for two years, and are resumitable for their great number and for the space over which they spread, a circumstance which readers the preparatory operations very costly. They, as well as those of Monziai, occur in sundatones and cretizeous clays, which

appear to correspond to the mocinyo of Italy.

The mines of La Calle are worked in a fine vein of
argentiferous galena mixed with ferruginous clay, the
veinstone being quarray. They have been worked with
activity for about two years, and have already yielded
results of rome importnoce.

The province of signs, where these unions are situ-The province of signs, where these unions are situof Constantiue; but the ores are more valuable, and can of Constantiue; but the ores are more valuable, and can readily been the cost of transport to Europe. There are already two warks erected in the neighbourhood of Marseilles for reducing the ores of copper and lead, the rich scale of the constant of the constant of the con-

readily bear the cost of transport to Europe. There are already two warks errected in the neighbourhood of Marseilles for reducing the ores of copper and lead, the rich coral basin of Alian offering favourable conditions for these extablishments, and there is every reason to hope that they will become flourishing in a very short space of time. In order to show the interest they have felt in the

in order to show the interest they have left in the development of the mineral industry of Algeria, the Jury have granted Honourable Mention to— The Company of Mines and Fongles of Bona (20,

p. 1261), for their forged and east steel.
And they also award Ordinary Mention to the interesting specimens exhibited by—

specialens exhibited by—

M. Beauregard de Phillippeville (4, p. 1259). Ores
from Mount Tilblab.

Mining Commission of Mouzaia (18, p. 1260). Grey

opper ore.

Mining Commission of the Paovince of Algiers,
45, pp. 1261, 1262). Sundry ores of copper, lead, and

MINING COMMISSION OF THE PROVINCE OF CONSTAN-TINE (46, p. 1262). Geological collection from the province, and sundry ores.

STATES OF THE ZOLLVEBEIN,

The Zubrenia (cutomar lengue) includes all those indicated of the Germany with an expended as classical either by the antiquity of their works, or by the indicated control of the control

The list's mine sheety posture argentization general methods in the pixel in cultimate of most line (2),000 marris's of silver, employing more or less directly a population of authors provided the mineralogical and geological studies to which they are conducted, the mineralogical and geological studies to which they have consistent in the art of mining, here were first constructed, by Chief Mining-Captinn Allert, of the work and of their mining miners; and one of these machines (that at Andreasberg); and one of these machines (that at Andreasberg); an employed in shaft powards of 1,500 feet deep.

a The quintal may be calculated as nearly equal to our hundredweight. The settical quintal, however, is equal to 100 kilogrammes, or about 2 ewt., and the ton is, therefore, taken as equal to 20 common quintals, or 10 settical quin-

taken as equal to 20 common quintals, or 10 metrical quintals.—1. W.

† The mare of silver is equal to shout 8 oz. avoirdupols, The next group of mines, and the most important in respect of the samples of weiss works, is that of "Example Polyers, of which Freiberg is the centre, and, if we may very more than the property of the centre, and, if we may very form the term of the Engeleige chain, which forms the externa boundary of Saxony; and the moure as mines worked on these visial Saxony; and the moure as mines worked on these visial of lead, 32,500 flat, 16,500 marcs of silver, and 120 tools, and the sample of t

Fire Ilhenish provinces also present a censiderable manuler of metalliferon localities sidely appeal over their arriace, but rapallie of being grouped into several well-anked district. Thus from the neighborhood in well-anked district. Thus from the neighborhood in the order of the control of the neighborhood in the control likelian on the right hank, the lines of more in the order arrivalierous financiae and the carbonicrous architus of the cold mesures, offer a series of deposits of galean, bloody, and estimate, some of which pive rise to very local programme, and the control of the cold mesures of from 12 to 14 too of lead per day, and similar deposits from 12 to 14 too of lead per day, and similar deposits

ocent near Etherfeld and Brilon.

The galean is here associated with a large quantity of blende, the ahmudance of which has long been an obstacle to the prosperity of these mines; hat since a method has been discovered of reodering the blende available in an oce of zinc, if has become an important same of other propering the second strange of the propering the pro

a large scale for near Mulheim,

near similarities and the state of the state of the most remarkable of the mining districts, spathic iron, telesy as abundant in the Stutherg as it is in Styrin and Carinhi, has one in reduced in numerous establishment, which manifictured iron and steel are equally celebrated. This district also includes visus of grey copper one, generated the state of the state of the companion of the companio

point of view. We must also unradion as of great importance the united of copper in the histonisms scholar of Manufeld, where of copper in the histonisms scholar of Manufeld, where also have been present our of the white distributions and the configuration of the original to its wise the coal your known of its kind, both in regard to its wise manufer and the coalities of the originals home that manufe and the coalities of the originals home training and the coalities of the original histonism of the production of the coanity in the coanity of these constitutions in act equal to the coanispins of these coanities, and they import in addition from 1,500 to 18,300 tons musually the production is act equal to the coanispins of these coanities, and the production of the coanities of

silveis, coverinfug which it too remains to as a few states, distillation of exceptance approach and account to the contraction of the four-works in the action in the English inhabits in carried on an attract case, and it ever this concentration of the inne-works in the contraction of the in Silveis, but the could in this above contract to expect in inferiority at the quality of the soul, the same result inferiority of the quality of the could be some result inferiority of the quality of the could be some result inferiority of the quality of the could be some result inferiority of the quality of the could be some result inferiority of the quality of the could be some result inferiority of the quality of the could be some result inferiority of the quality of the could be some result of the country of the quality of the could be some result in ferror of the country of the country of the country of the source of the country of the country of the country of the source of the country of the country of the country of the source of the country of the country of the country of the source of the country of the country of the country of the source of the country of the country of the country of the source of the country of the country of the country of the source of the country of the country of the country of the source of the country of the country of the country of the source of the country of the country of the country of the source of the country of the country of the country of the source of the country of the country of the country of the country of the source of the country of the country of the country of the country of the source of the country of the cou

The production of pig iron is about 40,000 tons (400,000 metrical quintals), upwards of a fourth part of that obtained throughout the states of the Zollverein, which is estimated by M. Von Goldenberg at about 150,000 tons. We have not had the opportunity of verifying these

figures personally; but it is certain that industrial operations connected with iron have made rapid progress in Silesia within the last ten years.

satissa within the last only years.

The property of the prope

of this metal.

The manufacture of zinc in Silesia, as in Bolgium, is favoured by the abundance of the coal; the quality of the fuel but being so important in reducing this metal as in manufacturum; cast and wrought iron.

			- 3	letrical Tors
asin	of the Rubr in Westphalia			1,000,000
**	of Saxony			150,000
20	of Bayaria			50,000
**	of the Ducky of Hesse			50,000
	of Silesia			800,000
	of Saarebruck and the prov	inces	042	
	the banks of the Rhine			709,000
	Total vield			2.750,000

To complete these notices, we have still to mention the best of excellent lignite found principally on the Hilms, near Merceberg in Saxon Pensish, at Granesberg in Silesia, and at Lasan near Breslan. The quantity of this material worked is estimated at 2,400,000 tons per ammost important of all, producing at this time 1,200,000 tons of a field, which serves both for domestic purposes and for manifortories, and is a specoed to be capable of

yielding annually several hundred thousand tors.
The exhibition of ninetral worth from the states of
The exhibition of ninetral worth from the states of
ever correspond with, the richness and variety of the
nines, the principal districts of which we have just now
imperfectly indicated. We have already stated, at the
have sent none of their products, and Silecia is indeed
the only provides represented in a manner at all corcountry there are good specimens, both of its from and

zine works.

In order to follow more conveniently the emmeration

of those objects that have here noticed by the Jury, we will group lopether those of the same nature, although they are not all rewarded in the same maner. We are undelsted for most of the observations that will appear in this part of the Report to notes with which we have been farmished by Mr. Schreiber, member of our Jury from the Zollverein, and we shall begin by recapitulating the two exhibitors who have obtained the Commit Media

The first of these Council Medala was granted to Mr. W. GUNTILEN (6, p. 1048), of Reichenstein, in Silesia, and Profesor PLATTYER, of Freiburg, for the process of separating gold from arcenical pyrites. This process, amply illustrated by the series numbered 6 in the Catalogue, has admitted of the profitable re-opening of the nurferous nuises of Reichenstein.

The second is to Mr. Kneep, of Essen, for fine specimens of steel (649 and 677, pp. 1086, 1087), manufactured by a process peculiar to him.

Iron Ores and Bat Iron,

The Jury have awarded two Prize Medals and three Hommrable Mentions for this part of the Exhibition, The following have Prize Medals:—

ROYAL IRON FOUNDRY AT MALAPANE, BERT Opeln (2, p. 1047; Messes, Girnanth Brothers, forge-masters of Hoche-

leim, in Rheuish Bavaria '95, p. 1102 . The Royal Iron Foundry at Malapane employ charcual fuel, and exhibit iron nres, east and wrought iron, and the slags and einder collected during various parts

of the process. There are also a pair of cylinders of east steel of great hardness; samples of sheet iron of different thicknesses and length; specimens of red and white calamine from the mines of Scharley; various products obtained in the preparation of zine in the works in Benthen in I'pper Silesia, especially zine in ingots and sheets, and oxide of sine; and a very interesting product

obtained at this establishment, viz., metallic cadmium, These foundries have also a high character in Prussia for the quality of the cost and wrought irou and steel which they manufacture, and the articles exhibited in London fidly justify this reputation.

The exhibition sent by Mesers. Glenanth Brothers, consists of merchantable iron, gun-barrel iron, various kinds of sheet iron, iron ware of different numbers, and steel of various qualities. The products of Mesers. steel of various qualities. The products of Messrs. Gionanth are much valued in Germany, the steels being

especially in demand (p. 1102). Honourable Mention has been awarded to-

laminated pig, refined iron, and bar iron,

ROYAL FORCES AT LORE AND STARLBERN, BEAR Siegen (324 and 326, p. 1069). Spathie irou, lamellar white pig, natural steel, and

forged steel.

J. Haviniock, of Crombach, near Siegen (454, p. 1076). Ores of iron from the mines of Museu, with specunens of forged and refined steel. J. H. Darseen, sen., of Siegen (449, p. 1075). Ores of iron from Hohegrethe, Peterback, St. Andre, and Hath Mines, situated in the neighbourhood of Hamm, White

Natural Steel, Blistered Steel, and Cast Steel.

The manufacture of steel is very actively carried on in the states of the Zollverein, as it is calculated that out of 21,000 tons (210,000 met, quintals) furnished by the whole of Germany, their proportion amounts to 8,000 tons, that of Austria being 13,000. The abundance of the ores of spathic iron, resembling those of Styria and Carinthin, has had the same effect as in those two states of Austria, in inducing a great development in the manufacture of natural steel, while the converted or blistered steel is the exceptional form, the latter being ninre difficult to work than the natural steel, and both being ohtained in Germany at about the same price. The cast-steel works are of some importance; and we have noticed the important results obtained in this manufacture by Mr. Krupp, of Essen.

Among the establishments who have exhibited materials of this kind the Jury notice four, and to two of these Prize Medals have been awarded :-LEHBRIND, FALKENBOTH, and Co., of Haspe,

Hagen (447, p. 1075), who have exhibited ingots of cast steel, and forged steel of various kinds. HITH and Co., of Hagen (632, p. 1085), who have also exhibited steel in its various forms of blistered, forged,

and cast And Honnurable Mention has been awarded to-Mr. Vorsten, of Eilpe, near Hagen (446, p. 1075)

Messrs, Boeing, Roenn, and Lersky, of Limburg (453, p. 1076). The steels exhibited by Messrs, Lebrkind and Co., of Haste, have been obtained by a peculiar method in the

paddling furnace. According to Mr. Schreiber, their rice is lower than that of other German steels, being sold at 22/, per ton. It would seem that similar attempts have been made in other works, but without success. Mr. Vorster, of Eilpe, bas obtained malleable iron and steel directly from the pig.

The difference made between these four exhibitors is the result of an examination of the objects exhibited, and not a comparison of the relative importance of the establishments, and the quality of their products.

Ores of Lend and Metallic Lend.

ESCHWEILER MINING COMPANY, in Stolberg (318, Batterio S A Prize Medal has been awarded to this Company for

the detailed exhibition it has made of the products of its mines and foundries. These consist of ores of lead and since and foundries. These consist of ores of less and sinc from the mines of Deppen Kirchen and Breiniger Berg, near Aix-la-Chapelle, of Bleiberg, between Cologne and Siegen, and of Kickfeld and Heidehen, near Aix-la-They also include pigs of lead and give, and Chapelle. a cake of silver obtained at the foundries of Birkenyang and Binsfeldhammer, near Stolberg.

Honourshle Mention is awarded to the following :-E. F. OHLE (Heirs of , of Breslau : 62, p. 1052), who exhibit lead nipe of various calibre, sheet lead, and lead

MEINERERAGES and KREUSER BROTHERS, of Mechenech and Commern (316, p. 1068), who exhibit lead ores from the mines of the Count Julius, of Lippe, and Mesers. Kreuzer, Brothers, hesides pig and sheet lead.

Zinc and Cadminu. The production of zinc is well represented in the Ex-

hibition, and the Jury have awarded to this branch of industry three Prize Medals and two Ordinary Mentions, ROYAL IRON FOUNDRY AT KONGUSHETTE (3, p. 1048). A Prize Medal for ores of sinc, metallic zinc, and metallic

RUFFER and Co., of Breslau (11, p. 1048). ment of sheet zinc, two samples being as thin as paner. and remarkable for their style of execution. Sheet zine for roofing. Also a Prize Medal,

C. ROCHATZ and Co., Müllieim on Ruhr (452, p. 1076). A Prize Medal for specimens of zine ores from different mines, and for manofactured sine of fine quality.

Ordinary Mention to Messrs. Bakpr and Co., of Stolberg (315, p. 1068), for zine and lead ores, including some rare ores, such as Wilhemite, chloro-phosphate of lead, and erystalline carbonate of lead; and also to Mr. HAGEN, of Cologue (322, p. 1069), for calambie from the mines of St. Murgaret and St Joseph, near Mülheim, on the banks of the Khine.

Copper.

The working of copper is exclusively represented by the combined MINING WORK OF MARKELD (859, p. 1096). Resides treating the empriferous schists for copper, they also separate the silver that is mixed with the metal, and this separation, formerly effected by liquidation, is now performed by a new process, enseering which an information has been given to the Jury. The Jury have information has been given to the Jary. The Jury have recognized the value of the result, and have awarded a Prize Medal to the establishment at Mansfeld.

Cobalt.

P. Grarr, of Siegen (592, p. 1083). The exhibition of cobalt is only made by this exhibitor. The ore which he works is from Hoffnung, near Siegen, and consists of minute microscopic crystals disseminated in an argilla-ceous and quartzy schist. The ore does not yield more than 23 to 3 per cent of metal; and the method adopted in warking, as described to the Jury by M. Schreiber, is extremely perfect, not more than twn parts in a million of cobalt being lost. Honourable Mention is awarded to Mr. Grayr.

Mangamse.

The ores of manganese are ebiefly employed in the manufacture of chlorine and the chlorides, and do not therefore undergo any metallurgical preparation; so that the care with which the working is conducted and the picking of the ore are the nuly matters that the Jury can reward. They have been able, therefore, to grant anthing more than Ordinary Mentions for this branch of industry, and these have been awarded to two Pressian and two Nassan exhibitors as follows:—

Mr. J. BIEUEL, of Blessen, near St. Weudel (311, . 1068). Manganese in crystalline masses and in powder, prepared for the manufacture of chlorine.

Mr. J. H. Heatnex, of Ilmenau. Manganese, crystallized, in five speciment, and massive.

ROSENBERG and Co., of Giessen (Hesse) (2, Oxide of manganese, in very fine crystals; a p. 1125). very pure ore

Messrs. W. Bargt and Co., Giessen (4, p. 1125). Similar ores in crystals, less perfect.

Coal, Cohe, Lignite, and Bitumen. The details given at the commencement of this part of

the Report have established the importance of the coal basins and beds of liquite, and we have only here to add that the deposits of the latter fuel belong exclusively to the tertiary period.

Among the small number of persons who have exhibited roducts of this kind, the Jary have made Ordinary products of this willing three:

Mr. H. A. STINNES, of Mühlheim on the Ruhr (448, p. 1075). Coal and coke of great purity, from the taine of St. Victoire Mathias,

of St., victoric vitalias.

Mr. F. Haniel, of Ruhrort on the Ruhr (455, p. 1076). Coal of different qualities from the mines of Heinrich, Steingalt, Hageaback, Sälzer, and Neuack. Coke manufactured from the coals of the three last

Messrs. A. Wiesman and Co., of Augustenhutte, near Bonn (334, p. 1070). Bitumen, mineral oil, dussodyle, and various products obtained from the distillation of bitumen.

Amber.

Amber is found associated with certain lignites, and is tolerably abundant, but transparent specimens of fine colour are rare, Prussin being almost the only country by which they are furnished for commercial purposes. They are collected chiefly in the environs of Konigsberg and Memel, on the shores of the Baltie, and according to the rules established by the Jury, they ought not, perhaps, to graut rewards for this material. Considering, however, that a certain degree of intelligence is required ia collecting it, and selecting the pieces proper for cutting, Honourable Mention has been granted to Nos. 40, 438, and 441.

D. F. TESSLER, of Stolp (40, p. 1050). Two very fine specimens of rough amber; and a third specimen contain-

ing insects.

W. Mannheimer, of Kouigsberg (438, p. 1075). Two specimens of amber, weighing respectively 6 lbs. and W. Von Rov, of Duatrig (441, p. 1075). A fine collection of ambers, differing in colour, brilliancy, and transparency. The exhibitor has been 25 years making his collection, and the rough specimens are accompanied by manufactured articles, several of which are of great value.

Working of Salt Mines and Parification of Salt. lo most of the states dependent on the Zollverein, salt is obtained from the evaporation of saline springs. The trade is not open, the salt-works being conducted by the The Jury have granted the following Government, Ordinary Mentions:-

ROYAL PRESSIAN SALT-WORKS OF DUNZHERG (445, p. 1075). The collection sent by this establishment consist of impure and prepared salt, of various degrees of finepess.

SALT-WORKS OF SALSHAUSEN, in the Grand Duchy of Hesse (3, p. 1125). Common salt, purified salt, ligaite and hituminous wood employed in the evaporation of the brine; various products of the salt-works.

SALT-WORKS OF THEODORSHALLE AND KREUZNACH (Hesse 5, pp. 1125, 1126). Salt in grains; erystallized salt, remarkable for the size of the crystals. Concentrated mother-liquor, containing iodine, bromine, and chloride of calcium

Millstones, Marbles, and Refractory Clays. S. Landar, of Andersach (321, p. 1069). Lavas pos-sess the property of millstones up to a certain point,

This Exhibitor has been awarded an Henourable Mention by the Jury of Class XXIX., In whose List his name appears. - I. W. being vesicular and hard, and their application in this may be productive of very good results. The Jury, guided by this consideration, have granted

a Prize Medal to Mr. Landau, who has exhibited excellent lava milistones from Niedermendig, near Audernach. These stones, of which the dimensions vary from 18 inches to 6 fect in diameter, may be employed for grind-ing corn, preparing oil, and for all agricultural pur-

F. Zellen, of Neckar-Tourlingen, near Stuttgard, F. ZELLER, Of Necessry consumers, went crimagana, Wurtemberg (1, p. 1114). Specimens of stone from Mr. Zeller's quarries, arranged for the manufacture of millstones. According to their different conditions of hardness, grain, and colour, these millstones are employed for grinding wheat or other grain. Honourable Mention is unde of Mr. Zeller für this interesting manufacture

The Counsellor Von Minutoli, of Liegnitz (191, p. 1058). Amongst anmerous objects of autiquity and architectural decoration, this gentleman has exhibited some very fine marbles of Silesia, for which the Jury

have awarded an Ordinary Mention.

M. DE MULMANN, of Zeche Plato, near Siegburg (319, p. 1018). Refractory clay, refractory bricks for lining the interior of blast furnaces, and crucibles for steel casting. The crucibles are considered by Mr. Schreiher to be of good quality, and they are made of the same clay as the bricks, to which, however, is added graphite from

Messrs. Kapeller and Son," of Hafnerzall, near Passan (28, p. 1099). The reputation of the plumbago crueibles of Bavaria has been long established, and they were considered, till lately, as the only ones that could compete with those employed in the steel-works of Shef-field, and manufactured of Stourbridge clay. Those These crucibles owe their superiority to a mixture of plumbago, which modifies the dilatation and contraction of the material of the crucibles when they are exposed to the high temperatore of the steel furnaces, or withdrawn to pour out the steel.

The erucibles of Mesars. Kapeller are of very different size, and we have noticed some 2 feet high and about 20 iaches in diameter. According to their dimensions, and perhaps also the preparation of the clay, these erucibles are employed for fusing silver, gold, ur steel. A Prize Medal is granted to Messrs. KAPELLER for the

excellent manufacture of their crucibles. Geological Maps and Collections.

Geological maps and collectious are properly regarded as a means of spreading geological knowledge, and favouring the development of mineral industry. These considerations have induced the Jury to grant a Prize Medal and two Honourable Mentions for different geological maps, published by several editors in different German states, although these editors have in no degree participated in the investigations made in preparing these maps.

The Prize Medal has been awarded to Mesars. JONGBAU and VENATOR, booksellers of Darmstadt, for their beantiful relief maps:-1. Of the Grand Duchy of Hesse, and the Grand Duchy of Nassau, executed by M. Ewald, Secretary of the Geographical Society of Darmstadt. 2. Of Wartemberg, Baden, and the countries surrounding the Palatinate and Alsace. These maps are part of the exhibition of Hesse (6, p. 1126). Honourable Mention is made of T. DICKERT, of Bonn

(432, p. 1074), who has prepared relief geological maps of the Siebengebirge, the Valley of the Rhine, and Vesuvina; and also of Mesors. Scunory and Stron, of Berlin (303) who have published a coloured lithographic series of geological maps. MINERALOGICAL and METALLERGIC COLLECTION of the

Duchy of Nassat, collected and exhibited by the GOVERNMENT ENGINEERS of Mines (Nasanu, 1 to 5,

* These Exhibitors Lave been awarded a Prize Medal by the July of Class XXVII., in whose l-ist their unmest appear. - I. W.

The interest possessed by this collection, which includes the useful minerals and the different rocks of Nassau, and the productions of the most important mining establishments, has induced the Jury to award a Prize Medal to the Exhibitors.

CLASS L.1

We do not repeat the names of the minerals and rocks contained in this fine collection, and merely refer to the establishments which have assisted to form it. These are as follows:-

M. Lossey, Iron FOUNDRY of MICHELBACH (2, p 1132), to whom the Jury awarded an Hosourable Mention.

ISABELLENBUTTE SMELTING WORKS DEST DILLENBURG (3, p. 1132). In this establishment, partly devoted to the preparation of pickel, arsenic is also obtained, and various alloys are

manufactured, especially German silver, composed of 8 purts copper, 3 nickel, and 3\(\frac{1}{2}\) zine.

Marke Manufactory of Diez (5, p. 1132). nurhlea of Nassau, worked in this establishment, all belong to the palæozoic rocks. They include fine black varieties, and others which are red, yellow, and grey.

GREECE (p. 1400).

The GREEK GOVERNMENT has sent for exhibition a series of specimens of minerals and rocks, marked in the Catalogue with the numbers 15 to 50 (p. 1400). collection, grouped according to the provinces, chiefly includes a fine series of marbles and materials for construction, obtained for the most part from the cretneeous

limestones, either compact or erystalline,
We notice also pazznolanas from Santorin, emery from Naxos, meerschaums from the environs of Thebes, and lithographic atones from Messina. The latter are of even

grain, and appear to be of good quality. The Jury wish to make Honourable Mention of the ane sury wish to make Honourson Alenhoin of the GREEK GOVERNMENT (pp. 1405, 1446), on account of the interest presented by the series of marbles, as well as for the discovery of lithographic stom in that country, and also of Millo (15, p. 1402) for samples of stentile (the scapstone, or French challs of commercial).

NEW GRANADA (p. 1430). E. Paris, of Bogota (p. 1430), has exhibited very fine emersids from the Muzo mines, which supply almost all the precions stones of this kind imported into Europe. These ameralds, which are all erystallized, are attached to the parent rock, and thus possess a geological interest.

An Honographa Mention has been awarded to Mr. Panis,

PORTUGAL (p. 1306),

Among the objects sent to London by Portngal a large number of specimens of marbles may be noticed. There are two excellent series of these, the ona exhibited by Mr. J. de Figueiredo (120 to 231, pp. 1309, 1310), and the other hy Mr. Dejeant (232 to 257, p. 1310). All the he other hy Mr. Dejeant (232 to 257, p. 1310). All the pecimens are in squared or rounded slahs, and polished. specimens are in squared or rounded states, and pointers. The colours are very varied, white and dark grey predominating; but there are also fine yellow and deep and beantiful violet tints. Almost all the marbles are crystalline; hat one amongst them is a very fine round elab, with specimens of "Chama ammunia," in which the shell with specimens of "C. Saimi ammonia," in which the shell is preserved. These fossils, which are of a deep-grey colour, stand out from the marble, which is of a yellowish grey; and it is interesting to see them thus completely preserved in a limestona of which the erystalline eon dition is so decided. The Jury have desired, as a matter of geological interest, to learn whence these marbles have been obtained; but the localities are not indicated on the specimens, and the persoo in charge of the Portunese exhibition has not been able to give any assistance

guese extinition that this respect, Mr. Dejeant has also exhibited (110, 111, 115, p. 1309) lithographic stones of even grain and very compact Similar stones are sent by the Duke of Palmella, and

also by the Royal Tobacco Contractors. Honourable Mentions have been granted to the DUKE of PARMELLA, Mr. DEJERNY, Mr. DE FIOUERINGIO, and to the ROYAL TORACCO CONTRACTORS (p. 1309), for the

objects just described. Also to Mr. M. A. DA SILVA, (p. 1316), for the manofacture of lead for shot, of which he exhibits a fine series (991 and 1014), and to the Pao-PRIETORS OF THE MINES OF BRACAL (1295, p. 1318), for specimens of lead ore and manufactured lead.

ROME (p. 1235).

The Iloman States have sent to the Exhibition tolerably large number of manufactured articles, but only five ur six persons have exhibited the productions of the mineral kingdom. Of this small number the Jury have given Ordinary Mention to two, vis., the COUNT BIAN-CONCINI (1, p. 1285), who has forwarded perfectly puro quartz, sand, and other materials used in the manufac-ture of glass; and Messrs. Pasquall and Donesico Rinalds (2, p. 1285), who send a collection of native asphaltes, and the products of purification of this hituminous mineral.

RUSSIA (p. 1361).

The gold mines of Russia have yielded for some years past a revenue of nearly four millions sterling; but as their working consists of mere stamping and washing, the latter offering few difficulties on account of the high specific gravity of the metal, this important source of riches to the country has little interest for science. On the other hand, the working of iron affords great variety in the methods of proceeding, requires powerful nu-chinery, and its manufacture, joined to the working of copper, forms the principal part of the mineral industry of Russia. This fact has produced its effect in that part of the Exhibition from Russia coming under the cognizance of this Jury, which is, indeed, to a great extent, confined to the objects sent from the iron-works, and ehietly those of the Government, namely-

THE INPERIAL FORCES OF ALEXANDER, at St. Peters-

burgh.
THE IMPERIAL FOUNDAMES, for CANNON, at Olonetz. THE IMPERIAL FOROES OF KOUSHVINSE, OF GOROE-

LAGODATSK, and of KAMENSK, situated in the Government of Perm. THE IMPERIAL ESTABLISHMENTS OF NUNE-TOURISSE.

VERRHNE-BARANTCHINSE, RED VERRHNE-TOURINSE. THE MANUFACTORY OF ARMS, OF ZLATAGUST, TAT-KINSE, and TOXISE. These works are supplied by metalliferous deposits, which are remarkable at once for the abundance and the

excellent quality of the ores. In this respect we may mention, as of the first importance, the celebrated deposits of magnetic iron ores of Goroblagodatak, which yield the ores used by the works numbered 1, 7, 10, 11, and 12 (p. 1362, 1364, 1365), in the Catalogne,

Among the principal articles obtained by the fusion of these ores in the imperial establishments, we may mention, as having principally attracted the attention of the Jury, the castings for cannon, and the projectiles from the works at Glonetz, the fine hammered and rolled irons of Verkline, Nijne-Tourinsk, Verkline-Baranteliinsk, and different forges dependent on the group of Ziatnonst. Several remarkable productions prove that Russia now

repares, with success, for its own consumption, the metals which it formerly exported in the unmanufactured state to foreign countries. Among these we may mention drawn, shear, and rolled steel, from the works at Ziatzonst. A scientific supervision has been exercised in the foration of these collections, which represent the operations of the different establishments we have mentioned. Jury have remarked with interest the series of minerals and rocks accompanying the principal ores of the Ural and the Altai, and have wished to reward the care with which the collections have been prepared by granting a Prize Medal to each of the persons charged with their preparation. Since, however, all the establishments have been described as "Imperial," it has only been possible to award one Prize Medal to the RUSSIAN GOVERNMENT for the whole of this interesting exhibition,

Among the establishments not belonging to the Government which have sent samples of their productions to London, the Jury have remarked particularly the forges of Khamounitsky Viatka, belonging to Madame Ponomanerr (19, p. 1366). A Prize Medal has been granted to this high for the manufacture of the sheet iron granted to this indy for one manuscattle of the even-described as oxidised, a product remarkable for the evenness with which it is rolled, its tenseity, and the brilliancy of the surface.

A Prize Medal has also been granted to Messrs. DEMIDOFF, of Nijne-Tagilsk, in Siberia, (pp. 1377, 1378), for their collection of gold and platinum washings. To the nuriferous sands in the state in which they are found and in different stages of preparation, as well as scales of gold obtained by washing, these exhibitors have added specimens of the containing rock, and of the rocks found as boulders or pebbles in the auriferous alluvium. interesting series furnishes, therefore, a complete history

of the kind of deposit it illustrates.

Lastly, there are Honourable Mentions made of Messrs. A. and M. Pashkoff, of Orenburgh (23 and 24, p. 1367), who have respectively exhibited copper in ingots and also of the Imperial mines of Poland (15, p. 1366), for the fine specimens of the metallic endmium exhibited. This metal is obtained in large quantities from the common zine ore of the district, and is sent into the market at a price sufficiently low to induce, probably, a more extended economic application of it.

SARDINIA (p. 1302).

From this country the exhibition of mineral produce is hut small and unimportant; the awards of the Jury have consequently been limited to Honourable Mention to the following exhibitors:-F. GRANCE, of Handens, near Aiguebelle, Savov

1302), for spathic iron ores from the mines of St. Georges des Hurtières, S. Zolest, Chiavari (2, p. 1302), for specimens of slates,

rough for roofing purposes, and niso sawn and planed for internal fittings. D. Pianello, Chiavari (3, p. 1302), for a fine slab of slate, 5 feet 6 inches square.

Spatn (p. 1320).

We feel some difficulty in speaking of the objects in our class from this country, which is, however, one of our class from this country, which is, however, one of the most favoured by nature, in regard to the sources of mineral wealth. Thus Spain possesses wast deposits of coal in the Asturias, and in the province of Leon; its mines of salt at Cordova are as rich and as extensive as those of Wieliczka; ores of iron exist in abundance in all its provinces, and the lead mines of the Sierras, of Gader, and Almagrers, are richer than any that are known, shares ulso, with the mines of Idria, the monopoly of the trade in quicksilver throughout the world; and yet, not-withstanding all this, almost the whole of the mineral withstanding all this, almost the whole of the inneral collections sent to the Exhibition might be kept in a single drawer. The specimens which compose this series are also small, many of them badly selected, and almost nil of them hadly preserved.

The only rewards that the Jury have been able to give

have no reference to the important mines of which we have just given a very summary enumeration. They belong to the objects of secondary importance in the mining industry of Spain.

One Prize Medal has been nwarded to the LEGNESS.

ASTURIAN Company (21, p. 1330), which has exhibited steel of excellent quality. Four Honourable Mentions have been granted, viz .-

D. Juan Graó, of Malaga (23, p. 1330), for the manufac-ture of east and wrought iron, in his fine establishment, called "El Angel."

The Province of Connova (29, p. 1330); The Province of Sanagossa (32, p. 1339); and The Royal Lineary of Madrid (31, p. 1331), for the fine series of marbles exhibited by them

SWEDEN AND NORWAY (p. 1348).

The working of mines, and the production of metals, form a very active branch of industry in Sweden and Norway; the soil of these countries, derived for the most part from old rocks, and the severe climate of the north, being natural causes giving a great prependerance to mineral industry.

The working of copper, silver, and lead, is there very active, but the ores of copper are generally poor, seldom averaging more than about four per cent, when prepared for smelting, while some are worked which hardly yield so much as two per cent. These coppers are, however, much valued in commerce, on account of the ores containing neither arsenie nor antimony; and the annual supply amounts to 1,500 tons, of which the celebrated

[CLANS I.

mine at Fahlun yields more than half.

The mines of lead would be of uo value if it were not for the silver the ores contain.

The mines of Sula are the most important in respect to there metals, and it is estimated that they yield seven-eighths of all the silver produced in Sweden; for, although it is the enstom to regard the celebrated Kongsberg mine as of the first importance in the production of silver, its yield varies so greatly as to diminish considerably its value in an industrial sense. In fact, after being frequently abandoned, ou successive attempts, and after having shown a deficit of more than 80,000/, between 1815 and 1830, there were found parties sufficiently rich to undertake the working once more; and between the years 1830 to 1840 they have, after paying the deficit, shown a clear profit of upwards of 440,000/., with a staff of 110 miners

The cobalt mines of Skuterad, in the parish of Modum, in Norway, and those of Tunnberg in Sweden, have yielded considerable profits, but we are not aware of the

exact amount.

But, however important the mines of copper, silver, lend, and cobalt may be when taken together, they are but trifles compared with the products of the iron mines, which form, both in Sweden and Norway, a very prosperous branch of industry, especially by their intimate bearing on the cultivation of the forests. iron ores of Scandinavia consist of magnetic iron

ore, mingled accidentally with specular ore, and their average yield is as much as 46 per cent. The most celebrated are those of Dannemora, Uto, near Taberg, Nora, and Phillipstad; but the mines of Gellivara are also very rich, although the difficulty of communication is such that the produce from them does not exceed 1,500 tons; the total production of the country being 133,500 tons; the total production of the country being 133,500 tons. The reputation of Swedish iron is sufficiently established to make it unnecessary to do more than mention its ex-traordinary fitness for the manufacture of steel; but the quality in this respect being unquestionable, it might be quanty in this respect seeing anginesionans, a might so supposed that all deposits of magnetic oxide would be equally adapted to the manufacture of iron for the same purpose. This opinion has not been verified by facts, for numerous experiments, repeated both in England and France, have recently shown that the Swedish is preferable to all others, when it is desired to manufacture east steel of the finest quality. Even in Sweden there are essential differences between the different mices, which exist also in the different parts of the deposit at Danne-

highest excellence. Up to the present time, the causes of this superiority have escaped all investigation. The magnetic iron ore everywhere presents similar characters, except that the grain is more or less fine; but the chemical composition is frequently the same. There are, therefore, shades of difference of extreme delicacy which mark the facer kinds, but these may, probably, long remain a mys-tery to science. The best iron is produced at the forges tery to science. The best tron is produced at the forges supplied from that part of the deposit called the 'Middle Field,' or the 'Great Mine,' and the peculiarities of the ore are so persistent, that all the iron of the same mark usually presents with very great uniformity, and to the

mora, which mine alone yields the iron that is of the

same extent, the steel property.

This superiority of certain establishments over others. established by long experience, would have been sufficient to class the iron sent by Sweden for exhibition, if the Jury had had to award prizes only according to the quality of the iron; but they had also to examine the modifications of the methods adopted, and the care and ntention shown in preparing the different objects for ex-hibition. As far as Sweden is concerned, the difference of awards is almost entirely the result of the Exhibition,

for even the inferior kinds of Swedish iron are of a quality

very superior, when compared with the iron from other There have been awarded, for this brauch of industry, one Prize Medal, two Honourable Mentions, and three Ordinary Mentions: and we proceed to enumerate the establishments which have obtained them, in the order of

the award. FORUES OF MOTALA (6, p. 1349). Iron ores, east iron, puddled iron, bar iron, steel, and the slags and cinder of the different operations.—A Prize Medul.

C. A. Rettin, of Geffe and Kihlaforss (2, p. 1349). Ores from the Hummeriu mines, ju the district of Rodlagen. uenr Stockholm, east iron, wrought iron, and steel. Mr. Такжноw, of Laurvig und Pritnic, Nurway (36,

p. 1352). Bar irou; several pieces twisted cold into knots. To both of whom Honourable Mention is awarded; and Ordinary Mention to the following exhibitors:-T. LAGERBJELM, of Christinehamn and Buforss, Sweden (1, p 1348).

i, p. 1349).
Pursues of Hetterons, Sweden (4, p. 1349).
J. Floop, of Porsgrand, Sweden (7, p. 1349).
Silver and Load.—We have already stated, at the comrenement of this Report, that the celebrated mine of Konganeng had sent for exhibition specimens of ore remarkable for their large dimensions, and the benuty of the crystals of native silver ore. This establishment, which belongs to the Swedish Government, has completed the collection from this mine by specimens of silver in different states, and of the rocks which constitute the formation in which the veius occur. A Prize Medal has been awarded, for this interesting and instructive series,

the Kongsherg Silver Works (34, p. 1352),
The Mines of Guldsoedbrittan (16, p. 1350), sending argentiferous lead, have received Honorable Mention. OBES OF COURLY AND CHROME. - The TENABERG CO-DALT WORKS (9, p. 1350) furnish the richest and purest cobalt ores of Scandinovia, and Honourable Mention has been awarded for the objects exhibited from this establishment, including the products obtained in working, and the various operations which the ore is made to undergo, in order to obtain from it the oxide of cobalt.

C. H. Garmann, of Drontheim, in Norway (38, p. 1352).

—Chrome iron, raw and purified. This ore of chrone is much mixed with the veinstone. In order to purify it, the ore is pounded in a stamping machine, and separated mechanically in the usual way.

The Jury have awarded un Ordinary Mention to Mr. GARMANN for this application of the method practised in separating lead ores, to the preparation of the ores of chromate of iroa.

SWITZERLAND (p. 1264). For some years past, the manufacture of steel has had

a certain development in the Swiss Cantons; several esa certain development in the Swiss Cantons; several es-tablishments having been started successively at Bienne, Neurchâtel, and Schaffhausen. The products exhibited in London have been recognised as of very good quality; the steel for springs being especially remarkable for its elasticity, and the resistance it offers to fracture.

Two Prize Medals have been grauted for the products exhibited by Switzerland, unmbered 1 (p. 1265), and 41

exhibited by Switzeriann, unmovers 1 (p. 1000), min 1 (p. Neufchâtel (41, p. 1269).—Bar steel, rolled steel for making springs and steel cylinders, used in the manufac-

And Hononrahle Mention to J. C. Fischer, of Schaff-hausen (47, p. 1269).—Ingots of steel, called 'meteoric steel, hars of steel of different numbers, and various iustruments manufactured with this steel,

Mr. Fischer has added to his exhibition a drawing re-presenting the interior of his establishment, from which it appears, that the smelting furnaces are very small, and may be conveyed from one place to another without any * These Exhibitors have been awarded a Prize Medal by . siese exhibitors have been awarded a Prize Medal by the Jury of Class XXII., in whose List their names appear. —I. W.

other expense than that incurred by the removal of the bellows. Mr. Fischer states, that he munufactures cust steel by a peculiar method; but the drawing, the only document the Jury are enabled to refer to, does not indicate any difference between his method of melting and those already known, except in the small scale on which the operation is carried on.

Tescany (p. 1289).

The exhibition from Tusenny is very interesting in a mineralogical point of view, the Royal Technological Institution having scut a very fine collection of minerals. including a magnificent series of marbles and alphaster. and superb specimens of the numerous minerals found in the Isle of Elba. Amongst these we may mention once more a block of gneiss, covered with noble crystals of felspar, already noticed at the commencement of this Report; erystals of tourmaline, remarkable for the purity of their forms and the variety of their colours; anuamarines; and crystals of jeuite. The useful ores, also, have been included; and we find specimens of specu-

lur iron ore, galeun, and the ores of copper,
We have observed two blocks of mineral fuel (16-inch cubes) apparently of good quality. It is probable that this mineral belongs to the lignite deposits of Moute Massi and Moute Bamboli, which the Reporter has had the opportunity of visiting, and which agree with the lignites of Aix, the superposition of the bed which contains the lignite (itself about a yard thick) upon the Macigno being very certain, not withstanding that the quality and general condition of the fuel present all the appearances of true coal, and that it yields a coke. Although there is no positive mention of the locality attached to the specimens, we take it for granted that they proceed from this deposit; hat we wish, at the same, time to direct attention to the impressions of ferns and enlamites, placed near them, no doubt by mislake; for these latter are certainly of the carboniferous period, although no vestiges of the enal foruntion exist, either in Tuscany, or in any other part of the chain of the Apenuines

Of this fact the Reporter was aware from his own avestigations, and these have been completely confirmed by the interesting work just published by Professor Paolo Savi, in conjunction with Mr. E. Menechini,† The Jary, considering the high mineralogical interest of this collection, have awarded a Prize Medal to tho

ROYAL TECHNOLOGICAL INSTITUTE OF TUSCANY (p. 1290). A Prize Medal has also been granted to the ROYAL SALT MINES of Volterra (2, p. 1290), which has sent for exhibition specimens of salt obtained from the evaporation of brine, hesides specimens of alum and sulphur from the same establishment

Ordinary Mention has been granted to the exhibition of the ores of mercury of Levigliani Ripa, in the pro-vince of Pietra Santa; and of Yane, Castellazzaru, and Capita, in the pounce of Volterra; numbered respectively, 6, 7, 8, 9, 10, and 11 in the Catalogue (pp. 1290, 1291).

TURKEY (1385).

The mineral exhibition of Turkey is represented by a collection of upwards of 200 specimens, sent by the Otto man Government. It was but just unpacked when the Jury separated, and the specimens were lubelled only in the Turkish language, with which none of the members of the Jury were acquainted, so that it is impossible for them to state the precise value of the collection. It appeared, however, to be of sume importance by the variety of the metalliferous ores included, the principal of them being red hematite, in five kidney-shaped nodules, lead ores, accompanied by metallic lead obtained from them, and rather rich copper pyrites. But that which has chiefly interested us, and requires especial notice in this place, is the presence of 20 or 30 specimens of very good coal; and the person in charge of the cullection having had the kinduess to translate for us the labels, we are enabled to state the localities wheate they were obtained,

* See autr, p. 3. † Considerazioni sulle Geologia della Toscana, del Professori Cav. Paolo Savl e G. Menechini ; Firenze 1851.

All of these localities are distributed over a range of purpose of the legens along the three for the Black Son, the Son of Mornour, and the Arisiphelays, where it is, the Son of Mornour, and the Arisiphelays, where it is, the son of the Company of the Company of the Company in this part of the Turkish copyer. The names of America and Erckli, on the Hisck Son Yiran on the Son Offerman; and Son Son, In the Arisiphelays, the Company of the Company of the Company lection three specimens from Bodosts; in the Romedia, are 30 leagues were of Consistantepies; to that if the coal formation must exist on both, sides of the Strait;

sixed in the Foods dee Mines, in Paris, by M. de Chamcorriet, Mining Dorgeore, there is examon to should consider the second of the Constant of the Second of the Sea (Austoin) selongs to a time coul formation, and it possible that the Sepoint is a modern as the erecticeous sible that ministes may have arisen by confusing the solid constant of the Second of the Second of the Second possible that the second of the Second of the Second possible that the Second of the Second of the Second of the solid constant of the Second of the Second of the Second of Constantings, a considerable confidely, which development of its industry, and for the purposes of steam axignition.

Paris, Cet-ber 1, 1851.

DUFRENOY, REPORTER.

CLASS II.

REPORT ON CHEMICAL AND PHARMACEUTICAL PROCESSES AND PRODUCTS GENERALLY.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.]

Jury.

2. Divine, Chrimen, France, former Minister of order, Transack, Fills, Appel Griefman, Harman Miller and Commerce, Number of the Institute, Soc. Transack, Fills, Apple Griefman and Experient, Horden Squares; Percl of Chemistry, Univ. Oct. Jones Bitzs, M.-L. 55 Langham Flore; Florenzaccular, October Chemistry, Carlo Consect, Ganzaria, Amaria; Chemist Manadellarer; Carlo Marzaria, K.C.S., Makradow, sone Averingsina, Inamedia: Callino Perlater, 2018, Marzaria, K.C.S., Makradow, sone Averingsina, Inamedia: Callino Perlater, Development of the Commercial Comme

T. Autresce, M.P., F.R.F., Editbergh: Cremistre the Highbast and Agricultural Society of Scotional, Philance, Tennes (Senior of the Solitics, Are. Deliver 1 for Law SYMI).
Watters (Lawner, Flanck, St. Law, St. Law, Control of Law SYMI).
Watters (Lawner, Flanck, Solitics, St. Law, St. Law, St. Lawner, St. Law, St. Law, St. Lawner, Lawner, Law, Lawner, Lawn

Tux whole number of Exhibitors whose contributions were brought under the consideration of the Jury of Class II, appears to bave been 270, of whom 152 were Foreign Exhibitors, and 138 English, or of the United Kingdom. Of these there appeared—as Exhibitors, chiefly or exclusively, of the following classes of substances:-Of collections of the larger chemical products, such as

the icioeral acids, carbonnte and bicarbonate of soda, chromates and prussiates of potssh, borax, chloride of lime, salts of ammonia, and metallic salts for the use of dvers and calico-printers, 31 Exhibitors; 22 Foreign, and 9 English. Of alum and other aluminous salts and sulphate of iron, 16 Exhibitors: 6 Foreign and 10 English.

Of yellow prussiate of potash and red prussiate of oush exclusively, 8 Exhibitors; 5 Foreign, and 3 otjoh English.

Of salts of ammonia, 4 Exhibitors; 2 Foreign, and 2 English Of artificial ultramarine, 16 Exhibitors: 14 Foreign,

and 2 English. Of ceruse or white lead, and exichloride of lead, 16 Exhibitors; 13 Foreign, and 3 English. Of oxide of zinc or zinc white, and other zinc colours, 7 Exhibitors; 5 Foreign, and 2 English.

Of iodine and the salts of kelp, 5 Exhibitors; 1 Fureign, and 4 English.

Of acctic acid and acetic mordants, 3 Foreign Exhibitors. Of acctate of lead, I Foreign, and 2 English Ex-Of particular mineral points and preparations to pre-serve wood, 6 Exhibitors; 4 Foreign, and 2 English. Of ciunahar 2, of litharge and minium 1, and of smalts,

3 Exhibitors; all Foreign. Of house-painters' colours and artists' colours, 11 Ex-hibitors; 4 Foreign, and 7 English.

Of liquids for staining and painting wood, and varnishes for wood, 5 English Exhibitors. Of calico-printers' colours and lakes, 19 Exhibitors;

15 Foreign, and 4 English. Of the products of the distillation of peat, 4 English Exhibitors; oils of bitumen and bituminous shale, 3 Foreign Exhibitors; ods of coal-gas tar, 2 Foreign, and 1 English Exhibitor; ods of resio, 1 English Exhibitor; parified animal oil, I English Exhibitor.

Of the rarer chemical products and substances recommended by their superior purity, chiefly intended for the use of scientific chemists, 4 Exhibitors; 2 Foreign, and 2 Eoglish.

Of collections of pharmacentical products, generally numerous, including the alkaline, earthy, and metallic salts used in medicine, alkaluids and other organic pre-

parations, 18 Exhibitors; 9 Foreign, and 9 Eoglish.
Of unmanufactured drugs, such as Freeds opium, dried plants, &c., including one general collection con-tributed by the London druggists, 6 Exhibitors; 1 Foreign, and 5 English.

Of medicinal infusions, extracts, and confections, 9 Ex-bibitors; 2 Foreign, and 7 English. Of cod-liver od and skate-liver oil, 5 English Exhi-

Of quinine salts, 3 Foreign; and of magnesian preparations, 4 English Exhibitors.

The following pharmaceutical products were each shown by but one Exhibitor: by Foreign Exhibitors, salicin, quinkline, phloridrin, santonin, cream of tartar, and tartarie acid. By English Exhibitors, superphosnon tartane acto. By Engine Familion, superpose-phate of iron, bearois end, chloroform, sugar of milk, decolorized gum-arabic, nioine and caotharidine, kousso, sumbul and matice, Iodian bacl, myrzbine, n untural mineral water, artificial mineral waters (2 Eshibitors), and surgeous' lint,

The following miscellaneous chemical products and preparations were also the contributions of their repreparations were also the contributions of their respective Exhibitors solvely: of Fuerging Exhibitors, boracle acid, phengherus, porcelain colours, dyed wool fitecks, while the contribution of the contrib feeting powder; preserved size, starch, gum, and other products of the potato; a material imported for dyeing black; a new brown colour; woods furnishing dyes, oils, and medicinal substances; illustration of ale and porter brewing; tinted paper for back cheques; parchments restored after iojury by fire; wood preserved by a peculiar chemical process; a marking ink; a centent, Pooloo's Chinese cement; restored cotton waste; washing blue; a varnish for labels and artists' designs, black-

ing and French waterproof varnishes.

The specimens of the larger chemical products exhibited from the British manofactories, were frequently un a magnificent scale, and of singular beauty; such as the ecvystallized citric and tartarie acids, the chromates and pressintes of potash, sal ammonise, alam, earbonnte and bicarbonnte of soda, and the sulphates of copper and iros. The pharmaceutical collections were also remarkably fine s or passumecutical confections were miso remarkably fine and extensive, including very beautiful preparations of iodine, of mercury, lead, zine, natimony, silver, portsh, and soda; double salts of irou; the salts of morphia, strychnia, and even the rare creatine and creatinine; while medicinal plants were so well preserved as to appear with all the beauty of the living plant. Several of the processes, also, were illustrated by instructive sories of specimens, exhibiting the successive steps of the manufacture; as the alum process by shales in different stages of decomposition; the different steps in the white lead manufacture; and others. Many fine specimens were also contained in the foreign collections, speciments were also contained in the foreign collections, in though generally smaller and less prominent. It was evident that chemical manufacturing had attained more subdivision in England than abrond, with larger individual production. On the other hand, the great variety of produces from a slagle naninfactory was often very striking in the foreign, particularly the German, collections; a variety without inferiority of quality, which hore testimony to the excellent chemical education and varied resources of the exhibitors

A great reduction in the cost of production is quite as remarkable in chemical substances as in the products of remarkable in chemical substances as in one present mechanical ingenuity, and equally indicates improvement to the absorbed as in the mechanical arts. The great staple articles, such as the mineral acids and the alkaline salts, have become available, from their cheapness, to a vuriety of new applications, which are gradually altering the aspect of chemical manufactures. Thus we now find of this application of the substance. solphurie acid applied directly to elay to form a sulphote of alumina, which competes with alum; and the sulphute of copper, the sulphate of magnesia, and even the sul-phate of iron, produced by the direct combination of their constituents. The ore of lead we see treated with the hydrochloric neid of the soda process to form a rival pigment to white lead; and the ores of copper and tin fosed with alkaline salts, as the means of purification and reduction, or to form a new salt.

Of a large proportion of the chemical products ex-bibited, the features which claimed most of the consideration of the Jury were the superior quality and beauty of crystallization of the salts, indicating a high degree of purity in their composition, and superior excellence of manufacture. Such may be said to be the general ground of the award of the hourary distinctions which have to be reported. But in a considerable number of instances the product was further recommended by its novelty, or hy some important improvement in its preparation, which demands more special notice.

RED ON ALLOTROPIC PROSPHONUS.

Of the elementary and non-metallic substances, an instance of singular interest was presented in the allotropic phosphorus of Schrötter, manufactured and exhihited by Messrs, J. and E. Stenars, of Birmingham (119, p. 199). The extraordinary conversion of phosphoras into a red infusible powder is effected by exposing melted phos-phoras in a close vessel, to a degree of heat which is near the boiling point of that substance, and which is kept up fur a considerable time. It is probable, from the entirely inodorous character of the specimens recently manufactured, that the amorphous phosphorus is now made with-out the use of sulphoret of carbon to rensove noy excess of unaltered phosphorus. This new preparation presents great facilities in the manufacture of matches, from being no longer spontaneously inflammable, and yielding nu snoke of phosphurous acid; which was found bighly in-jurious to health, producing caries of the bones, particularly of the lower jaw, in workmen exposed to it. larry of the namer jaw, or managed to proceed the combination of red lead with the amorphous phosphorus in the matches causes them to ignite as usual by friction.

IODINE.

Perhaps the earliest, as they are still among the most esteemed, manufacturers of iodine on the Continent, after its first discoverer, M. Courtois, are the Messrs. Counselle and Co., of Cherbonrg (462, p. 1200), who have created in their own sphere a branch of industry in the preparation of iodine, of chloride of potassium, and the other salts of kelp; of which specimens were exhibited, remarkable for purity and beauty. With the exception of the iodine used in photography, the whole iodine produced appears to be still consumed in medicine, and chiefly in the form of iodide of potossiam, and other iodides, only a compara-tively small quantity being retained as iodine. Of iodiar from kelp there are also two Scotch and two Irish Exhibitors, who are each considerable manufacturers. hibitors, who are each considerable manufacturers. The great increase in the prudoction of foldies took place about 1840. The make of u single house in Scotland, from 1843 to 1850, accraged 2276,000 one-sper annum, and is believed to furm fully one-third of the entire predoce of the United Kingdon during that period. prodoce of the United Edigition unions the pro-The price of a pure dry article for the three years, 1848, 1842, 1850, reminied between 74d, and 84d. The price for 1851 is from 6d, to 64d, with an excess

SULPHUBET OF CARBON.

Among the newest of chemical manufactures is that of Among the newest of chemical manufactures is that of orliphuret of carbon, represented by Ir. L. C. Manquaur, of Prussin (1.—327, p. 1669). This liquid has found a sin-gular application in electro-plating, the addition of a few drops of it to the silver solution causing the affect of the deposit bright, a five which appears to have been inde-pendently discovered by the Messrs. Etkington, and by Mr. Lyons, of Brirmigham, who both exhibit illustrations

BODACIC ACID.

The preparation of boracie acid by Count F. de LAR-DERES, of Tuscany (35, p. 1294), was rewarded by a Council Medal. Although this well-known manufacture is not receut, having attained its full development at least ten years ago, still the bold originality of its first conception, the perseverance and extraordinary resources displayed in its soccessful establishment, and the value of the product which it supplies, will always place the operations of Count de Larderel among the highest achievements of the useful arts, and demanded the most honourable recognition at this epoch. The vapour issuing from a volcanie soil is condensed, and the minute proportion of boracie acid which it contains (not exceeding 0:3 per of borasele sciel which it contains (not exceeding 02 per cent.) is recovered by evaporation, in a district without foel, by the application of volcanic vapour itself as a source of heat. The bornele acid thus obtained greatly exceeds in quantity the old and limited supply of borax from the upper districts of Hritish Halin, and has greatly extended the use of that salt in the glasses of porcelain. and recently in the making of the most brilliant crystal when combined with the oxide of zinc instead of oxide of

SULPHURIE ACID.

lead.

The most novel feature in the manufacture of sulphurie acid, illustrated in the Exhibition, was the process of making this acid in vessels of earthenware instead of the leaden chamber, as designed by M. FOUCHE-LEVELLETIER leaden chamber, no designed by M. FOUCHIS-LISPELLETTIN (1229, p. 1236), and followed to a large extent at the eele-brated works of Javel, near Paris. The nuterial of these vessels is the salit-glaze ware, which resists acids; and they are in the form of large Wolfe's bottles, connected together in series. The seid funes are carried through a large number of these vessels, hy which the power of con deceation is found to be one-third greater than could be obtained from a single chamber of equal capacity; while their uriginal cost of construction is, to that of a leaden chamber, in the proportion of 12 to 100, and the cost of maintaining them is nothing. Such vessels have been in use at Javel since 18 to; and of the large annual production of 3,600,000 kilogrammes of concentrated sulphuric seid in that establishment, one-third is at

present manufactured in this way. The acid thus pre-pared, is of course free from lead. The manufacture of pared, is of course free rivin reas.

vessels of the material described, for chemical purposes,
being greatly on the increase in England, the process of
Javel could be easily introduced, and appears well deserving of the consideration of manufacturers.

SALTS OF SEA-WATER.

A Conneil Medal was accorded to MM. Prat and AGABB, of Museilles (1682, p. 1257), for various salts, ineluding the chloride of potassium, sulphate of soda, and salphate of magnesia, prepared from sea-water, hy the pro-cess of M. Balard. The long-continued investigations of sea-water, hy the last-named eminent chemist, have fur-nished valuable means for the separation of its useful salts. It appears that the sea-water of the Mediterranean may be concentrated by spontaneous evaporation to density 1 27, without depositing anything but common salt. The mother-liquor, or bittern, when further concentrated, first deposits, as its density rises from 1'27 to 1'32, a mixed salt, consisting of about 40 parts of solphate of maxet sait, consisting of about 40 parts of surprate of surprate of magnesia and 60 parts of chloride of sodium. Or, if the temperature falls to 6° or 7° Centigrade (43° or 45° Fahr.), bittern of deasity 1'32 deposits sulphate of magnesia nearly pure, in the proportion of about 50° kdogrammes of that salt from one cubic nexter of fluid. grammes of that salt from one cubic metre of finid. The most economical application of this sulphate of magnesia is said to be in the conversion of chloride of sodium into aniphate of soda. The next important product obtained is, the double chloride of potassium and magnesium, which serves afterwards for preparing the children of the content of the content of the conthe ehloride of potassium. This double salt is deposited from the hittern concentrated to density 1:345, by spontaneous evaporation, after the deposition of the magnesian salts; or by concentrating by artificial heat in an eva-porating pan to the same extent. Dissolved in a small quantity of hot water, the double chloride undergoes decomposition, and allows the ehloride of potassium to erystallize nearly pure on cooling. The inst mother-liquor above density 1°345, after the reparation of the potash, contains much chloride of meguerium; a salt which may be had recourse to as a source of hydrochloric acid, being decomposed by distillation.

M. Balard has also proved that the greater portion of the sulphate in sea-water, separates, as sulphate of sods, from sea-water concentrated to from density 1'152 to 1 2, if cooled down to from -4 to -5 Centig. (25 to 23 Fahr.). Waters concentrated as far as density 12 to 1'264, produce an abundant deposit of sulphate of sods, even at-2' nr-3' Ceutig. (28' to 26' Fahr.). Sulphate of soda, however, is procured more conveniently by dis-solving together sulphate of magnesia and chloride of sodinm, in the proportion of 55 of the former to 45 of the latter, at the temperature of 30° Centig. (86° Fahr.), and running off the solution of density 1'264 into open reservoirs. Sneh a solution exposed during a cold night in winter, deposits a considerable quantity of sulphate of soda at 5 or 6° Ceutig. (42° Fahr.); about 85 per cent. of the whole quantity of that salt which it contains, at + 2 Centig. (35% Pahr.); and if the temperature fall to -2 (284 Fahr.), the solution deposits nearly the whole of the sulphate of soda present,

The most important of these products is, no doubt, the chloride of potassium, and M. Balard has, with good reason, looked to sen-water as the great natural source of potash. The water of the Mediterranean contains, ac-cording to the analysis of M. Usiglio, 0°0505 pound of ehloride of potassium in 100 pounds of water, or about one two-thousandth part of its weight of that salt.

BICHROMATE OF POTASE.

The biehromate of potash was exhibited to great advantage by Messrs. DENTITH (8, p. 187), and other makers. Prior to 1820, the process universally followed far the pre-paration of this salt was, to calcine chrome iron with nitrate of potash. Biehromote of potash appears to linve been consumed, at that time, in the preparation of chromate of lead only, and was sold at about 21s, per lls. The first alteration in the process was the addition of carbonate of

the latter salt was effected. The next great improvement made in the manufacture was the dispensing with nitre, and oxidising entirely by means of air admitted into the reverberatory furance in which the ore mixed with car-bonate of potash is ealeined. This change took place about 1835 or 1836. An addition of lime to the preceding materials was made by Stromeyer, in Norway, a few years afterwards, and soon became general. The oxidation goes on quicker with the presence of lime, owing to the porosity of the mass, which allows the more ready access of air. The earliest great manufacturers of this salt in the United Kingdom were Kurts and Niven, of Manchester, and Turnbull and Itamsay, of Gingow, who were soou followed by the Whites in Glasgow, Swindells in Neweastle, and Deutith iu Manchester,

The introduction of the yellow discharge (chromate of lead) upon Turkey-red cloth, by Daniel Koechlin, of Mulhouse, about 1820, appears to be the circumstance which first greatly increased the demand for this salt, and stimulated the improvement of its manufacture. Besides its familiar application, to produce the yellow and orange chromates of lead, bichromate of rotash is and orange chromates of lead, bichromate or porsan is now used in dyeing wool; a fast and solid black being produced by boiling the wool with hichromate and a little sulphuric acid, washing the wool in water, and afterwards dyeing with logwood in the usual way. Hy substituting other dye-stuffs fur the logwood, various substituting other aye-states for the logwood, various other colours are produced in a similar manner. The wool contains oxide of chromium, which acts like alu-mina or peroxide of iron in attaching colouring matters. Chromie acid has also been used in bleaching palm oil,

and in oxidising oils for other purposes,

The following statement (kindly supplied to me by Mr. J. White, of Shawfield, Glasgow of the entire production, during several quinqueunial periods, of one of the oldest and most considerable manufactories of hichromate of potash in Scotland, gives a fair idea, I believe, of the general advance of this manufacture during the period alluded to:—



THE PRUSSIATES OF POTASH.

These important salts were exhibited of great purity and beanty, by several manufacturers, particularly Messrs, T. Bramwell and Co., of Newcastle (27, p. 190); the HULET AND CAMPRIE ALUM COMPANY, of Glasgow (13, pp. 188, 189); the BOCWILLER MINING COMPANY, of France (376, p. 1195); C. SCHLIFFE, of Russin (27, p. 1367), and ALEXANDER HRUSGHIN (24, p. 1367), also of

The mannfactory of Messes, Bramwell was established about 80 years ago, at which time Premian blue only was made in it; a considerable quantity of which, I mu informed by Mr. Brunwell, was sent annually to China, and used by the Chinese, it was believed, for colouring green tean: a spring shipment was always made of about 2,000L in value, which was often followed by nnother in antumn. It was first sold at two guineas per pound, made up in neatly-finished our-pound packages, but had fallen, in 1815, to 10s, 6d., and about 1820 to 2s. 6d. For the last ten years the price of Prussian blue has been 1s. 9d.

Prossinte of potash was not known in commerce in a crystallized state till about 1825, when the price was 5s, per pound. But far some years previously a weak solution of the salt, or of the fluxed mass of animal mutter and potash, had been sold at 1s. per gallon. The process of manufacture, so far as regards the materials need and the furnaces employed, is still essentially the same as it was fifty years ugo; but in consequence of agitating the fluxed mass by machinery in closed pots, intreduced at Glasgow by the late Charles Macintosh, in 1824, and other minor improvements in the manipulation, the potash to the chrome ore and nitre, by which a saving of production of practiage from the same quantity of

animal matter has been increased threefold. The rapid progress of this manufacture will appear from the folowing estimated annual production in the United Kingdom:-Per Pound.

Annual Production :s. d. 5 0 From 1825-1830 about 10 tons, at 1839-1835 about 40 tons, at 6 1835-1840 about 200 tons, at 1840 -1845 about 700 tons, at 4 1845-1850 about 1,040 tons, at .

The number of prossiste works in the United Kingm is, at present, eleveo, the whole making, when the salt is in demand, about 20 tons per week, of which the two largest works, those of Messrs. Bramwell, and the Hurlet and Campsie Alum Company, are believed to produce four or five tons each. The value of the annual product for the last five years is calculated from the preceding data at 145,600%.

The most extraordinary event in the history of this manufacture is, the attempt made a few years ago to introduce the air-process, which is of much interest both in a scicotific and practical point of view. As cyanogen is rapidly converted into ammonia, the artificial formation of the former from the uitrogen of air would likewise furnish an unlimited supply of ammouia, of which the importance to agriculture could not be over-estimated. The experiment was pursued with singular perseverance and ability, as will appear from the following valuable details, for which I am iodebted to my friend Mr. F. R. Hnobes, of Borrowstownness:-

In 1844 we commenced a series of experiments upon the large scale, at Newcastle, in company with Mesers. Bramwell, to manufacture prussiate of potash without nainal matter, substituting the nitrogen of the at-mosphere for it, and continued the experiments till the latter end of 1847.

" In these operations a tube or retort of fire-clay was placed in a vertical position in a furnace so constructed that, when the formation of carbonic oxide was prevented, sufficient heat could be obtained to soften a Stourbridge fire-brick throughout its substance, wheo exposed in the flue, or off-go, to the full force of the fire.

"The lower part of the retort was made of cast-iron, kept oot of the vicinity of the fire, and of sufficient length to afford time for the mass heated by the fire to become cool before it was discharged into a cistern placed below, containing water and a protosalt of iron, into which the lower end of the tabe dipped. Provision was made at this end of the tube to regulate the periodical discharge of its contents, in whatever proportion was desired.

"The tube was filled with wood-charcoal, saturated with a solution of the carbonate of potash of commerce, and dried. The mixture in this state generally contained about 20 per eent, of potassa (KO),

"By means of an air-pump, the atmospheric air was drawn through the tube of alkalized charcoal, in a contimous stream from the top, and discharged below in the state of nitrogen and carbooic oxide.

"The alkalized charcoal was thus found to become pretty rich in eyanide of potassium; one-half of the alkali of the cyanized charcoal frequently being found, upon testing, to be in combination with cyanogen; so that when all was working well, 36 to 40 ewt, of prus-siate of potash were produced in a week by means of seven to eight retorts, of 10 to 12 feet long in the fire. and 2 feet internal diameter.

" In our first experiments much narrower tubes were employed, to which the heat was applied only externally; but as both the tubes and charcoal are bad canductors of heat, we could not operate upon sufficient quantities, and we found it necessary to build larger tubes, with fire-hricks, of the above dimensions; leaving a circle of small apertures or chiuks in the tube, every third or fourth tier of bricks, through which the intensely-heated gaves, if tropen and earbonic ucid, were drawn from the flue surrounding the takes, by the action of an aspirator, it were the takes to the theory of the large tubes

so hot, that an iroo rod one inch in diameter became white hot when thrust down in the centre and allowed to remain there five or ten minutes.

"Our next improvement was to use the alkalized charcoal undried, and to aspirate the air from below upwards, instead of downwards; the surplus heat drying the alkalized charcoal before it reached that part of the retort in which the cyanide was produced, a length of 6 to 8 feet. The top of the retort was in this case rendered air-tight, and the cyanized mass discharged below as before.

" Through seven or eight retorts of the above size about 2,400 cubic feet of alkalised charcoal were passed in n week; and about 1,200 to 1,400 cubic feet of evanized charcoal were obtained, nearly one-half of the charcoal

being consumed.

" There were two great drawbacks to this process; one, the immense quantity of material to be lixiviated for a small return of prossiste; the other, and by far the more important, an extraordinary waste of potash in the process, npwards of three parts by weight being consumed in producing one of prussiate. The whole of this waste could never be properly accounted for. About one part was, of course, recovered in a state of prussiate. It was found that another was lost in the small refose charcoal, which that another was lost in the small relose custrous, wases could not be lixivisited to pay, and the remainder appeared to be partly combined with the bricks of the retort, and partly dissipated up the eliminey.

"In 1847 we abondoned the experiment, after a loss of many thousand pounds. But we proved the possibility

of producing large quantities of eyanide of potassium, by drawing intensely-heated nitrogen and carbonic acid gases through a mixture of potash and charcoal, with the diffi-culty of carrying this out as a manufacturing process

from the great waste of potash.

" Our experiments were more directed to making the air process practicable, for the purpose of manufacture, than to ascertain upon what principle the formation of cyanogen depended; for it was immaterial, in a mann-facturing point of view, whether the cyanogen were produced from the nitrogen of the atmosphere, or from the ammonia which the charcoal was always found to contain. The means of nicely observing the changes were lost from the necessity which existed in operating upon large masses, to draw the intensely-heated gases from the fire into the body of the tubes, in order to bring the alkalized charcoal to a proper heat for the production of eyanide of potassium. It is probable that some part at least of the eyanogen was furnished from the ammonia in the charcoal, which in separate experiments in the laboratory, was found not to be entirely given off at a red heat. Some al-kalized charcoal, also brought to a proper heat in a porcelain tube, produced a considerable quantity of eyanide of potassium without the presence of air, the ends being stopped up. On the other hand, when the retorts were filled with charceal not alkalized, and the heated gases drawn through, no formation of either eyanogen or hydrocyanite of ammonia could be detected.

"A paper, by Professor Marchand, contained in the eighth volume of the Chemical Gazette, page 301, on the presence of nitrogen in cast iron and steel, appears to throw some light upon the subject. He has shown that when carbon is combined chemically with iron, and treated with potassium, in the presence of nitrogen, eyanogen is with potassium, in the presence of nitrogen, eyanogra is produced. It seems to me, therefore, probable that the first step in our process was the formation of a carbaret of potassium, which by combining with the aspirated nitrogen, produced the eyanide of potassium. This might be ascertained by examining the remainder left in the retort, after the production of potassium in the ordinary way from bitartrate of potash, testing the quantity of cyanide it contained, if any, and then testing the increased quantity after heating it is nitrogen gas.

"I have only further to mention that we substituted soda for potash, in the process, with the like loss."

Mr. Bramwell also considers that the process succeeded perfectly, in a chemical point of view, although combined action of the alkali and of the excessive heat

commined acrois of the lakin and of the excessive near applied.

In 1842-43 the use of the red prussiate of potash in calleo-printing was introduced, and since that time a considerable and increasing quantity of the yellow prussiate.

has been converted by means of chlorine into that salt.
Shortly afterwards both salts were successfully employed in "de laine" printing, as well as in dyving wood;
the blue from the red prussiate being found more durable
when fixed by peroxide of tim. The red salt is also
mixed with wood colours, to stidles them, or produce
the greater depth and heastly of colour which lung capmixed with works of the colour short of the dycool of the colour short of the dycool of the colour short of the colour short of the dymore depth of the colour short of the dymore depth of the colour short of the dymore depth of the colour short of the colour short of the

CARBONATE OF SODA.

Few chemical processes have maintained their ground for no long a period as the grand process for the preparation of carbonate of soda from Ciloride of sedimis, by interesting the process of the preparation of the interesting the process of the preparation of the latter sait by coal and carbonate of line, upon the floor of the reverberstory furnace. The instructions given by Leblans, who invented this soda-process at the end of the present day, "might still be alone as directions at the present day,"

All the carbonate of soda produced in the United Kingdom by this process, up to 1825, was scut into commerce in the form of the crystallized carbonate only The manufacture was advanced into importance chiefly by the skill and exertions of the late Charles Tennant, at the great chemical works of St. Rollox, near Glasgow, The salt is, in consequence, known in London, to the present day, as "Scotch sodn." The crystals were sold in 1820 at 35s. per ewt., but the price descended gradually in three or four years to 20s., partly in consequence of the increasing demand, at this time, for bleaching powder, giving rise to the formation of much solphate of soda; and partly from the great reduction in the price of com mon salt, arising from the increased production which followed the abolition of the Excise duty upon it, although a drawback of the duty had always been allowed upon the salt consumed in this manufacture. The price of crystallized carbonate of soda, at the present time, is about 6s, per cwt. About 1823, the soda-ash trade was originated in Liverpool, by the enterprise of James Muspratt, and soon extended to Newcastle, which is now the principal seat of the manufacture, and to other places. When, formerly, the production of carbonate of soda was combined with that of chlorine, the binoxide of manganese was mixed with the common salt and sulphurie acid, which involved an after-operation for the separation of the mangauese; but now, the hydrochloric acid is first separated by the action of sulphuric scid upon chloride of sodium slone, in a peculiar form of the reverberatory furnace, and condensed in a stone tower, filled with moistened pebbles, through which the vapours are conveyed; while the chlorine is evolved by the direct action of hydrochloric acid upon manganese, in excavated vessels of sandstone, which are heated by steam applied ex-ternally. Depending also, as this soda process does, upon the economy of the sulphnric acid manufacture, it upon the economy of the sulphiric seed manuscoure, it was greatly benefited by the improvement introduced into this country, about 1828, (by Kestuer, of Thann.) of throwing steam into the leaden chamber, by which the full equivalent of sulphiric acid cause to be obtained for the sulphar consumed. The consumption of nitre, or of nitrate of soda, was also reduced, by the proper management of the chamber, from one-siath to one-twentieth of the weight of the sulphur, independently of the appli-cation more lately made by Gay-Lussac, of strong sulphurie acid to absorb and recover the nitrous fumes which are usually allowed to escape with the exhausted air of the chambers.

The attempts of chemists to modify or entirely supernede the sold-sprocess of Lebhane have been increasant, and of the most diversified character. One of the latest of these is the process of Mr. Loxoxaxin, (C. l., 441, p. 162), for decomposing common salt by means of iron pyrrites, which appeared to the Jury to layer that amount

of success which, considering the difficulties to be mounted and the findencinal character of the sold mounted and the findencinal character of the sold sold containing two or three per cent of report, subject or down was recumined by the painted of the containing two or three per cent of report, subject or down was recuminedly produced by the guitton of the containing two or the second by the guitton of the copies contributing to the profit A process, also, like opportunities of the profit of the pro

STANNATE OF SODA

Of the salts of in exhibited, the most novel preparation, it the stannate food, in a day states, which is contributed by G. E. [Bacew, of Americ (21), p. 1000), and also by J. Yovers, of Mandester,—by the latter in a beamfailly erystallized form. The neutral day salt was introduced a few years ago by Mr. Mercer, for the use of eslicity and prepared by an original process. Metallic social, which give rus to the stannate of soods, with evolution of ammoniat:—
No.N.O. 4 of N.100.H(0)+48 m.4 (NaO.800,1 w) HL.

The process of Nr. Young (7m, p. 187), which is more recent, is also new, and presents a strikingly beautiful application of science. Instead of reducing installic time from the ore, and oxidating the next ages to form the contract of the contract of the contract of the contract to the contract of the contract of the contract of the twint seed. The contract of the contract of the contract in the ore, are insoluble in the alkali 1, so that by solution of the fixed mass in water, a pure statum of docks in obtained at once. It is evily-tailized by evaporation, and included a contract of the contract of the contract of the land of the contract of the contract of the contract of the mention of the contract of the

ARTIFICIAL ULTRANARINE,

In the person of M. J. R. Getister, the Jury were able to offer their highest mark of distinction to the first discoverer of the artificial ultramatise. The process of one of the person of the process of the process of the person of the per

of colors by Mr. Lisno, whe, as a switt, has made the commental properties of colorum a possible study, that, for commental properties of colorum a possible study, that, for marine, numbed with red, is desired a value, on the other hand, the ultramaties in recommended, by its parple and the colorum a

As the process of M. Guimet was never published, ultramarine has had other independent discoverers: of whom Professor Gmelin, of, Tubingen, Professor Persoz, of Strasburg, and M. Koettig, director of the Saxon Ultramarine Works, are best known.

Prior to 1847, only two manufactories of ultramarine existed in Prance, those of Guinnet and Contrial, and Germany that of Leverkus was in operation; but at that date, the works of Zaber and Co., of Rikhelm, in Prance, were established, and subsequently a large number of manufactories have arisen, twenty, at least, in Germany, where the price of the article has attained its lowest limit. The production of ultramarine by Messrs, Dauptain, Gorton, and Co., io London, and by Mr. Schmersahl, in

Manchester, is also comparatively record.

The total production of ultramatives in France, in 1818, in three manufactories, is estimated at from 90,000 to 100,000 kilogrammes; and for 1813, in four manufactories, in contrast to 100,000 kilogrammes; and for 1813, in four manufactories of the fact sorts having falled alternative strength of the fact sorts having falled alternative contrast production of the fact sorts having falled alternative. One of the lester improvements in the manufacture in the preparation, by Mexer. Zaller and others, of a green scitnameries, of excellent quality, for printing upon cutton and puper, and matter positionous our alternative positionous correlative six distinctions of beginning and contrast productions of a strength of the sixthesis of the six

ALUM AND COPPERAS.

The mounteeur of olem and coppens from the protess school of the cold formation is no accust in agreed in Protess school of the cold formation is no accust in agreed in competition with several new dot secondary for the control of the cold of the

existe.

Excellent alum was exhibited by Mr. Spaxex, of Penderon (r. p. 185), prepared by the direct application of direct (r. p. 185), prepared by the direct application of the space of the property of the space of the space

WHITE LEAD.

several producers of white leads, amandatured by the process, and obligationless among the samples of approximate production of the sample of the process. In the production of the sample of the (200, p. 1300), Brown F. P. Yes to Homesor, of Austin (200, p. 1300), Brown F. P. Yes to Homesor, of Austin (201, p. 1312), its data homosular meaputage to the colorans, such as the subject of first with product the colorans, such as the subject of first with heavy governity been found comparatively deficient in some pages of the colorans of the colorans of the sample of the colorans of the colorans of the colorans of the heavy governity been found comparatively deficient in some terms of the colorans of the colorans of the colorans with the progrey when the neight in some. See the substitutes to color and the colorans of the colorans of the colorans of the progrey when the colorans of the colorans of the terms of the colorans of the colorans of the colorans of the terms of the colorans of the colorans of the colorans of the best of the colorans of the colorans of the colorans of the best of the colorans of the colorans of the colorans of the best of the colorans of the colorans of the colorans of the best of the colorans of the which is produced in greet steen in the manufactures of which is produced in greet steen in the manufactures of which is produced in greet steen in the manufactures of the which is produced in greet steen in the manufactures of the which is produced in greet steen in the manufactures of the colorans of the c

of lime-water to convert une-half of the chloride into

The fibroistic statements represent the present endition of the white lood monitorine in Parise —The miniof the white lood monitorine in Parise —The minihood of Lills, where seven wist, having an average total next of France them are only three where considerable works, two of Paris and one of Torus, marking together works, two of Paris and one of Torus, marking together works, two of Paris and one of Torus, marking together works, two of Parise and one of Torus, marking together works, two of Parise and Strandard, and the second of the Marking of Parise and Strandard, and the second of the Parise and the second of the parise of the parise of the parise Marking of the parise of the parise of the parise of the parise of the Marking of the parise of the parise of the parise of the parise of the Marking of the parise of the parise of the parise of the parise of the Marking of the parise of the parise of the parise of the parise of the Marking of the parise of the par

ZINC-WHITE.

The introduction of sake of size, as or white paint, in the place of a sail of fast, in our of the next remarkable the place of a sail of fast, in our of the next remarkable application, first ascendify made in Prance, in people creating on the Content, and due in Papaland. An other particular of the production of the people of the place of the production of the most in size. This could, in the production of the most in size of the place of the production of the most in size of the place anguestic, gives a passe which occur well, and has the lattice. The write of this of people of the children has been proposed by barming the most, as it is first crotect which could be a production of the production of the production.

GARANCINE.

A considerable portion of the madder roots, instead of being ground and exported in that form, as heretofore, is now exposed, ofter being moistened with dilute sulphurie seid, to a boiling heat by means of steam, by which the quality for some dyeing processes, while the quantity rendered soluble in water is greatly increased. The madder so prepared is known as garancine, and forms an important branch of manufacture in the south of France, which was well illustrated by o collection of specimeos supplied by the Chamber of Commerce of Avignon (1049, p. 1229). The spent madder, after being used in dyeing, is now also converted by Mr. H. Steiner, of Accrington, into a garancine (termed garancesse by the French) by steeming it with sulphuric acid in the same manner as the fresh madder, and thus a considerable quantity of colouring matter is recovered and mode ovoilable which was formerly throws away is the spent madder. vorieties of garancine give a more scarletty red than the naprepared madder, and also good chocolate and black, without soiling the white ground, but are not so well fitted, particularly the graneine of spent madders, for dyeing purples, lilacs, and pinks.

LIQUID PRODUCTS FROM THE DISTILLATION OF COAL AND PEAT.

The condensable predicts from the distribution of real out-of-the himmings antidence are becoming every day more important, from their vories anythesized. The most inportant price is the residence of the contraction of the contraction of the conference of the price is the contraction of the foreign and the contraction of the contraction of space filling the pixel to written half on inche of the tensor course, those three questions of an inches of the tensor contraction of the contractio naphtha is also used for external lighting, the wurking sheeds and yards of some manufactories being thus brilliantly illuminated. The naphtha is then burnt in the lamp invented by Mr. Beale, in which the ignition is promoted by a jet of air transmitted from the fan-blower or other blowing-machine.

The volatile shall of the ammenical liquer is now generally streamly with sulpharie call and crystallized, generally streamly with sulpharie call and crystallized, support of the sulpharies of the sulpharies of the sulpharies volatile state of manuscile, and condensing in subpairs and. All the erabonate conserver is the first fourth of the sulpharies of the sulpharies of a manuscile that the sulpharies of the sulpharies of a manuscile of the sulpharies of the form 124, to 144, per tone, it used in almost and the caroperature, we converted into and assumed and the caroperature, we converted into and assumed and the carquisition of the sulpharies of the sulpharies of the sulpharies and was not illustrated by N.F. C. Blazz, of Deptical sulpharies of the sulpharies of the sulpharies of the claim (Rupplom and Pergeng State,

The Chemical Jury likewise extended its commendation to all the chiliston of the products of the distillation of peat, although properly belonging to Class I. Prize Medals were also awarded to A. Wissaxa and Co., of Prussia (334, p. 1010), for the products of distilled schist; to to A. Monxax, of France (1361, p. 1241), for a series of products of distilled bitumen; and to J. Yozxa, of Manchester (7a, p. 187), for pranfill and olds obtained

The process last referred to is one of great importance, which has only been fully developed since the Jury made its awards. By distilling the cannel coal of loghested, Vennet it said to death as quantity of oil, amounting to load to a death of the venture of the everyth of the coal. This oil, after recriting of a small portion of its more volatile parts, or exceedingly well adapted for labelesting machinery. In the company of the control of the everyth of the coal of the venture of venture of the venture of th

Such were the principal navelries in the chemical department of the Exhibition. But there is reason to believe that many anhataness boildes those already described were the results of improved processes, peculiar to their works of the properties of the properties

The following enumeration of the principal Exhibitors, in Class II, contains, with a notice of their contributions, a statement of all the awards both of the Prize Medal and of the distinction of Honourable Mention which were made by the Jury.

ARMANY ROOTMON OF THIS (7, p. 1302), obtained

Albant Boothers, of Turin (7, p. 1302), obtained Honourable Mention for a collection of chemical products of good quality, including the mineral neids, intrate of baryta, gelatine, and soda-soap.

— ANTHELME, of Andeim (Aime) (1541, p. 1250), obtained Honourable Mention for alum manufactured by him.

P. H. Auberdier, of Clermont Ferrand (754, p. 1216),

P. H. AUREADIZA, Of Clermont Ferrand, Cry. p. 1210; exhibited French spium, prepared by a method of incision invented by hinself; and also the syrup of lettuce. H. F. L. AUGUSTIN, Of Halberstadt (825, p. 1095), obtained Honsurable Mention for the good quality of bis acetate of lead.

JAMES B. APSTIN, of Banbury (114, p. 199), exhibited decoctions and infutions of medicinal substances, prepared by him.

THE CHAMBER OF COMMERCE OF AVIGNON (1049, p. 1227) had the Prize Medal accurded to it for garmacine; a valuable form in which madder is prepared, and which is manufactured largely in the south of France, where madder is cultivated.

F. Bankart and Sons, of Swanes (49, p. 193), exhibited copperss, manufactured by them in that locality. James Benjamin Idaness (45, p. 192) had the Prizo Manufacture of the local by means of chromic acid, exhibited, together with a series of the valerizates of the sikaline, earthy, metallic, and organic bases, of singular

extent and completeness.

James Hass, of Hatton Garden (95, p. 197), exhibited specimens of the concentrated medicinal infusious and decortions which he prepares, and which are much

esteemed in the trade.

steemed in the trade,

we steemed the steemed glass apparatus, specimens of tungstic acid, oxide of uranium, and of the rarer netallic oxides, together with selentium to great quantity; for which collection of chemicals the Prize Medal was awarded.

Manuer. Groode Bell and Co. (66, p. 194) exhibited mineral paints, compounded so as to dry quickly under water, and to remain attached to metable exposed to extreme heat, ISAAC LOWTHAN BELL, of Washington Chemical Works, Newcastle-upon-Tyne (12, p. 488), exhibited specimens of Pattingon's patent oxichloride of lead, with illustrations's patent oxichloride of lead, with illustrations oxichloride oxichlori

John Brita and Co. (116; 2, 199°, of which firm Mr. J. Bell, Juno of Class II, is a partner, shallisted several pharmaceutical products carefully prepared by them, including cod-liver oil, the stearize from that oil, simple and compound extracts of sarvaparilla, oil of lavcoder, beausous of ammonia, icolide of irou, extract and incurrent

of Indiau hemp, juice of taraxienu, &c.
PILTIO BEGACIJA, of Venice (34, p. 1008), obtained
Honourable Mention for his white lead, litharge, and
veriligits.

Biscitor and Riddies, of Bonn (312, p. 1668), had the Prize Medal awarded to them for their white lead, which was remarkable for its density and great onesity.

was remarkable for its density and great spacity. Professor S. Bleensone, of Dedft, and K. Entroven, of the Hague (1, p. 142), had the Prize Medal awarded to them for their excellent white paints manufactured from oxide of zine. They exhibited also a yellow chromate of zine, chloride of zine, and a pigment which was named green oxide of zine.

L. BLEIDTERSU, of Bonn (313, p. 1068), nbtained Innourrable Mention for good potass-shun. The Bloom Inguite me is obtained by burning together a highly pyritous lignite and clay, which yield the potash as well as the other constituents of the salt, BLENDELL, SPENCE, and CO. (48, p. 192) had the Prize

Medal awarled to them for their painters' column, of which they exhibited a most extensive and beautiful collection.

A. Bo, of Turin (19, p. 1303), exhibited a very select

A. 15, of Turn (19, p. 1393), exhibited a very select collection of lakes and mineral colouds. Honek (Widow) and Lexing, of Choisy-le-Roi, Seine (1992, p. 1230), had the Prize Medal awarded to them for the acid obtained from the distillation of wood, and its aslat, which they exhibited. Their allowing sestimation is

the act comments that the property of the property of the which they exhibited. Their placial accide neid remains adial at 60 Fabr. This collection included the eils from collection and the property of the

fract of the Sacos command appears to indicate, prepared according to the prescription of the exhibitater. Boox and Sox, of Boblinger, Wartenburg (2, p. 1114), exhibited good loidle of potassium, and erecacte frem tar.

Boos, of Warsaw, Poland, exhibited alum which merits

Hoss, of Warsaw, Poland, exhibited alum which merits commendation.

The Chemical Manufactory of the Polawillen

MINING COMPANY (376, p. 1195), under the direction of M. Schuttenniann, had the Prize Medal awarded to it for fine specimens of alum, prussiate of potash, and glue, Sulphate of iron was also exhibited.

J. Bowrs, of Humlet, Leeds (42, p. 191), exhibited carbonate of soda, pure and neutral in composition, and thereby particularly adapted for scouring wool ur woollen goods, as it removes grease without injuring the animal

T. Branwell and Co., of Heworth Chemical Works, Newcastle-npon-Tyne (27, p. 190), and the Price Medial accorded to them for prussite of potash; of which salt they are amongst the oldest producers in England. E. Brassens, of Belgium (42, p. 1153), received Ho-

nourable Mention for his white lead.

Baasseura and Co., of Nippes near Cologne (314, p. 1068), contributed specimens of white lead remarkably white and dense.

white and deuse.

G. J. Harun, of Prague (21, p. 1080), obtained Honourable Mention for his prussinte of potash and stannate of soda.

of soda.

WILLIAM ARTHUR BREADEY, of Douglas, Isle of Man
(80, p. 195), exhibited a refined oil, which is recommented for watches and flue machinery, from having no chemical action on metals, and not being thickened by cold.

— Висигова, of Kirchheim, contributed a great display of ultramarine from Germany.
A. Butkus, of Paris (438, p. 1199), obtained Honourable Mention for his arsenical preparations, including

are nic acid, and very fine Branswick green.

F. X. Baowene, of Prague (22, p. 1108), exhibited a fine collection of chemicals, including succinic acid and the oxides of chronium and uranium, for which the Prize Medal was awarded.

BRONELL, of Frankfort, exhibited a colourless oil from gas-tar, chiefly beazole.

— Brown and Co., of London (7c, p. 187), had the Prize Medal awarded to them for their salts uf ammonia,

Fig. 3 deals aware to them as a contrast by an authorized to them as the contrast by the contrast of the particular to force and the property of the property of the property of the contrast the contrast of the contrast of

give body to various paints (browns, yellows, reds, blues, and greens).

ALEXANDER BRUSOHIN, of Koselsk, Russin (29, p. 1967),

received Honourable Mention for the excellent prassinte of potash which he exhibited,

W. Bienesse, of Pianesadt near Darustadt (1, p. 1125), had the Prize Medal awarded to him for ultramarine, of which he exhibited the greatest variety. The Theoretes of the Late J. Beckley, of Manebester (4, p. 185), exhibited sulphate of iron, which obtained Honourable Mention for its purity and superior quality.

Honourable Mention for its partly and superior quality, Enwann Brutzer and t²o, of Galway (37, p. 1), exhibited various preparations from sea-weed, including suits of potas and sods, rough and finely-explaint iodine, includes of potassium, lead, and mercury. Alors Lazors Brutzers (34, p. 19) had the Five-Weels Johns Lazors Brutzers (34, p. 19) had the Five-Weels Johns Lazors Brutzers (34, p. 19) had the Five-Weels Johns Lazors Brutzers (34, p. 19). The characteristic reports of characteristic properties of the considerable quantities and of good quality; especially restation, to the extent of

several ounces, erestinine, calfeine, allentoin, uric acid, hippuric acid, and urea.

Symmus John Burn (85, p. 199) had the Price Medal accorded to him for his beautifully-crystallized cantharidin, the blastering principle of cantinarides, as obtained by solution or sublimation, and in combination with the bases potash, soda, and oxide of fead.

Chromas Berrov (3, p. 185) exhibited a remarkably varied collection of saits and acids, chiefly for the new of scientific chemists. The collection included potass, coda-, ammonia-, and chrome-alum, finely erystallized; pure iodine, brosnine, &c., which received Honourable Mention.

F. Calloud, of Annecy, Sardinia (11, pp. 1302-03), obtained Honourable Mention for excellent phloridzin. He exhibited also santonia and morphine.

CAPPELEMANS, DERY, and Co., of Brussels (37, p. 1152), had the Prize Medal awarded to them for a large collection of salts, intending pids suff, generally of superior

Louis Francots Cesceutt, of Paris (793, p. 1218), exhibited specimens of dyed and milled wool, flocks, and paste-colours for paper-hangings, for which the Prize Medal was awarded.

John Cheshine, Jun., of Northwich, in Cheshire (20, p. 199), represented the salt manufacture, by a pyramid of best table salt, with several other specimens. The salt-mines and springs in Cheshire are worked to n greater extent than any others in Europe, their annual produc-

tion being upwards of 800,000 tons.

G. CLIFFORM (26, 189) of hatiated Honourable Mention for his successful efforts in restoring deeds, writings, books, maps, engravings, &c., which have been injured by fire. The process was not communicated to the Jury, but specimens of engraved documents and leaves of books were

Inc practos was not communicated to the duty, our specimens of engraved documents and leaves of books were exhibited, with one-half of them restored without separation from the injured portion. The unerstored portion was leard, horny, and brittle; the restured portion clean and flexible.

EDWARD COMPALD (Cl. I. 228, p. 143) obtained Ho-EDWARD COMPALD (Cl. I. 228, p. 143)

EDWARD CORDALD (Cl. I. 228, p. 143) obtained Honoursble Meation from various products derived from peat, E. E. Coernies, of Ornaienburg, Prassia (12, p. 1048), had the Princ Modal necorded to him for his prassiate of potash. This is one of the largest manufactories of that salt in the north of Europe. The annual production is about 130 tens.

Cotiner and Son, of Lyons (1153, p. 1233), obtained Honourable Mention for phasphorus of superior quality, with prussiate of potash and glue, which they exhibited. M. A. C. Collan, of Paris (801, p. 1219), obtained Honourable Mention for the products of coal far.

ROBERT NELSON COLLING (109, p. 198) exhibited the disinfecting powder prepared by him. This powder consists of a mixture of ehloride of lime and sulphate of alumina, and is highly efficacious in many circumstances, but must not be hrought, either dissolved in water or dry, into contact with metals.

MRc. ANNA COLVILLE, of Paris (802, p. 1219), exhibited a complete set of highly-valued colours for painting on porcelain, for which the Prize Medal was awarded.

W. CONAAN, of Paris (1156, p. 1233), had the Prize Medal was awarded awarded to him for the general excellence of his chemical products, which included purified iodine, iodide

of polassium, and refined campbor.
Thomas Aissler Cook, of Newcastle-upon-Tyne (15, p. 189), received Honourable Mention for one of the fines pecimens of crystallized carbonate of soda exhibited (masses).

nufactured by the Walker Alkali Company).
WILLIAM COPNEY (118, p. 199) obtained Honourable
Mention for a collection of remarkable fine single crystals
of chrome alum, sniphate of magnesia, sulphate of copper,

and several other salts.

Jony Corrocx, of Bridport (65, p. 194), exhibited a chemical liquid for imparting the colour of mahogany and rose-wood to common woods.

and rose-wood to common woods.

G. Consnit, of Tuscany (33, p. 1293), had the Prize
Medal accorded to him for sulphate of quinine and wellerystallized santonin, in large quantity, exhibited by him.
COULSON, JUKES, and Co. (72, p. 195) exhibited mineral
substances used in the manufacture of points.

COMENSAIN and CO., of Cherbourg, France (482, p. 1800), had the Prize Medal awarded to them for their chemical products derived from kelp, particularly iodine, which, it said, they ubstained finely erystaffized by a single stabilimation; iodide of potassium, chloride of potassium, subpinto of potash, &c.

— Courtial, of Grenelle, near Paris (807, p. 1219), had the Prize Medal awarded to him for his assortment of ultramarines, which fully maintain, by their superior quality, the high reputation of the French manufacture. J. Cerrice, of Duysbarg, Prassia (488, p. 1276), was one of the exhibitors of ultramarine distinguished by a Prize Medal.

DAUPTAIN, GORTON, and Co. (63, p. 194), exhibitors of ultramarine, had the Prize Medal accorded to them for the beautiful samples of their manufacture.

JOHN TRIFFLEWOOD DAVESTORY (111, p. 198) had the Prize Medal accorded to him for a pharmaceutical collection, which was chiefly distinguished by the hrilliant lamelle in which several of the metalic salts were exhibited. The sulphate of quinter and bydrochlorate of

bited. The sulphate of quintae and mydroculorate or morphia were in beautiful crystals.

Jons Davies, of Munchester (70, p. 195), exhibited preserved size, clear and strong, suitable for any climate.

DAVY, MACEMURDO, and Co. (62, p. 194), received the Prize Medal for the pharmaceutical products manufactured by them, including carbonate of anamouia, calomel, cor-rosive sublimate; benzoic, citric, gallic, and uxalic acids; acetate of ziuc, nitrate of silver, chloride of barium, astrate of baryts, tartar-emetic, of which the crystals were particularly fine; sulphate of soda, nitrate of ammonia, scetate of lead, sulphate of mercury, red oxide of mercury, glycerine, and pyroxauthin. The specimens were all glycerine, and pyroxauthin, remarkably good.

DEBRAUDT BEOTRESS, of Courtrai, Belgium (39, p. 1153). exhibited white lead of excellent our DE CAVAILLON, of Paris (109, p. 1176), obtained a Prize

Medal for salt of ammonia, prepared in the purification of Coal-gas.

V. DELIGNOU, of France (1180, p. 1234), exhibited rec

tified products of the distillation of bituminous shale, a chenical manufacture which has attained more success in France than in England, probably owing to the shales of the former country being less contaminated with sulphur than those of the latter, An Honomrable Mention was awarded to the exhibitor. W. DENTITH and Co., of Manchester (8, p. 187), had the Prize Medal awarded to them for the products of their

manufacture, by which the Exhibition was embellished: beautiful and colossal specimens of chromate and hickromate of potash, ferrocyanide of potassium, alarm from the Whithy shale, uitrate of lead, fine green oxide of chrominm, and oxide of zine.

DAVID DICK and Co., of Burgh Chemical Works, Carlisle (7 p, p. 187), exhibited copperas manufactured by

Spence's patent process.

Dirier, and Co., of Snalfeld (824, p. 1095), contributed superior oil and water colours for pair Dennerous and Co. (51, p. 193) exhibited magnesium

salts and their fluid magnesia (a solution of carbonate of magnesia in carbonic acid water). Dixon, Son, and Co., of Newton Heath, Manches (126, p. 199), exhibited specimens of matches made with

Schrotter's amorphous phosphorus, which are said to be as easily and cheaply made as the common matches. George Dickson and Co., of Edinburgh (79, p. 106), exhibited specimens of cod-liver, skate-liver, and ling-liver

oil manufactured by them. - Droop, of Osnabruck, exhibited mineral colo DROUN and BROSSIES, of Labriche, near St. Denis (169, p. 1081), had the Prize Medal awarded to them for the peculiar excellence of their colours for the use of calico-

printers. WILLIAM L. DUNCAN, of Sydenham, Kent (76, p. 195).

exhibited cotton waste before and after being used in cleansing machinery, to illustrate his process of restoring that substance. DUNCAE, FLOCKHART, and Co., of Edinburgh (104, p. 198), exhibited a specimen of chloroform, manufactured by

them, which appeared to possess a high degree of purity.

C. A. Dunots, of Hirschberg (Cl. I. 7 Zol., 1048), obtained flonourable Mention for a fine specimen of cinnabar, intended for sealing-wax.

L. Deroun, of Genoa (13, p. 1303), had the Prize Medal warded tu him for his salts of quinine, of which he exhibited the sulphate on a large scale, and the citrate THE ELECTORAL BLUE COLOUR WORKS, OF Hesse, Schwartzenfela (465, p. 1077), received Honucrable Men-

tion for beautiful samples of smalts, accompanied by other preparations of cobalt, and for ultramarine. ELLAM, JONES, and Co., of Derby (58, p. 193), obtained Honourable Mention for a considerable cullection of mineral and vegetable pigments manufactured by them.

SANCEL ESTCOURT (64, p. 194) exhibited specimens of washing-blue.

J. Evans (5, p. 185) exhibited finely-erystallized naphthaline from coal-tar, GEORGE EVANS (Cl. I. 227, p. 143) obtained Honourable

Mention for his numerous peat products.

BENJAMIN FAWCETT (29, p. 190) exhibited plain and ornamental specimens in graining or flatting, said to be Produced by a kind of paint free from noxious effluria.

The Firm of Fouchk-Lefellaria, of Javel, near Paris

(1229, p. 1236), had the Prize Medal awarded to it for a

rich and elegant display of alkaline and earthy sults, accompanied by pure mineral scids; the sulphuric acid being manufactured in a peculiar manner. Aumonized salts are also prepared from urine for manuring purposes, SOCIETE DE FLORETEE, OF Flureffe, near Namor, Belgium (38, p. 1152), obtained Honourable Mention for a good collection of the urdinary chemical products mannfactured by them.

John P. Fowler (55, p. 193) obtained Honourabic

Mention for the pure benzoic seid manufactured by him. Fox and Baratrotton, of Manchester (44, p. 192), obtained Honograble Mention for a series of the larger chemicals, of which they are mannfecturers; including common salt, sulphur, salt-cake (sulphate of soda , barilia or black-ash, soda-ash in illustration of the soda process; blenching powder, nitrate of lend, fine crystals of chlorate of potnsh, bisulphate of soda, protochloride of tiu, sulphate and nitrate of copper, the two prussintes of potns, with white, mottled, and vellow soda-scops,

H. Gabenann, of Schweinfurt, Bayaria (12, p. 1099). is one of the German exhibitors of ultramarine to whom the Prize Medal was awarded.

GATTER-BOCCHARD, of Paris (1245, 1237), obtained Honourshie Mention for various colours manufactured by him.

Gonraev and Cook (92, p. 197) had the Prize Medal accorded to them for their pharmaceutical products; among which their carmine and lake from cochineal, and car-

bouate of ammonia, were most remarkable. SEPTIMES II. Godson, of Tenbury (50, p. 193), exhibited the mineral waters of that lucality, with the bromine

and salts extracted from them T. GREENISH (124, p. 199) exhibited a soluble sur w. Gating, jun., of Berlin (43, p. 1050), exhibited

prepared colours containing the mordant by which wool can be dyed in one operation, without boiling. process was illustrated by samples of well-dyed wool.

J. B. GUINET, of Lyons (1620, p. 1256), had the Council Medal awarded to him as the original discoverer of artificial ultramarine in 1828, and as being still one of the most successful manufacturers of that substance

Gunzamano, of Stettin, exhibited white lead of good GUTHEIL and Co., of Dusseldorf (459, p. 1077), exhibited pure ferrocyanide of potassium.

Härnell and Ellis, of Manchester (10, p. 187), had

the Prize Medal accorded to them for a good collection of metallic salts, chiefly for the use of calico-printers; partienlarly the oxide, nitrate, and sulphate of copper, the oxides and most common salts of lead and tin, sulphate and hydrochlorate of ammonia from gas liquor, and the preparations of archil. The metals, named with their ores, and the commercial varieties of sulphur, were also well illustrated.

Jostan Hall, of Queenborongh, in the file of Sheppey (40, p. 191), exhibited copperss crystallized in a granulated form, convenient for dry mixing. It is prepared from the river pyrites, of which about eight tons are consumed

weekly. . W. HATTERSLEY (110, p. 198) exhibited an elixir of sarsaparilla, said to be prepared without beat. JAMES HAWTHORNE (39, p. 191) exhibited a new ink for

staining oak and mahogany, with illustrative specimens.
P. Havrs and Co., of Salford (75, p. 195), obtained
Honourable Mention for various products manufactured from resin, including spirits for making varuish, chear oils for machinery and tramways, &c. HEINZEN, BROTHERS, of Tetchin, Austria (26, p. 1008).

had the Prize Medal awarded to them for their cudbent and archil. A fine assortment of red and violet extracts was exhibited

A. and W. HENINGWAY (24, p. 190) had the Prize Medal accorded to them for their double salts of iron, ferric tartrates and citrates, and other pharmscentical preparations, which are extremely well prepared.

HENER, of Lichtenstein, near Osterrode, exhibited white lead commendable for its colour, Baron FRANCIS PAUL VON HERBERT, of Klagenfurt and Wolfsberg, Carinthia (30, p. 1008), the distinguished ma-

nufacturer, had the Prize Medal awarded to him for a collection of samples of white lead of excellent quality, Baron I, von Heaugar, of Klagenfurt, Carinthia (32, p. 1998), received Honourable Mention for his varieties of orange and bright red lead, and red and gold litharge. These colours possessed a brilliancy which was not ex-

eceded in any other collection O. HERMMANN, of the Chemical Manufactory (formerly Royal) at Shönebeck (Cl. 1, 683, p. 1088), had the Prize Medal accorded to him for on extensive eollection of preparations, which appeared in general to be chemical preparations, which appeared in general to be remarkably good. In the number may be mentioned giacial phosphorie acid of singular beauty, bromiue, hisul-phide of carbon, pure carbonates of potsab nul soda, free from silica and chlorine, for scientific chemists, pure gallie acid for use in photography, dec. J. F. Heyv. and Co., of Charlotteshurg, near Berlin chemical

(44, p. 1050), exhibited colours for paper-hangings and nainting; besides acetic acid, acetate of soda and acetate of lead manufactured from pyroligueous acid, at a very

F. C. Hills, of Deptford (23, p. 190), had the Prize Medal accorded to him for sal-aumoniac and earbonate of numuouia, of which he is a well-known manufacturer, The farmer salt is prepared by the addition of muriatic ocid to the ammoniacal liquor of gas-works, and the latter salt by the decomposition of sulphate of unitnoins by means of carbonate of line. Nitrate of potash was also exhibited, prepared by the decomposition of the chloride of potassium of kelp by means of nitrate

of soda. Hinsest and Baornes, of Portugal (50, p. 1307-08), exhibited a fair collection of neids, salts, and other chemical

products. HIBSCHMANN, of Warsaw, Poland (26, p. 1367), represented the chemical industry of that city by a collection

J. Hormstager, of St. Procopi Mineral Works, Kahn Bohemia (14, p. 1007), exhibited alum and snlphate of iron of good quality.

Horkin and Williams (41, p. 191) were accorded the

Prize Medal for an interesting collection of the rarer chemicals used in medicine, particularly pure acoustine, a series of valerianates, "cardole," an oily substance obtained from the pericarp of the cashew nat, said to be a powerful vesicating agest; bromoform, iodoform, metallic acid, pure tamin, and crystallized chronic acid, Henay Horwoop, of Richmond, Sarrey (190, p. 197), gallic acid. exhibited beautifully-pure sugar of milk crystallized under different circumstances. The crystals formed at 160° Fahr., in the dark, were particularly fine,

Hurstmann, of Horst, near Steele (Zol. t. 462, p. 1107), exhibited exceedingly beautiful samples of smalts Howards and Keyr, of Stratfurd (11, p. 187), had the Prize Medal accorded to them. Besides a highly-instructive and complete collection of the cinchona barks, which exeited great interest omong scientific visitors, salts of the vegetable alkaloids were exhibited by this house, with camphor in every stage of preparation; Borneo camphor, borns, and borneic acid, tartaric acid, citric acid, and their salts: various preparations of mercury of great purity, with salts of antimony, silver, zinc, and iron. series of benutifully-crystallized salts of potass, soda, and magnesia, completed this magnificent collection.

C. HUMPREY (78, p. 196) exhibited column produced by the combination of fatty acids with metallic oxides. J. Husnand, of Philadelphia (U. S. 49, p. 1435), exhibited his calcined magnesia,

J. W. and H. HUNKIBSON (86, p. 196) were awarded the Prize Medal for a beautiful collection of the principal salts used in pharmacy, manufactured by them. It included Rochelle salt, carbonate, hicarbonate, and phosphate of soda; nitrate and bicarbonate of potash; iodisle of potassium, of which some very fine erystals were exhibited,—with the iodides of lead and mercury, and tartaric and citric acids.

C. Jägen, of Barmen (469, p. 1078) exhibited no excellent specimen of safflower-carmine, II. C. Jenkins (99, p. 197) exhibited starch, gums, nod vegetable wax from the potato,

WILLIAM HARRY JENKINS (43, p. 192) exhibited arsenical powders intended to protect wood, &c.

F. Joner, of Würtemhurg (4, p. 1114), one of the first great manufacturers of quinine, obtained the Prize Medal for a case of that substance, which he exhibited. It was Mr. Jobst who established the identity of theioe and

enffeine J. R. Johnson (60, p. 194) obtained Honourshle Men-tion for his extract of "munject," This is a substitute for unsider, furnished by the roots of another plant, Rubia

William Joseph Kane, of Dublin (53, p. 193), exhibited salt-cake (salphate of sodn), made in brick furnees. with complete condensation of the muriatic seid, in a concentrated state; also blenching powder, made from the mariatic acid so obtained. The assugancese used by Mr. Kane is found in the Glaudure Mines, Curk, and contains 90 per cent, of the pure binoxide,

THOMAS KEATING (102, p. 197) exhibited the flowers of the Brayera anthelmistica, from Abyssinia (a celebrated remedy for tane-worm), also Matico, a new astringent and styptic, and other pharmaceutical substances, which obtained Honourable Mention,

JAMES HENKY KENT, of Stanton, near Bury St. Ed-munds (90, p. 196-97), obtained the Prize Medal for his dried pharmaceutical placts. This is a beautiful collec-tion: the dried flowers of colchicum, digitalis, and malva, retain the hrilliant hues of the fresh flowers; the powder of conium is of a beautiful green colour.

Jone King, Hurlet and Campsie Alum Compar

Glasgow (13, p. 188-89), was awarded the Prize Medal for his alum and prussiates of potash. All the salts were remarkable for their beauty and purity. The crystals of the red prussiate were not coloured dark and rendered impure by any admixture of insoluble cyanide of iron, and were perhaps the finest in the English Department, The alum was prepared from the alam-shale of the Scotch coal-field by the old process.

WILLIAM WAUDBY KING (84, p. 196) exhibited his effervescent eitrate of magnesia. KINZELORRGER and Co., of Prague (27, p. 1008), obtained Honourable Mention for a complete collection of

the colours used by painters.

KRIMMELBERN and BREDT, of Barmen, Prussia (457, p. 1076), exhibited a good series of chemical products and

colours for dyers and calico-printers; among which was included red prussiate of potash, A curious circumstance has been stated respecting the prussiates, namely, that red prussiate is sent from Germany to Eagland, while the clluw prussinte is imported ioto Germany from England to considerable quantity.

KURLMANN, BROTHERS, ebemical manufacturers, of Lille (555, p. 1205), obtained the Prize Medal for an interesting assortment of salts of the alkalis and earths.

io which, besides the usual articles of great consumption in a pure form, was included caustic buryts, which is prepared at a singularly low cost from the nitrate,—the nitrous fames being economised to the sulphurie acid chamber. The haryta is employed to precipitate sugar from the julee of the beet-root, to Dubroufaul's new pro-cess of purification. Also, artificial carbonate of baryta, prepared from the sulphate, which is first converted into sulphide of barium, and then exposed io a damp state to the action of carbonic acid gas, obtained by the combus-tion of coke. Professor F. Kuhlmann has discovered that the hydrosulpharic acid, set free in the operation referred to, can be economically converted into sulphuric acid, by transmitting a mixture of that gas and air in anfficient quantity through nitric acid. Among the less osual products are sulphite of soda and sulphite of lime, obtained by exposing crystallized carbonate of sola, or hydrate of lime, to the funes of burning sulphur. A liquid ammoniacal mixture for mannre was also exhibited, which is produced by coadactiog the non-coodensable gases from the leaden chamber through channels kept moist by the ammoniacal liquor of gas-works or by

Dr. L. Kunnaut, of Berlin (13, p. 1048), was awarded the Prize Medal for an elegant collection of chemical products, ehietly of the class used in dyeing, such as crystals of sugar of lead, uitrate of lead, acetate of lime, ataunate of soda, cyanide of potassium, oxide of uranium and tungstic acid in large quantity. The latter substance is exhibited by several manufacturers, probably with the view of having it tried as a substitute for peroxide of tia,

in some dyeing processes, C. A. Kustz, of Cornbrook Works, Manchester (9, p. 187), had the Prize Medal accorded to him for new colouring matters and preparations for printing and dyeing

cotton, linen, silk, and wool KUTZER med LEMBER, of Prague (24, p. 1008), obtained Honourable Mention for the ultramarine which they exhibited. They also presented chrome-orange and chromeyellow of fair quality.

COUNT F. DE LABDEREL of Tuscany (35, 1294), obtained the Council Medal for bis bighly-naccessful manufacture of boracie acid

HENRY LAMPLOVON (71, p. 195) exhibited a variety of harmscentical preparations, together with residual salts from the destructive distillation of animal substances. WILLIAM LAWRENCE (56, p. 193) exhibited specimens of cod-liver oil manufactured by him.

ALFRED LEA (105, p. 198) exhibited "myrrhine," a preparation for medical use, F. M. C. Leat, of Portugal (p. 1308), exhibited a collection of metallic salts (63, 67, &c.), resuarkable for

its number and variety. Other exhibitors, of the same country, sent crude and purified cream of tartar-an imortant article of commerce in wine-growing countries

ike Portugal. CHARLES LEE (69, p. 195) exhibited a new black dyeing material for dyeing silk, imported by him.
THE LEEBEN CHEMICAL MANUFACTORY, BEAT Drontheim (39, p. 1352), exhibited a well-crystallized sample

of bichromate of potash, a salt which is produced there of excellent quality, T. LEFERVER and Co., of Moulins-Lille (580, p. 1205), were nwarded the Prize Medal for their somerior white

- LEFEVRE, sen., of Nantes sur-la-Fosse, Loire Iuféricure (381, p. 1205), exhibited oxide of sine of superior quality, for which he received Honouruhle Mention. T. LEFFCHILD, of Upper Clapton (67, p. 194), exhibited specimens of dyes for silk, manufactured by him.

- Lenova, Vitry le François, Marne (308, p. 1191), the discoverer of "solicine," had the Prize Medal accorded to him in acknowledgment of the value of that discovery. A large quantity of the substance, very white and finely crystallized, was exhibited, with a specimen of the willow bark from which it is derived.

C. LEVERKUS, of Wermels-Kirchen, Prussia (875, p. 1097), stood high as an exhibitor of ultramarine, and had the Prize Medal awarded to him for that substance. G. LINBSAY, of Sunderland (16, p. 189), obtained Honourable Mention for sulphate of iron, of superior quality, manufactured from the iron pyrites of coal mines, exposed to air and moisture, the excess of acid being saturated by digesting the lixivium upon waste Copperas, so mannfactured, is sought for hy dyers. it is said, oo account of its rapid oxidability in the atmosphere.

J. LINKLATER (82, p. 196) exhibited cod-liver oil. THE LONDON DRUGGISTS (117, p. 199) contributed a large, systematic, and highly-instructive collection of

drugs, which received the approbation of the Jury.
WILLIAN LONGMAID (Class I., 441, 162) illustrated his new soda-process, for which the Conneil Medal was awarded, by specimens of the rock-salt from Cheshire, and cupreous pyrites from Cornwall, employed by him; and copreous pyrites from cornwas, composed by much the salt and ore mixed and ground; sulphnite-ash, the calcined product of the former, containing sulphnite of soda, chlorides of silver and copper, oxides of tin and iron, &c.; black ash, crude alkali, and carbonate of soda, prepared from the sulphate of soda; sulphate of copper, obtained by oxidising precipitated copper, and treating it with sulphuric acid; bleaching powder, the chlorine of which was obtained by passing a current of dried air through a close furnace, heated externally, in which the ore and salt are in process of calcination,

MORITZ LUCAS, of Cunersdorf, near Hirschberg (8,

1, Zol., p. 1048', obtained Honourable Mention for his cinnabar, of which fine and deep-colnured specimens were exhibit-d

CHARLES McCullocit (96, p. 197) exhibited an interesting collection of Euglish and American dried herbs

aud roots J. F. MACTARLAN and Co., of Edinburgh (107, p. 198), obtained the Prize Medal. They exhibited a series of preparations, on a large scale, illustrative of the manufacture of the salts of morphine, galfic and tannic acids sulphate of beberine, from green-heart bark; all excel-

lent specimer Mame and Co., of Strasburg (317, p. 1192), obtained Honourable Mention for their viuegar and other acetous products. They were, also, exhibitors of white lead, of good quality, and of purified alcohol from potatoes.

Dr. L. C. Manguanner, of Bonn (327, p. 1069), exhi-

bited several remarkably pure chemical products, in-cluding chloroform, cyanide of potassium, bisulphide of carboo, and concentrated acetic acid, for which Honourable Mentioo was accorded. Mrs. B. Mason (77, p. 195) exhibited Pooloo's Chinese

Changes Mason and Son (22, p. 190) exhibited speci-mens of blacking, of French and waterproof varnishes,

manufactured by them JOHN MARSHALL, of Leeds (68, p. 194, 195), obtained Honourable Mention for his arcbil, and various other pre-

parations from the lichens, and for lac-dyes MATHES and Wenern, of Duisburg, in Prussia (464, p. 1077), were awarded the Prize Medal for chemical products, chiefly intended for the use of bleachers and paper-manufacturers, of which fine samples were exhibited, namely, hydrochlorie acid, chloride of lime, Sulphite, and other salts of soda, including caustic soda.

MAY and BAKER, of Battersea (14, p. 189), had the Prize Medal accorded to them for their acids, salts, me tallie and other preparations used in pharmacy, all of

which appeared to be of excellent quality. Their refined camphor was beautifully transparent, Chanles Medssonnies, of Paris (916, p. 1224), had the Prize Medal pwarded to him for chemical products of superior quality, including extracts and solutions for

dyeing wool io a single operation. MELINCHYTHAN CHEMICAL COMPANY, of North, South Wales (2, p. 185), illustrated their mannfacture of acetate of lead by a spleudid exhibition of the crystallization of that substance, which obtained Honourable

Mention. MENICO and Co., of Paris (925, p. 1224), exhibited carefully-prepared pharmaceutical extracts, obtained by steam, and a variety of medicinal substances, reduced to impulpable powder, for which the Prize Medal was

ALFRED Microsa, of Puteux, near Paris (640, p. 1208), exhibited the extracts of various dye-woods of superior quality, for which the Prize Medal was awarded

T. Miller (1, Class XXX., p. 820) exhibited a complete assortment of artists' colours and materials, which received Honourable Mention. W. MODERLEY, of the Mulgrave Alum Works, new

Whitby (17, p. 189), was awarded the Prize Medal for his alum, prepared from the alum-state of that district, and sulphate of magnesia, extracted from the residual liquors of that manufacture.

A. Monkau, of Paris (325, p. 1192), exhibited products of distilled hitnmen, for which the Prize Medal was awarded.

Monoon and Son (106, p. 198) exhibited a beautiful collection, for which the Prize Medal was accurded, consisting chiefly of the rarer organic componeds; finelycrystallized salts of morphine, strychnine, ciuchonine, and pure aconitine; also veratrie, gallie, tannie, hippurie, salicilie, meconic, pyrogallie, and pyromeconic acids; croosote, the furfurol of Formes, furfuranide, nitrate of furfurine, chloride of uickel, &c.

C. Morter, of Paris (932, p. 1224), exhibited superior archid prepared for the use of dyers and calico-printers. Sir James Memar, M.D., of Dublin (87, p. 196), exhibited various fluid and solid preparatious of magnesia.

Professor C. Mussini, of Florence (37, p. 1294), obtained Hosourable Mention for colonrs, mixed with a peculiar preparation, which prevents the action of the san and the effects of moisture. The colours are used for

eneaustic painting and painting is fresco.
WILLIAM NAYLOB (35, p. 191) exhibited various varnishes of copal, sandarach, and mastic, and also specimens of deal wood stained in imitation of different woods, without the usual sizing

NISSEN, HILLARY, and PARRER (36, p. 191), exhibited tinted paper, chemically prepared in the pulp, for printcheques upon. W. G. Nixey (112, p. 199) exhibited a specimen of

K. Ormers, of the Grand Duchy of Hesse (8, p. 1126), received Honourable Meution for his products of gas-tar, obtained by fractional distillation. The term "ercosote," ontained by Inctional distinuion. The term "ereosote," is applied rather indefinitely, in Germany, to substances which may have an equal medicinal value, but differ considerably in properties. The crystallized ercosote of this collection is hydrate of phenyl. The colourless oil np-

pears from its odour to be chiefly benzole, CHARLES OWEN, of Edinburgh (83, p. 196), exhibited specimens of pure cod-liver oil.

ROBERT OXLAND, of Plymouth (225 and 485, Class I p. 143, 172), exhibited a variety of products derived from the distillation of peat in cast-iron retorts, which received Honourable Mention. The process inveoted by Mr. Oxland for the separation of tungstic acid from the ores of tin, by the action of sulphide of sodium and formation of soluble tungstate of soda, in a reverberatory furnace, also received the commendation of the Jury Specimens of sugar were likewise exhibited, refined by means of acetate of alumina,

S. OYLER (113, p. 199) obtained Honourable Menti for excellent lint for surgical purposes, which he exhibited

W. Pannott (46, p. 192) exhibited illustrations, in oil and water colour, of a new brown, derived from the smnt of corn, discovered by him, and recommended from

his experience of it as an artist, WILLIAM WATSON PATTINSON, of Gateshead, New-castle-upon-Type (18, p. 189), in partnership with a Juror of this Class, exhibited large masses of crystallized alum, masses of the simple sulphute of alumina, known in commerce as "concentrated alum," with a specimen of bicarbonate of soda, prepared by exposing

manufactured at the Felling Chemical Works. OTTO PAULI, of Carlsrube (328, Zol. 1, p. 1069), had the Prize Medal awarded to him for his phosphorus and other chemical products. The substances exhibited were chiefly derived from bones and animal matters, and included sal-ammoniac and the ferrocyanide of potassium, beautifully crystallized. The last salt was remarkable for its pale sulphur colour, an indication of value, as it arises from the entire absence of the red salt, which, in some dyeing processes, makes the colour appear dull by forming the green cyanide of iron. The annual produc-tion of prassiate of potash, in this old and increasing establishment, is about 80 tons; of sal-aromoniac about 20 tons; and of phosphorus 80 ewt. G. PEACOCK, of Southampton Docks (73, p. 195), ex-

hibited wood, preserved by a chemical process peculiar to himself. PELLEGRINI SNETHER, of Rome (3, p. 1285), exhibited

the native alum of the Roman States, purified by crystallization, showing that this ancient manufacture still maintains its ground, in competition with the enormous production of the same salt by the artificial processes, Moses Hain Picctorro (33, p. 190, 191) obtained Honourable Mention for specimens of guar-arabic, decolorized and purified by means of sulphurous acid,

PINTO, PEREZ, and Co. (121, p. 199), exhibited very fine acetate of lead, which received Hononrable Mention. THOMAS CARRY PONTING (25, p. 190) exhibited a mark-

ing iak.

PONTIFEX and Wood (1, p. 185) obtained the Prize Medal for specimens of various colours and pigments employed by artists and paper-steiners, and for other

chemical products. The crystallization of their tarturio and citric acids was truly magnificent, and also their snlphate of copper. They likewise exhibited a series of salphate of copper. interesting chemical and metallurgical products, illustrating the different processes of separating lead from its

Poorman and Viscon, of Schiedam, in Holland (2, p. 1142), one of the oldest houses in the white lend trade, p. 1142), one of the oldest houses in the white lend trade, obtained Honourable Mention for the superior quality of the samples of that salestance which they exhibited.
M. Poutsy (108, p. 198) received Honourable Mention for the new drag, "Indian hael," the fruit of the Bengal quince, which he has introduced; and for other pharmaches.

Powers and Wightman, of Philadelphia, United States

(262, p. 1452), had the Prize Medal accorded to them for a large and valuable collection of chemical substances; among which appeared piperin, narcotine, mor-phine, the valctionate of morphine, and a large quantity of a substance said to be menispermine

A. Prayand F. Agard, Aix (Bouches dn Rhône) (1682, 1257), exhibited (in illustration of the process of M. the Council Medal was awarded) specimens of the various salts contained in sea-water; chloride of sodium in large crystals, obtained from spontaneous evaporation; and the same in a granulated condition, for table use, by

dissolving in a hot solution of chloride of magnesium, and cooling.

The Rev. J. B. Reade, of Stone Vicarage, Aylesbury (3a, p. 185), exhibited evaniodide of iron, a new variety of soluble Prussian blue, and pure iodide of potassium. In the composition of the former substance, indine is sopposed to play the part of oxygen or cyanogen.

REEVES and Sons (7, Class XXX., p. 821) exhibited

various water-colours, prepared with wax, and other pig-ments, which received Honourable Mention. RICHARDSON BROTHERS and Co. (19, p. 189) exhibited

specimens of refined saltpetre, or nitrate of potash, obtained chiefly from the East Indies. The Bengal nitre, so refined, is a remarkably pure potass-salt. Professor Michell Ribolet, of Lucea (36, p. 1294), had the Prize Medal accorded to him for his improve-

ments in the colours for encaustic painting; which were accompanied by paintings executed by him to show the effects of the coloors. E. RILEY (125, p. 199) exhibited hippuric acid, pre-

pured in large quantity W. Rongarson, of Banff (81, p. 196), exhibited cod-

liver oil, said to be extracted by steam-beat, and rendered almost colouriess without the use of charcoal, or any other decolorizing agent; also skate-liver oil, manufactured in the same manner, which is preferred by some to cod-liver oil for medicinal use.

ROBERTSON and Co. (6, Class XXX., p. 821) exhibited various colours for artists, which received Houourable

J. Rockas (240, Class I., p. 143) exhibited various products of peat, which received Honourable Mention. F. Konn, of Wiesbaden, Nassan (7, p. 1132), was an exhibitor of ultragarine, distinguished by a Prize Medal. - ROCHAZ, of Mülheimon Ruhr (1 Zoll. 452, p. 1076) exhibited white oxide of zine of good colour, produced

directly from German calamine.
C. P. H. Rosseler, of Paris (1452, p. 1245), exhibited a chemical preparation for restoring gold and silver em-broideries, with illustrations; which received Honourable Mention.

Rowner and Co. (3, Class XXX., p. 829) exhibited the pigments used in oil and water-colour painting, with several new colours, which received Honourable Mention, THE ROYAL SAKON CHINA MANUFACTORY, at Meissen p. 1112), first prepared ultramarine in Germany; and

as exhibited samples of remarkable benoty, for which a Prize Medal has been awarded. THE ROYAL SAXON SMALT WORKS, at Schneeberg p. 1105), contributed specimens of their well-knowo pro-

RUSSELL and ROBERTSON, Holytown, Lanarkshire (59,

p. 193), exhibited specimens of white lend, said to be pro-

duced by a new and rapid lumid process; yellow chromate, and red dichromate of lead, for which they received

Honourable Mention. M. Salter, of Sardinia (10, p. 1302), obtained Hou able Mention for his pharmaceutical collection, which included a series of steuropteus, well crystallized from

oil of peppermiut and other essential oils - Sanin, of the Government of Kaluga, Russia (2) p. 1367), received a Prize Medal for salts of lead of good

quality, which he contributed, together with a small collection of other chemical products. Amerosio Saanto, of Matanzas, Cuba, Spain (242, p.

1344), exhibited an interesting collection of pharmaces W. Sattler, of Schweinfurt, Bavaria (14, p. 1099) received Honourable Mention for a rich assortment of

lac colours and nther pigments.

J. SETZER, of Weiteneggk, on the Dannise (23, p. 1008), represented the manufacture of nitramarine in Austria. He also exhibited the yellow sulphide of cadmium of great purity and intensity; with a collection of madder colours. An Honourable Mention has been

Savony and Moore (115, p. 199) exhibited kosso, imported from Aden, also sendul, or musk-root, supposed to be the produce of an umbelliferous plant of Central Asia, the introduction of which into pharmacy in this country is due to the exhibitors.

C. SCHLIPPE, of Moscow, Russia (27, p. 1367), had the Prize Medal accorded to him for superior prussiate of potash and alum. This exhibitor is known in science as the discoverer of the crystallized sulphostibite of as dim (NaS , SbS_s), and manufactures on a large scale. His chemical products are much esteemed in Russia. Besides those mentioned, the collection contained salts

of tin; oxalic, tartaric, and acetic acids. SCHILLING and SUTTON, of Brighton (52, p. 193), exhibited samples of the soda, Seltzer, and Fachingen

waters manufactured by them. STRUVE and Co., of Brighton (52A, p. 193), exhibited specimens of the artificial mineral waters which they have long manufactured with so much accuracy, namely waters of similar composition to the springs at Spa, Pyrmont, Marienhad, Kissingen, Seltzer, Fachingen, Püllna, and Vichy. These factitious chalybeates are said to contain carbonate of iron in solution, whereas in those imported a part or the whole is precipitated SCHECK and URLICH, of Bamberg, in Havaria (15, 1099), received Honourable Mention for ultramarine

of superior quality. SCHER and KOHRING, of Brandenberg, contributed pure tartarie acid, well crystallized, and also in fine

L. Scorr (61, p. 194) had the Prize Medal accorded to him for white oxide of zinc, manufactured as a substitute for white lead.

H. Sigole, of Stuttgard (6, p. 1114), was awarded the Prize Medal for an assortment of rich and pure red lakes. Schorsts Brownens, of Turin and Brozzo (1vrée) (4, , 1302), sustained the chemical reputation of Sardinia by the exhibition of a collection of salts, sulphur, saltpetre, and acids. They also exhibited fine samples of

phosphorus. SERZEDELLO and Co., of Portugal (17, 38, &c., p. 1308), exhibited a full series of well-prepared salts, and other chemical products.

A. SCHARENBERG, of Neustrelitz, Mecklenburg Strelitz (3, p. 1134), exhibited a fine assortment of madder-lakes, prepared by a new process, which it is said resist the action of light; for which a Prize Medal was awarded. p. 187) exhibited different E. SCHNERSARL (9, varieties of ultramarine of fine quality, for which a Prize Medal was awarded to him.

T. and H. Sattra, of Edinburgh (94, p. 197), had the Prize Medal accorded to them for aloin, the enthartic principle of aloes, first prepared by them; and for can-tharidin, of which a large quantity was exhibited in crystals.

- Sourt, of Grenelle, near Paris (1020, p. 1227), phtained the Prize Medal for his various qualities of oxide

of zinc. M. Sorel has contributed most materially to the rapid advance which the oxide of zine has lately made in France and clsewhere, as a substitute for white-lead.

Mesors, Spence and Dixon, of Peudleton Afum Works, near Manchester (7, pp. 185, 186), received Houourable Meution for their alum, prepared from gray schist by the action of sulphurie acid and the addition of sulphure of ammonia. Sulphate of iron, prepared by combining sulphuric acid directly with the residuary oxide of iron of burnt pyrites, was also exhibited; together with a hyourn't pyrites, was and extinities; together with a ny-draulic centent prepared from the refuse gas-line, united with the refuse of the shale, after the alumina has been extracted; and the refuse of Wicklow pyrites, after in use in the manufacture of sulphuric acid -from this latter substance the morrar obtains oxide of iron. The metallic salts present are said to prevent the growth of

oss upon the surface of this cement JOHN ALEXANDER SPENCER (31, p. 190) had the Prize Medal accorded to him for the various products of his chemical manufactory, including naphthaline, sulphate of magnesia, benzoic acid, hydriodate of quinine, and samples of cod-liver oil, which have kept their colour well for one

or two years. T. Spungts, of Saffron Walden (38, p. 191), exhibited the roots, stems, flowers, and stigmata of saffre

Peters Square (93, p. 197) was awarded the Prize Medal for a variety of pharmaceutical extracts and pre-served juices of medicinal plants prepared with great care; and for other chemical products.

HENRY STEVENS (74, p. 195) exhibited samples of deal stained in an ornamental manner, by colours manufactured hy himself. J. C. STEVENSON, of the Jarrow Chemical Works,

South Shields (122, p. 199), illustrated the crystallization of curbonate of soda by a magnificent specimen of that salt, which was received too late to be placed nmone the articles referred to the Jury.

WILLIAM STRUKKSON, of the Jarrow Chemical Works

(20, p. 189), received Honourable Mention for bicarbonate of soda, prepared by exposing crystals of soda to carbonie acid gas

STORMANN and WUSTENFELD, of the Chemical Manu factory of Neusalzwerk (460, p. 1077), had the Prize Medal accorded to them. They operate chiefly upon the mother-liquor of salt springs, as at the older establish-ment of Shünesbeck. The great variety of substances produced in Germany at the same works may be judged of by the following enumeration of the articles exhibited by this house, with their respective prices. The thaler may be taken at 2s. 10d., and contains 30 sgrs.; the sgr. will be equal to 1'33 of a penny :-

Pure sulphate of ziue, per lh., 3½ sgr. Acetic acid (1949 and 1969), phosphoric acid, chloroforu, respec-tively 26 sgr., 1 thaler 13½ sgr., and 1 thaler 25 sgr., per lb. Nitrie, sulphurie, parified hydrochloric acid (1900), rec 100 lbs. (1:120); per 100 lbs., respectively 10, 124, and 5 thaters. Carbonate of soda (99°95, and 99 per cent. pure carbonate); per 100 lbs., 7, 64, and 6 thaters 5 sgr. Ditto crystallized, pure crystallized, and sesquicarbonate of soda; per 100 lbs., respectively 2 thalers 25 sgr., 10 thalers, and 8 thalers. Sulphate of soda; per 100 lbs., 13 thaler and 2 thalers. Ditto purified; per 100 lbs., 4 thalers 1 sgr. Hyposulphite of sods, per lb., 8 sgr. Nitrate of sods; per 100 lbs., 11 thalers. Seignette salt, Attrate of sona; per 100 lns, 11 timers. Segrette sair, per lb., 7½ sgr. Acetate of potash, per 100 lbs., 14 thalers, 12½ sgr. Carbonate of potash, per 100 lbs., 14 thalers and 30 thaters. Ditto parlied, per lb., 1 thaler. Prussiate of potash, per lh., 20 sgr. Sulphate of potash, per 100 lbs., 9½ ballers; cysnalized, 40 thalers. Cyanide of potassium, prepared according to the process suggested by Lichig, per lb., 1 thaler 10 sgr. Soda-salt, of the salt water of Rehme, per 100 lbs., 3 thalers; mother-lye, of the same, 180 quarts, 5 thulers. Bleaching powd 100 lbs., 6 thilers. Sulphate of soda; per 1,000 lbs., 2 thilers 5 sgr.

STRATINGH and Co., of Gröningen, Holland (3, p. 1142), old makers of white-lead by the Dutch method, obtained Honourable Mention for the superior quality of their

J. and E. Stuage, of Birmingham (119, p. 199), ex-

hibited the red or amorphons phosphorus of Schrötter, manufactured by them; for which the Prize Medal was a warded.

JOSEPH STURGES, of Kettering (88, p. 195), exhibited a preparation for preserving the turnip plant from the ravages of the fly (Haltieu zemoram). M. B. TENNANY, of Brighton (101, p. 197), exhibited

a species of varnish of a silvery hne, for labels or artists' designs.

Tennant, Claw, and Co., of Manchester (Ta., p. 186). exhibited a good eellection of calico-printers ante; in-cluding sulphate of copper, sulphate of time, chloride of time, chloride of time, chloride of potab, yellow and red prinsiates of potab, inclinate of potab, paralleris, statunate of soda, soda-ash, histophate of soda, sal-ash, manchester, etc., and pink salt, for which they received lloouncable Meution.

J. TRIX, of Exeter (125, p. 199), exhibited extract of heabane, prepared from the wild herb. TRUMAN, HANBURY, BUXTON, and Co. (91, p. 197),

illustrated ale and porter brewing by specimens of the materials employed, and of the products obtained. A. T. TYLLACH, of the Royal Guspowder Mills, Waltham Albey (21, p. 189), obtained Hooourable Moution for the magnificent and extremely remarkable

J. Testrax, of Melcombe, near Banhary (97, p. 197), exhibited petals of the red rose, confection of the red

exhibited petals of the rea rose, contessor, rose, and extract of heabase, prepared by him. Torrax and Usura, of Melcombe, near Banbury (98, p. 197), exhibited English rhabarb grown by them. The Banbury rhubarb is the produce of the Rheam rhapos-

ticsm.

The Vielle Montagne Zinc Mining Company, of Liége, Belgium (26, p. 1152), obtained the Prize Medal for fine white oxide of zine.

for fine white oxide of zine.

WAGENBARN, SEYORL, and Co., of Vieuna (19, p. 1007, 1008), had the Prize Medal awarded to them for a fine collection of salts ehielly used in pharmacy.

O. W. WALDTHAUSEN, of Clarenburg, near Cologne (320, p. 1069), manufacturer of white lead, contributed superior specimens of that article. Dr. N. WALLICH, of London (no. 884, 885), head the

superior specifiers of time article.

Dr. N. Wallicti, of London (pp. 884, 885), had the Prize Medal awarded to him for his great collection of Indian woods, which included specimens of the trees furnishing dye-stuffs, resins, oils, and different medicinal substances.

John Ward, of Ramelton, County Douggal (89, p. 196), was awarded the Prize Medal for the usual products from

kelp, including iodine, chloride of potassum, sulphate of potash, and alkali-salt, all of superior quality. WARD, SMITH, and Co., of Glasgow (54, p. 193), exhibited iodine of good quality, with the salts of kelp,

hibited iodine of good quality, with the salts of kelp, which they manufacture. William Warr, of Daochattan Chemical Works, Glasgow (32, p. 190), obtained the Prize Medal for iodine and salts of kelp, viz.; sulphate of potash, chloride of potassium, and erude earl-counter of soda.

Jours Warrs (103, p. 198) obtained the Prize Medal for various chemical and pharmacericial rubbatnees manufactured by him, ineluding an interesting collection of extracts propagate in open vossels at a temperature of from 110 to 193° Falar. The collection endbraced, the send extract of coldesium, from the fresh cornus; executed to a construction of the control of the collection of the co

quoriee, from the fresh root; extract of Turkey rhanh, from the dried root; extract of fetial goose-foot, from the flowering plant; extract of hemlock, from the drowering plant; extract of hemlock, from the meanty ripe; inspisanted ox-gall; extract of hemlone, from the throwing plant; extract of white popples, the fresh ox-gall; extract of white popples, the fresh ox-gall; extract of dandelion, from the fresh ox-gall; extract of white popples, the fresh oxide of the fresh oxide of the fresh oxide of the fresh oxide o

G. D. Wenes, of Venice (18, p. 1007), exhibited samples of fine crystallized cream of tartur, for which he received Hononrable Mention.

Hononrable Mention.

J. H. WEINS, of Mühlhausen (684, p. 1088), exhibited an assortment of the firest madder lakes, for which the Prize Medal was awarded.

Prize Medal was awarded.

Wassexpetata and Co., of Barmen, Prassia (461, p. 1077),
had the Prize Medal accorded to them for a collection
of chemical salts, among which, the sulphide of soda,
med as an antichlore, was consolicous.

used as an antichtore, was conspections, Warmskrat, and Haorinza, of Philadelphia (43, p. 1435), exhibited a good collection, upon a considerable scale, of salts for pharmaceutical purposes, which was awarded Honourable Mention.

Thomariase Sentino A. W. Hessans and Ch., of Augustenhütte, near Boon (334, p. 1070), had the Prize Medal accorded to them for the products of distilled seishst. Their liquid products are suitable for illumination; they also obtain paraffin, in quantity, and make good black varnishes for conting iron, &c.

Joss Wilson and Son, of Hinter, near Glagow, (6, p. 185), were warded the Prize Medial for their along (m. 6, p. 185), were warded the Prize Medial for their along their of which magnificent specimens were exhibited, together with a rich series of shales, hair-vaile, and other liliatrations of the manufacture. Fine sulphate of iron, obtained to the manufacture. Fine sulphate of iron, obtained manufacture and their control of the control

Winson and Newron (28, p. 190) also had the Prize Medal accorded to them for artists' pigments, of which a most extensive collection was exhibited both to the raw and manufactured states.

Woarr and Co., of Selverinfurt (17, p. 1092), contributed to the display of altramarines, remarkable for their cheapness, for which Germany is distinguished. Woom and Burronn, of Leckel (47, p. 102), Mol Blooursale Mention seconded to them for their amounfactured products from lichens. The perparations used in dyrleng were accompanied by several pure chemical prioriples of the lichens, stansty, erythric acid, lecanorie and recellic

acids, pyeroerythrin and orein.

J. Youwo, of Ardwick Cheroical Works, Manchester (7, p. 187), ohtained the Prize Medal for his stammate of soda, prepared by the action of caustic soda, aided by heat,

SOME, PEPERTOR BY THE RELIEF OF THE BOOK OF THE PROPERTY OF THE PROPERTY OF THE PEPER OF THE PEP

J. Zenez and Co., of Rixheim, Hant Rhin (1836, p. 1836), had the Prize Media haarded to them for their nitramarioe, which is remarkable for its fine division and beautiful violet tint. They also supplied a greeo variety of ultramarine, and a collection of paints.

London, January 1852.

THOMAS GRAHAM, REPORTER.

CLASS III.

REPORT ON SUBSTANCES USED AS FOOD

The figures after the Names (between purentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATES CATALOGUE.

Jury.

EGWARO OF LORE, Chairman, Russin; Member of the Institute for the Administration of the Domnins

EOWARO ON LORE, CRAITERS, RESSER, SPERMET OF THE STREET OF THE STREET, SPERMET OF THE STREET, SPERMET, P.R.S., Proposity Continues, Society Copper Brooks, New pt. Bottanist, Coorrel Barwin et Remonater, France ; Secretary of the Central Juny, & Govern Linexie in Kennotate, France; Secretary of the Central Juny, & Govern Linexie in California (Secretary of the Central Juny, & Governity College, Annua, Eurori, Fairel Vester); Professor of Botsany, Eniversity College, Annua, Eurori, Fairel Vester; Pinnier, Secretary of the Central Juny, & Governity College, Annua, Eurori, Fairel Vester; Pinnier, Secretary (Secretary Continues).

In conducting their duties, the Jurors have adhered to the arrangement of materials proposed by the Royal Commissioners in the Classified Catalogue, with the following exceptions: -Opinm;

Fruits preserved in sugar; Starches used for manufacturing purposes;

Glue and gelatine; all of which have been included in other classes. The Jurors, in the choice of "Experts" (under In-structions, Art. 7, and General Decisions, Art. 29), have

been assisted by various eminent merchants, and other persons having the confidence of the public and of the Jury, and who were in no way connected as exhibitors, or otherwise, with the Exhibition. The "Fxperts" thus selecte

The "Fxperts" thus selected, in every instance, promptly placed their services at the disposal of the Jury; and by their zeal and alacrity, by the knowledge and ability they have displayed, the general manimity of their opinions, as among themselves, and with the Jury — they have rendered to the latter both a service and a kindness, great, in proportion to the responsibility of the duties in which all were engaged.

The divisions of the Sub-classes were considered searately by the Jury, and are separately reported upon Allusions have, here and there, been made to "the state of industry of each nation as shown in this Exhi-bition" (see General Instructions for Juries, Art. 5), Where the materials for any such nutices are insufficient, the deficiency is specified. The articles and exhibitors are arranged under—1. British; 2. Colonial; and 3. Foreign contributions; commencing with the Old World.
There were meetings of the Jurors beld on about 40

days, their duration averaging about five hours at each meeting, and on no occasion was a day lost from the abscuce of p quorum.

A. I.- COMMON EUROPEAN CEREALIA

Of the cerealia, commonly cultivated in Europe, viz., wheat, barley, oats, and rye, the Jurors have examined about 500 samples, many of great excellence. These are enhibited in various qualities, and with different objects; some are cars on spikes, for scientific illustration; some, mere specimens, in boxes or bottles, forming important portions of the series of vegetable products that various countries have contributed; and, lastly, there are sacks and barrels of different grain from England, the colonies, and exporting countries in general.

These are unequally distributed, and afford no general information as to the relations between the countries and their produce, nor much as to the importance of their cultivation in the various parts of the world exhibiting

Thus, of oats, rye, and barley, which are the staple crops of porthern and mountainous Europe and Asia, but very few samples are in the Eahibitien: comparatively speaking, wheat is very insufficiently represented from

the United States; better, from our cold and temperate colonies; indifferently from England, Scotland, and Ire-land; and hardly at all from the continent of Northern India, where it is a most important winter crop,

There are three collections which appear prominently interesting in this division, and require a particular notice; they are those of Messrs. Lawson, Mr. Maund, and Mr. HAYNBIED.

II. HAYNBED. Messrs, Lawson's collection (105, p. 206) enhibits the ear, grain, &c., &c., of every variety of cereal, and also models of all the roots which it has been found practicable. to cultivate in Scotland: the specimens are beautiful, and the arrangement scientific and excellent. No consideraproviding all that is necessary to render this collection a true and complete illustration of the vegetable products of

true and complete illustration of the vegethicle predicts of the large or for their adminish yieldplayed, very complete, instructive, and viex-afficially-arranged collection of the almostary products of Scollact, (24, p. 203) collection of hybrid cervalia are of great interest, from the importance of the process in other depart-ments of the vegetable kingdom, and the howen difficulty of hybridizing the eversion in protessies. This wises from of hybridizing the eversion in protessies. the pains required to entruct unexpanded anthers from one parent, and to replace them with the pollen of another reventing at the same time the stigmos to be fertilized from receiving any other pollen than that artificially ap-plied, and guarding them afterwards from the attacks of birds, and a variety of disturbing operations. The result appears, in most cases, to be an offspring stronger than appears, in most cases, to be an onspring stronger than either parent. Cone wheat has been principally experi-mented with by Mr. Maesh, and it coughts much glu-ten; but its extended culture has been discontinued by farmers, owing to a preference for wheats from which a whiter brend may be made. Mr. Mauxu's object is, by creating this cose wheat, to obtain an ornspring symmoty productive, but with more starch in the grain. A Prize Medal has been awarded for the series exhibited. Mr. II. HAYNING exhibits a similar series, for which a Prize Medal is also awarded. This gentleman eemmenced his experiments, in 1846, with two wheats of very opposite character, the "Hopeton," a white wheat of long ora and arws. and fire grain—and the "Jipper shibelex," a course crossing this cone wheat, to obtain an offspring equally strew, and fine grain—and the "Piper's thickset, a conre-red wheat, with thick clustered ear and stiff straw, very productive, but apt to mildew. A few shrivelled ears were first produced. These were planted, and the young plants divided. The produce was copious of all interme-diate varieties, some so very like their parents as to be rejected. Picked grains being selected, abradant crops of both white and red hybrids were produced, partnking

of both white and rea nyonas were prounces, passang of the best qualities of both parents.

There are no wheats exhibited superior to the South Australian. This is probably owing to elimate, for it appears, after a careful examination of many samples from the best wheat-growing elimates, that Spain and the best wheat-growing elimates, that Spain and the same produce hard wheats. certain districts of southern Russia produce hard wheats,

equalling the Australian; whilst the produce of England, of the south of France, of the United States and Canada, hardly fall short of the same high standard. Large allowances have, in many cases, to be made for faulty agriculture, careleoly collected or insufficient samples, and for inefficient methods of threshing, &c., the grain. Such circumstances affect the adjudication of awards, but not perhaps the original value of the erop from which the samples were collected, I. BRITISH DEPARTMENT, - R. WESR'S " Talay

wheat (72, p. 205) has been awarded a Prize Medal; it is a splendid specimen of English wheat, equalling in value any brought to the market.

H. PAYNE'S " Revitt" wheat (82, p. 205) has nloo a

Prize Medal; it possesses great value, and should wholly supersede the entivation of the Egyptian Revitt, which is far too abundant in the English market.

J. MacKillican, of Cawdor (Scotland), a Prize Medal

J. MACKILLACK, Of Lawdor (Scottane), a Price Mean for excellent white wheat (114, p. 200). I.R.H. PRINCE ALBERT exhibits samples of his farm produce (107, p. 200), consisting of "White Criddham" wheat, "Augusta beaust," and "Winter oats." The col-lection deserves a special gatile, each of the samples long of excellent quality. A Prize Modal has been awarded to II.R.H. for the oats and beans, the wheat appearing to the Jury to be a little deficient in colour and quality, whea compared with other market samples of the same description.

Amongst the other British samples there is little above mediocrity, except the following, of which Honourable Mention is made:

A. SHEPPARD, Ipswieh, for good wheat, malt, and barley (70, pp. 204, 205).
The Tatho Local Committee, for samples of various

cerealia (71, p. 205) enlitivated in Cornwall.
C. Ginson, Pittochry, Scotland (102, p. 206), for barley grown at an altitude of 600 feet.

J. SUTTON and SONS, for maked barley (112 p. 206), Mosas, H. E. and M., exhibit Australian wheat in this department, also deserving of Honourable Mention.

But few malts are exhibited; the samples shown by

But few maits are exhibited; the samples shown by TAYLOS and SON (77, p. 205) receive Housenrable Men-tion. A sample of porter malt prepared by a "patent process" was exhibited by S. R. Poou, C. 146, p. 193*), in which the "torrefaction or reasting" was not carried so far as in the ordinary hrown malts, and which is said to contain in consequence a larger proportion of unchanged steeharine matter.

2. Baitish East India.-Wheat (870) has from time mmemorial been a staple crop in the plains of northern India, and especially in the Punjauh; and since the establishment of the stude at Buxar, Ghazepore, &c., oats have been extensively cultivated. Both are winter (cold weather) crops. The climate and soil are well fitted for these ecreals, but owing to defects and carelessness in the agriculture and harvesting, the crops, though excellent, fall short of what most corn-growing countries produce. Further, owing to foul boats and granaries, and to the moist heat of the mouths immediately succeeding harvest, the wheat reaches England in a state too dirty and weavelled for market. There are two samples in the Exhihition, one of hard and one of soft wheat, of which the former is most prized by natives of India, probably for no better cause than that the hardness of the grain more elosely resembles their favourite food, rice. Barley is most extensively enlitivated in the Himalayn and Tibet. replacing in many districts the wheat, and producing an admirable flour; both are desiderata (as are the oats), which is much to be regretted.

3. Australianta. -- From this quarter of the globe, inelnding VAN DIENEN'S LAND and NEW ZEALAND, there are splendid samples of wheat, some of barley, and a few of onts Pont Abelaide stands pre-eminent for wheat and

borley. Prize Medals have been awarded both in R. HALLETT and Sons (South Australia, 5, p. 991), and to HEATH and Beasow (9, p. 999), for wheat, which may be

POUT ADELAIDE, though much that was apparently excellent from the former was spoiled during the vo From Van Diemen's Land fine white wheats are exhibited by Messes, DEANE, DEAN, and DEANE, and also by Messes, M'PILEASON and FRANCIS (350, p. 1000), to whom Prize Medals are awarded; the unit also of E. Toorn, Bagdad (47, p. 993), is considered worthy of Honourable Men-

NEW ZEALAND is represented by wheat, burley, and nalt, all of good character. The barley exhibited by HUGH MARTIN and by Thomas RESWICK, and the malt exhibited by Hoorga and Co. (39, p. 1002), severally receive Honourable Mention.

4. Canada sends a fine supply of wheats, all of the ordinary English kinds, but every sample of more than average excellence. One barrel of D. Christie's white wheat (35, p. 962), sent by the Agricultural Association has been awarded a Prize Medul, as has one of Polish onts (38, p. 962.), of adroirable quality, exhibited by R. M. Warrs. The barley is very good. All have the advantage of bearing their prices in the Canada market,

showing to what profit they may be exported.

Nova Scotta sends some good red wheat.

5. Cape of Good Hope. The soft white wheat exhihited by J. A. Ban (46, p 951) is of great excellence, and has been awarded a Prize Medal.

6. Jessey contributes a collection of specimen ears, of 104 varieties, &c., of wheats (2, p. 940), accompanied by remarks on the seasons, nature of the crops, &c. A Prize Medal has been awarded to Colonel LE COUTEUR, the exhibitor.

7. MALTA. - Honourable Mention is made of the white whent (4, p. 944) of G. Pulis, Montebello,

wheat (4, p. 944) of U., PCLIS, Montebetto, S. Batolivas. Although a large display of wheats (there being fully 70 samples exhibited, p. 1159), there are none of any striking superiority. The red wheats are, in general, superior to the white; some "froment blane d'hiver" is, however, good. Oats and rye are also

of fair quality. 9. FRANCE.—There is no bulk of corn exhibited in this department; and the few samples there are seem chiefly intended as illustrations of manufacturing processes, where gluten is the constituent desired.

A Prize Medal is awarded to Bazin's wheats in the ear, &c. (1073, p. 1229); an important collection of agrientural produce, containing a new variety of wheat,
Honourable Mention is also made of Magnix's hard wheat, of Auvergne, used in the manufacture of his pates and macaronis (1337, p. 1240); also of Mastar's English and Russian wheats (1334, p. 1240).

10. ALGERIA sends wheat of great promise, amongst which, one, that of LEPELLETIER (33, 1261), has been awarded a Prize Medal. It is a soft fine-coloured wheat

of much value 11. Spain.—The Spanish wheats, though generally dirty, are unusually fine in quality. Many bottles full are exhibited, but the samples contained are insufficient,

and almost universally mixed. and almost universally mixed.

To one particularly fine sample from the Mayor of Medlim del Campo (65, p. 1333), a Prize Medla has been awarded. It another bottle the Jury recognized the original stock of the Talavern wheat, probably of a very fine description, but not in a sufficiently satisfactory

state for a correct judgment to be pronounced upon it.

12. Portugal illustrates her agricultural resources by

80 bottles of cerealia, all of fair, but none of particular merit. Her colony of Madeira also sends a sample of wheat. 13, The Zollverein States, Austria, and Tescant,

nd scarcely any agricultural produce worthy of notice. 14, DENMARK. Barley is now very extensively exported by this country, and is of an excellent descrip-tion. A sack of good quality is exhibited by II, Puc-Land and Co. (1, p. 1355), and was found worthy of Hononrable Mention.

15. Russia. - The collection of Russian cerealia is the to the state of th

KOUCHELEFF (32, p. 1367) has sent the greatest variety, and a Prize Medal has been awarded to his collection in general, in which the black wheat and naked barley, &c., are worthy of particular notice and Honourable Men-tion. Hard white wheat, from Odessa (42, p.1367), exhihited by Colonel Shanklsky, has been awarded a Prize nited ny Colones Shanklaky, nan see'n awarded a Prize-Medial. This wheat yields a very large erop, and is never grown on manned land, which is considered pre-judicial to it. A flur sample of wheat (Armaon) from the Government of Saratoff, exhibited by — Bantza (39, p. 1857), has been awarded a Prize Melal. Black wheat (37, p. 1867), a very valuable cereal, cultivated chieft by the Conceder of the Aroff Sach Less consider chiefly by the Cossacks of the Azoff Sea: these samples are from the estates of Petroffskaja and Novo Spasskaja,

Onta from English seed, exhibitor M. Selivanory (52, 1368), a Prize Medal,

The following are considered worthy of particular notice and Honourable Mention: Hard wheat of Koubanka (60, p. 1368), Lieut.-General Easnorr; and of Arnaontka (35, 1367), M. KLEPATSKY; pearl barley, Baron Rope (47, p. 1368); oats, M. Oun-ROVSKY (54, p. 1368).

A polentum of half-ripe rye demands notice as a novelty to England, though extensively consumed in

16. TURKEY.-A large series of considerable merit illustrates the agriculture of this country. It is composed of samples of grain in bottles, too scanty for accurate examination; and many are dirty and carelessly collected. Nevertheless as a collection it is well worthy of attention. and one of the samples, a hard wheat (2149, p. 1386), has been awarded a Prize Medal.

nas been awaried a Prize Medial.

17. Euryr.—This country grows more millets than corn, but both are copiously illustrated. One sample of white wheat, exhibited by H. H. Amass Pasna (52, p. 1493), is of admirable quality; it is very large in the grain, and soft, and has been awarded a Prize Medal. The barley is good.

18. TONIS.—The cereals resemble those of Egypt in

kind. Good hard wheats are exhibited, considered of

musual excellence in that country. The skinless barley deserves notice. 19. UNITED STATES OF AMERICA. The ACRICUL-TUBAL SOCIETY Of NEW YORK receives a Prize Medal for a well-arranged and instructive series (83, p. 1438) of the wheat cora (in ear), generally cultivated in America. This is illustrated by remarks relating to the seasons, soils, and produce, and suggestive of various improvements in agriculture.

Among many barrels of fine wheats there is one of particular merit, to which a Prize Medal has been awarded; it is a soft white wheat from T. Bell, of Genessee (103, p. 1440), alightly injured by the voyage, but hardly in-ferior to any in the Exhibition. Among other cerealis of the same exhibitor, the red Mediterranean wheat deserves notice. Honourable Mention is made of the wheat exhibited by W. Horchers (342, p. 1456)

A. II.-CEREALIA BARELY CULTIVATED IN EUROPE. Ricc, maize, and the Croix luchryma (Joh's tears) are the chief products that appear to come noder this head-millets, &c., being placed in a separate sub-class. As an article of import, rice holds a very prominent place. Maize, on the other hand, has not found much favour in Great Britain, its flour, however cheaply imported, having never perhaps been sufficiently appreciated.

1. GREAT BRITAIN.—Rice requires more number heat

than this climate ever affords. Maize has been repeatedly experimented upon, and has been, up to the present experimented upon, and has been, up to the present time, the fruitful subject of speculation and discussion. Though occasionally successful, the crop is very nucer-tain, and always scanty. A fair sample is exhibited by tain, and always scanty. A fair sample is the Tauro Local Committee (71, p. 205).

2. Baltish East Indies.-Copions samples of about 50 Indian rices are exhibited by the Honouranue East Indian Company, and to them a Prize Medal is awarded. Many are of good quality, but more are dirty, small, broken in the grain, and unequal; characteristic of the slovenly state of the Indian bazaars. The quality of many appears only after beiling. In size, colour, and fineness of grain, none are at all comparable to the Caro-lina and Northern Italy rices; several are however very enrious, especially the monatain rices, grown without irrigation, at elevations of 3,000 to 6,000 feet on the Himmlayah, where the dampness of the summer mouths compensates for the want of artificial moisture. The small reddish Assamese rices which become gelatinous in boiling, and the large, Cat-grained, soft, purple-black "Ketnua" rice of Java and Malacca are also very curious. The East Indian maizes are inferior in quality, and deteriorated. Boaxao exhibits a large series of rices, some of them carions

3. West Indian Possessions,-Rice and maize are the staple crops here, but except from British Guiana,

the contributions are trifling.

4. Australiana. - Maize is exhibited from New ZEALAND, where it forms an indifferent crop; and from NORFOLK BLAND. 5. THE CAPE OF GOOD HOPE exhibits maize of fair quality

6. France.—The cultivation of rice in Europe is quite confined to the Southern States, and chiefly to the borders of the Mediterranean, where it is extensively grown, and is of good quality. Two varieties are exhibited from is of good quality. Bordenx, by A. Frav (305, p. 1203), to whom a Prize Medal is awarded. One is a heautiful, soft, brittle-bearded rice, irrigated, and called "Nostrana;" the other, unirrigated, is bearded, harder, greyer, and larger in the grain, and is called "Chinese rice," Algeria contributes rice and maize of indifferent quality.
7. Spain.—The sample of rice from Valencia (72,

p. 1333) is equally good with that of Bordeaux, and swells much in boiling; it has been awarded a Prize Medal. Some good maine in exhibited, as also a sample of the reeds of Cencleus picotas, a cereal little known in Northern Europe, and of no great value.

8. PORTULAL.—The Carolina rice of M. BELNONTEZ,

is of good quality, but hadly basked and bruised.

9. Sardenia.—The Ris de Pictoon (18, p. 1303), exhibited by Blonnel, Gaston, and Co., of the same kind and quality as the Bordeaux, has been awarded. a Prize Medal. 10. AUSTRIA contributes different varieties of maize,

11. RUSSIA. - Much rice, and of good quality, is cultivated in the southern provinces of this empire. Two samples are exhibited, one unirrigated, from the mountainous districts of the Caneasas; the other in the state of paddy (unbusked) from Odessa. Of the latter, one specimen called Chaltik, from Khalil Beck (57, p. 1308), exhibited by Zilfoogar Beck Isrander Beck Coll, is worthy of Hononrable Mention,

12. EGYPT.—Rice abundant, and of good quality; that cultivated in the Delta of the Nile, at Rosetta, is considered the best; the grain is broad, short, flat, and peculiarly striated.

13. UNITED STATES OF AMERICA.—The American rice, though originally imported from the old world, is now much the finest in quality. The Carolina sample of E. T. Hentor (172, p. 1448) is magnificent in size, colour, and cleanness, and has been awarded a Prize Medal. tiful sheaf of beardless rice is also exhibited. Maize is a more important crop in North America than in any other civilized country, being used most extensively for stock feeding; as flour for cooking; and in various forms at table-green, as well as ripe; toasted, boiled, or baked. The collections from Affaction are very fine, particularly that of B. B. Kirriand (84, p. 1438), who exhibits 34 varieties, amongst which are to be found samples of nearly all those usually cultivated in the United States, A Prize Medal has been awarded to him.

A. III.- MILLET AND OTHER SMALL GRAINS USED AS Poop. Under this head, besides millets, the Jnry have considered back-wheata: neither are well represented in the

Exhibition, though of great importance in many parts of the world. Buck-wheat belongs to the temperate and arctic climates, and is cultivated in Northern Europe, Asia, and America, and most abundantly in Central Asia and the Himalayah; in the latter country the different varieties are grown at various elevatious, between 4,000 and 12,000 feet. The finest samples exhibited are from Canada, by E. Taknnolme (52, p. 952); they are de-serving of especial notice, and Honourable Mention. The United States, Russia, and Belgium, also exhibit small

samples of good qualities. Millets, again, are tropical or sub-tropical crops: in India they hold a second rank to rice alone; and in Egypt, perhaps, surpass all other crops in important in West Africa they are the staff of life. The Egyptian erhaps, surpass all other crops in importance. samples are the finest, and those numbered 90, 91, and 92, p. 1409, exhibited by H.H. LLIAN PASRA, are deserving of Honourable Mention; they belong to Holour arghum and H. s seekaratum, and are known to Europeans

"petit mais. From INDIA various samples are shown of the different species of Panicum, but not labelled in the manner such

an instructive collection should be.

CEVLOX exhibits millet of fair quality.
The red and white millets of Australa, Russia, and the UNITED STATES are beautiful, particularly the Russian samples (60, p. 1368), exhibited by Lieut. Gen. Emmorr, of Panicum Italicum and miliaccum, to which a Prize Medal is awarded Tranex abounds in small grains, and exhibits a large variety of them; but the samples are insufficient and

A, IV.-PULSES AND CATTLE FOOD,

Under this head the Jury have included all leguminous seeds, whether cultivated as food for man or eartile. The importance of peas and beans is well appreciated. both by the horticulturists and agriculturists in Europe, and our temperate colonies, where, however, they are comparatively of less importance, than the smaller pulses comparatively of less importance, than the smaller pales-and grains are in various tropical countries,—such as haricots in the Braxils and West Indies,—ground or earth-ants in South America, and especially in Western Africa,—beans of various kinds amongest the miners of Pern,—grams (F various kinds amongest the miners of Pern,—grams (F various kinds amongest the miners of innumerable varieties of beans and small leatils, among the natives of India and Egypt,—and the Carob bean or St. John's brend (Ceratonia siliqua) in the Mediterranean countries. The above are all more or less copiously represented in the Exhibition by the countries named. In the British Department, Lawson's great collection stands pre-eminent for extent and scientific value; and

there is also a large one of agricultural produce from Mesers, Gibbs. II.R.H. Paixce Albert's "Augusta " are magnificent, and have been awarded a horse-beans," are magnificent, and have been awarded a Prize Medal as part of the collection of agricultural produce alluded to under A. I. W. P. Caocunton's golden pod beans (92, p. 1206) are worthy of Homarable Men-tion. RAYNBIRD's tick beaus and those of STRANCE are good; as are also FORTH AM's prolific peas.

ROOM, is a are any fool hit NY sproitte peas.

CANADA seconds peas, becaus, and haricots, all of excellent descriptions; and no less remarkable for quality and colour than for cheapses. The blue imperial peas sent by D. Joses (41, p. 962) would command the highest price in any English market; they have been awarded a sent peace of the peace

price in any cangino market; new party to the Lutwouts (40, p. 962), for his fine sample of white press.

BELUIEN, SPAIN, PORTYOAL, TENKY, TENKS, and EUVET exhibit, each, beans, peas, baricots, pulses, and a compared of the control legumes of all descriptions, but none except the Egyptian beans are worthy of especial notice.

Russia, besides many of these, exhibits green sugar-peas (dried unripe); those exhibited by Khoanor.corr and GREGORIEFF (63, p. 1368) are worthy of Honourable Mention for their excellent flavour and sweetness,

A. V.—GRASSES, FEDDER, PLANTS, AND ACRECULTURAL ROOTS.

Of these, including clover-seeds, &c., there are but few specimens beyond those in the collections of Mesars, LAWSQN and Mesars, Grans. The splendid specimen of

Messrs. Lawson, and in full flower, deserves especial

CANADA and the United States exhibit clover-seeds and timothy grass. Of these the timothy-grass seed (61, p. 93) of T. McGinn, Moutreal, and the clover-seed 62, p. 93) of G. Jeffries, are writhy of Honourable Of agricultural roots there are none worthy of mention,

except the Portuguese Cyperus esculentus of the Manquin DE LOULEE (401 n) be included, which is worthy of Hunourable Mention.

BELGIUM contributes hay of fair quality. hibits samples of clover-seed, and Tuxes of hay-seed.

A. VI.-FLOURS, AND PREPARATIONS OF THE ABOVE CLASSES,

Under this comprehensive head, the Jury have considered, not only flours properly so called, but various biscuits and semolines, os also pates, macaronis, vermicellis, and other manufactured articles referred to them, It is difficult, in many cases, in determine, satisfac-torily, which belong to this, and which to the starch series (F).

There are but few English wheat-flours exhibited; and the general remarks made under the head of "cerealia are equally applicable here; - except that the United States contributions of wheat-flours are really magnificent. Pea and bean flours, and sundry alimentary substances prepared therefrom, find a place here.

1. Gakat Baitain.—Amongst the various, but far

from extensive, series of flours from this country. Prize Medals have been awarded to-Kipp and Podger, Isleorgans have been awarded to—ADD and Podden, ble-worth Mills, for Australian wbeat-flowr (150, p. 193*). Edward Chitty, of Guildford, for flour of English white when (159, p. 193*). And to Bluck and So, for Brailford (162, p. 193*), for outweal-flour. Honourable Mention for particular excellence is also

made of the following:-W. JUSSIN, Shropshire (95, p. 206), for wheat-flour.
J. M'CANN, Drogheda (153, p. 193*), for outment.

J. M'CANN, Drogheda (133, p. 193*), for natureal. ASHLEY'S fours of peas, groats, and pearl harley, exhibited by T. Styllas (157, p. 193*), pot up for long voyages, are sound and useful preparations. Inferim macuronis of English manufacture are exhibited by W. LSYY (120, p. 207), and by J. P. GENTILE (108, p. 206), together with glutens and other allimentary substances. A very fine collection of gluten preparations, chiefly of scientific interest, is exhibited by Madane St. ETRENE (138, p. 208), who exhibits, also, some curious dried ali-(138, p. 208), who exhibits, also, some curious dired alimentary substances, composed partly of flour and partly of meat. HULLOCK's semioh appears to be wheat-fluor granulated with gluten. The riree glutten of Oblanto Jouns (128, p. 208) is obtained from rice-flour used for the manufacture af starch, dissolved by caustic soda, and then precipitated by an acid. RECET and SON, of Hull, exhibit various starches and sages (125, p. 208), all apparently derived from potato-floar. D. and W. pparently derived from potato-floar. MILLEA'S pithina food, sago-flour, and Scotch fecula seem all referable principally to the same source.

secin au reterious principality to the same source.

Amongst the curiosities worthy of notice is the Typha
meal prepared from the rhizona of T. latifolia, by
M. M. LALLAM, of Leith (133, p. 208).

2. CANADA.—Various barrels of excellent flour are
exhibited, and also of bisenitis; Prize Medals have been

awarded to-J. Simrson and Co. (48, p. 962), for wheat-flour; R. Square (51, p. 962), for catmeal-flour; J. Ross (126), for biscuits.

The buckwheat-flour exhibited by P. TRENHOLME (52, 962) is also very good, and deserves Honourable

 Cape of Good Hape.—A sack of very fine flour from this colony merits Honourable Mention; it is from J. F. Faedenicksen. 5. Australiasia.-After what has been said of the

cerealia of Port Adelaide, it is not surprising that the flours should prove of equal excellence, as is especially the case with those exhibited by H. E. and M. Moses (4, p. 997), to whom Honourable Mention is awarded. VAN DIEMEN'S LAND contributes some barrels of excellent tussack grass from the Falkland Islands, exhibited by wheat flours; one of these from J. Walkers (51, p. 993),

is deserving of Hononrahle Mention: the others appear to have been injured by the voyage. The New Zealand "Maori flour" (or flour produced by the natives) is deserving of notice. Biscurs so extremely well made A. M. MILLICAN (53, p. 993), of Van Diemen's Land;— these deserve especial notice, from the fact that, at a these deserve especial notice, from the met that, at a very recent period, the biscuit served out to the con-victs, and to Her Majesty's Navy, when refitting in Tas-mania, was said to be the refuse of the English Dock-yurds, and was certainly nufit for food.

DEMERARA exhibits muize and plantain meal of good quality.
7. France contributes a most extensive collection of

flours and preparations therefrom; amongst which it is very difficult to select for awards—the speciators are of

such variety, as to merit and kind. The magnificent granux wheat-flour of M. D Annax, jun. (1576, p. 252), has occupied much of the attention of the Jury, not only as the best sample of European flour, but from the exhibitor being the inventor of the gruaux principle in griading, whereby a great saving of the finest and most nutritive portion of the flour is effected, and any wheat flour made to contain more or less gluten in proportion to starch. Hurd whents of all kinds, especially Sicilian, Russian, and Sardinian, from knos, especially Steinah, transant, and Sarvinnian, from the large percentage of glutten they contain, are the best adapted for this purpose. By means of D'Arblay's adjusting process, such grains are first ground high in the mill; the white middlings are then separated by coarse sieves, sad reground low in the mill; finally, the flour is repeatedly passed through fine sitk series. This flour is repeatedly possed through fine silk serves. This process is evidently tedious and expensive; but the flour produced is of the very finest description, especially for produced is of the very finest description, especially for plates, and other preparations of that description. The average produce of flour thus obtained is 25 per cent, from ordinary wheat. Sach flour is extensively imported iato this country, for bettering the inferior flours, espe-cially the Irish. D'Anna-x's household flour, obtained by the usual grinding process, is also of first-rate quality.

A Council Medal has been awarded to Mr. D'Ann.Ay. "for his grunux and honsehold floor, obtained by a novel and economical process, for the fineness of its quality and

utility. Cananga and Ramara have been awarded a Prize Medal for their "thirds flour" (1126, p. 1232), and Arel Lenlance "bonschold flour" (297, p. 1191) has been found worthy of Honourable Mention

Among the great manufacturers of Freach pites, &c., Among the great was been awarded Prize occurs. &c., the following have been awarded Prize occurs. J. V. Maonts (1337, p. 1240), for macaroni, almost equal to the best Italiau; and far what, already men-tioned amongst the ecrealia, and which, from its propor-tion of the prize, &c. Mr. tioned amongst the extentia, and which, from its propor-tion of glutes, is particularly odapted for pates, &c. Mr. Manny also exhibits various flours, with their appli-cations to cullinary purposes, all of great excellence. N. D. M. Fexeux, of Paris, for a fine collection of fecales (202, p. 1193). Vizon Baortness, of Potitiers. VEZON BROTHERS, of Poitiers, fecales (209, p. 1193). for their gluten granulé (1520, p. 1249) and other pro ducts; this gluten is composed apparently of flour mixed with gluten and water. Honourable Meution has been made of the fol-

lowing:jan., Paris (530, p. 1204), for an excellent GRUULT, eollection of feedles, including those of rice, chestnut, and parmentines. C. Clost, de Lille (456, p. 1230), for fine earl barley, vermicelli, and other preparations. J. M. II. Vtolette, für ship-biscuits (1528, p. 1250), prepared

by baking the dough in high-pressure steam. Besides the above, there are various good collections of similar sabstances, as those of Bazon Baornens (40, p. 1173), who exhibit rice, lentil, and pen flours;—of MACHET, a fine series of wheat glutens; - and of Novú,

vermicellis and potato-flours, &c. (1342, p. 1242).

From ALUIESS, a good hard wheat-flour, from LAYA and Co., of Bab-el-Ould (32, p. 1261), of admirable quality, merits Honourable Meation.

8. Russia .- The flours of this country are proverbially good, and those exhibited equally excellent with the collection of cercalia. A Prize Medal has been awarded by R. Bunn (of Edinburgh), is a society worthy of

to M. Roussanorr (66, p. 1368) für hard wheat-flour. Honourable Meution is made of the Smolensko grits of RATSHINSKY (49, p. 1368; prepared from back-wheat, ground ou the grunux principle, being quite a novelty. Revitt wheat-floar

9. Austria.—The wheat-flours of this country, and especially the Croatian, are exceedingly good. especially the Urodatan, are executingly good. I wo samples of apparently a granux flour, prepared by the Pasvilloues Strans Flours Mills Company, Vienna (62, p. 1010), have been awarded a Prize Medal. Jonaan and Banura, of Tetschen, Bohemia (68, p. 1010), exhibited a Croatian flour from a peculiar wheat, which is considered difficult to elean; it is said to yield six to eight quartern loaves per sack more than any other, and has been awarded a Prize Medal. There are various other good flours exhibited by Austria.

10. BELGIUM. - The samples of potato-flour are of nausnal excellence, and Honourable Mension is made of that of G. Beyck (errs (78, p. 1153).

11. Bavanta exhibits a peculiar flour from wheat-grits of exceedingly good quality, but not accompanied by any observations, and probably sent us a cariceity caly, by

Chaistran August Enert (p. 1099).

12. Paissia.—The potato-flour and sago (332, p. 1070) exhibited by F. Wahi, are of greut merit, and have been judged worthy of Honourable Meation for the beauty of the preparations. From the same country WITTEKOT and Co. exhibit a bae series of macaronis and pates (695, p. 1089), to which a Prize Medal lins been awarded.

13. The NETHERLANDS and the DUCHY of HESSE

exhibit pearl barley, greats, flour, &c. 14. SWITZERLAND and SARDINIA contribute pares of various kinds.

15. Tuscany.—The Macanonis of this country are the finest in the Exhibition, both far flavour, texture, and excellence of manufacture; those of F. Paoletti (40, p. 1294) bave been awarded a Prixe Medal

15. Spain and Postwal both exhibit good flour of wheat, but the samples are insufficient. There are also mecaronis from Portugal.

17. UNITED STATES OF AMERICA.-Very fine samples of flour are exhibited from this country, and of 10 rels none fall below a high standard of excellence. Two have been selected as worthy of Prize Medals; one of HECKER and BROTHER (114, p. 1440), who also exhibit the maize farina; the other of RAYMOND and SCHUYLER (128, p. 1441). The extra-Genessee flour of M. S. and L. LEACH is also worthy of notice (155, p. 1446). Of maize-flour, commonly called "corn-meal," or "corn-flour," in the United States, the exhibition is very good. The article is extensively used for puddings and other purposes in that country, and is considered peculiarly wholesome and nutritious; more so than rice-flour, which

is preferred in England for similar purposes.

Наская and Вистика's faring has been considered worthy of Honourable Mention, as has, also, the ficula of the Oswicio Stancii Factory (104, p.1440), which is produced at a very low price. These, and many other samples, testify to the great importance of this flour us an article of home consumption in America.

Malt made from maize is exhibited, perhaps more as a curiosity than an article of importance, by the Onio Boand of Agaiculturae (24, p. 1434). Good pearl barley is shown by RAYMOND and SCHUYLER (128, p. 1441).

A. VII.-OIL SEEDS AND THEIR CAKES

Of this description of sheep and cuttle food there is a telerable supply in the Exhibition, but no samples of remarkable merit, and only one novelty, the cotton-seed cake. Among the various seeds used in the manufacture of oil-cake, fiax (or linserd) is the most important. Rapeseed is also employed, but is considered heating. In the Lubeck department a sample is exhibited of the "dodder-cake," made from the Canelina soliva. A small portion of inferior poppy-cake is contained in the ladian collection. Walnut-cake is not represented

1. GREAT BRITAIN .- The cotton seed-cake, exhibited

special soite, and was wareful Homostub. Meetins. The seed is recommeded as around for the chapsens, The seed is recommeded as forward for the chapsens, the contract of the contract of the chapsens, and the contract of the contract of the contract of the contract is doubtful, and in the shape of off-cade it has possibly to doubtful, and in the shape of off-cade it has possibly to the religious contract of the contract of the contraction of the contract of the conposition of the contract of the conposition of the contract of the contract of the conposition of the conposition of the conposition of the contract of the conposition of the conposition of the conposition of the conposition of the contract of the conposition of the conposition of the conposition of the contract of the conposition of the conposition of the conposition of the conposition of the contract of the conposition of the conposition of the conposition of the contract of the conposition of the con-tract of the con-tract of the con-tract of the con-position of the con-tract of the con-the con-tract of the con-

2. Barriss Earr Isotra.—Flax is most extensively eultivated, especially in the northern province of India, but chiefly, if not wholly, for the oil expressed from the seed; the oil-cake, as a manufactured article, being uoknown. Poppy-cake it, however, occasionally manufactured, and a specimen (of inferior description) is exhifactured, and a specimen (of inferior description) is exhi-

factured, and a specimen (of interior description) is exhibited.

3. Canada exhibits excellent linseed; and the camelineseed of J. Fisher (50, p. 963) is considered worthy of Honourable Meotion.

Honourable Mention.

4. Brazirva exhibits good oil-cakes of various kinds. Honourable Mention is made of the rapesced-cake exhibited by Vencaurese, Boorneass (91, p. 1154), and of the fioseed-cake of J. L. Vencaurenes (82, p. 1154).

 Hamilton.—The rapesed-cake of J. Petraison (5, p. 1136) deserves Honourable Mention.
 Austria, the Netterlandes, Lubeck, and Egypt all exhibit, nore or less, oil-cake of fair quality.
 Sandinia exhibits very good oil-cake of Ghario,

BROTHERS (5, p. 1392), considered worthy of Honomable Mention. (Mentioned also by Jury of Class IV.)

8. Ressata sends various good samples of linneed and seasmum; also of rape-seed, of which the sample exhibited by E. Karnyttch (31, p. 1367) is deserving of Honomable Mention.

 UNITED STATES OF ASSECT.—J. BRIDGE OF New York (346), and LEE and Co., of Boston (530, p. 1467), both exhibit very fine oil-cake, worthy of Honouruble Mention. These are much finer samples than usually reach the English market from America.

A. VIII.-Hors.

The best hops are produced in England, and are chiefy calculated in Keet and Sassay; they are also proven to a limited extent in Sarry; know, Suffoli, Herefordshire, and the state of the

Guarr Barraix.—A Prier Melal has been awarded.
 M. Paras, for his Farinan Colding's loop of Colding and Colding's loop of Colding and Colding's loop of the Pries and of the distort. The soil of this distret is the very finest for the production of hosp, but the growers often got the production of hosp, but the growers often got the production of hosp, but the growers of the priese of the priese

2. Canada sends the best hops that have ever been imported from that country, and which, had they less of the "contrab-leaf" flavour, would fetch a good price in our market. The somples of B. Shitti (64, p. 963), of Skaotsed, have been awarded a Prize Medi, and that of Thomas Dawes and Soys (65) considered worthy of Ilmourable Mention.

 Van Diemen's Land has grown hops for some years, and, it has been said, with success; but the specimens now exhibited are hardly recognisable, perhaps owing to defects in the packing, or accident during the

4. BELLUTH exhibits fair hops and of several varieties; these mak next to the Canadian in point of flavour. The best are the Poperlighe hops exhibited by L. DEGENS (68, p. 1153), WIEDW L. DEGENT (64, p. 1153), MADAME VAN MERIES (65, p. 1153), which are severally considered worth of Honourable Mention.

S. Grand Dicease of Bresse.—The Mayntz hops are of good flavour, well harvested, though rather small, and have been awarded a Prize Medal; the exhibitors are Stein and Schrönzer (81, p. 1129). Some Strashourg hops are also good, resembling Golding.

6. Russa, sends a sample of unripe hops, better than usual, and which, were they attlleiently ripered, would probably rank next to the English in quality. This appears to be a common imported variety of the English "grape hop," and is from Convr Kouchexerr (32, p. 1363):—"It deserves Honourable Mention.

B. - DRIED FRUIT AND SEEDS.

The series of diried fruits is very extensive, and the articles generally excellent in quality. Little novelty, either in product or import, is remurked, and none of invention in preservation. The divisions of this Sah-Class (Bh.), proposed by the Royal Commissioners, are not here retained, the articles being considered in the aggregate under each exbibiting country. Those preserved in sugar have been referred to another Jury.

(Chen XXIX)

The Control of the Cont

2. IONIAN ISLANDS.—Dried currants are exhibited from Cephalonia, by MANROLANII, equal to the Zante

 Eart Indus, "Pickled fruits of the "durion," a production of the Straits of Malacca, are exhibited, but no other preserved fruits, except tamarinds, which were extremely good, and some fine candied fruit of the Œgle Murnelos.

4. Ceylon exhibits tamariuds and myrobalans (the almond-like kernel of the unt of a terminalia); Java, tamarinds.

5. From the West Indian Islanus there are fruits, entire, of the Brazil and (Bertholletia excelso), from Tai-

NIDAD; tamarinds and cashew nuts from Harradouss.

Departure and secretical fresh sonari (butter nuts),
dry banamas in slices, sweet but very poor; the monkeypot froit entire; limes; and bilimbi fruit preserved in
pickle.

6. VAN DIEMEN'S LAND exhibits good dried apples grown in the colony.
7. CAPE OF GOOD HOPE.—A Prize Medal has been

try, except of fruits preserved with sugar.

9. WURTKARIRG. — Dried fruits for home consumption, and apparently much appreciated in the country, are exhibited; such as bilberries preserved in great quantities.

which are flavourless; also some apples, pears, and elter-

ries, which are better.

10. Pavssia exhibits a case of 24 bottles of dried gar-

don and oreland fruits, good, and well flavoured. II. Searts—The collection of Spanish dried fruits deserves Housenable Mention for general carefuses, shained figs, within of great size and good flavour, almostle, Barcelona muts, ground-nuts, pictable muts, election, and elective. Of these the following cubilitors between the state of the collection of

MANSO 1334, p. 1337, fills wis merit Hosournibe Mention. LI. Postroux.—The series from this country is particularly fine, and consists of copions samples put up in large lettice, all of pood quality. Those contributes a fixed pool to the properties of the propert

these and various other exhibitors almonds, walnuts, filberts, chestnuts, belotes, raisins, plums, &e. 13. Gazece contributes raisins, eurrants, and figs; but none of fine quality.

14. Tescant sends pine-seeds, an article of great consumption in the Italian provinces.

15. Tunis.—The collection of dates exhibited by Er-Term Mensex (pp. 1415, 1416), including upwards of thirty

varieties, all in excellent condition, and in great quantities, has been awarded a Fried Medal. Though dates are not imported into this country from Tunis, that part of Africa is celebrated beyond all others for the variety and excellence of this fruit. There are, also, almonds, razins, pistschio-muts, apricoto, and figs.

10. EAVET.—There are seven kinds of dates in this cellection, none remarkable. The fruit of the short methods are the seven kinds of the seven the seven that the seven the

collection, more remarkable. The fruit of the doompalm (Cracifira thebatica) is a novelty, it is commonly called Alexandrian gingerbread, and is much eaten, though worthless as an article of food in English estimation.

17. Truker exhibits an extensive series of fruits and small articles for dessert; but all in insignificant quantities, and very dirty. The jujubes are remarkable for size and variety.

18. Of commutations there are very few exhibited and

18. Of cocoa-nuts there are very few exhibited, and none worthy of notice. CEPLON and the MACRITICS contribute some. The "double" or "sea cocoa-nut" of the SEYCHELLE ISLANDS, sent from the Mauritius, is a cu-

riosity, but not an edible one.

19. Betel-nuts are exhibited from Sarawak in Borneo,
Cevlon, Singapone, and the East Innes.
Though not ranking as "dried fruits," ofives and

Though not making as "dwelf forline" afters and of these the cribidition is stainable. The Seazula of these the cribidition is stainable. The Seazula offers are magnificent, both those preserved in oil and in million is like Ress. "of Maxere, Cassan, Seville (112, p. 1535). Pourvoia, also exhibits salarimble offers, of Maxer, Cassan, Seville (112, p. 1535). Pourvoia, also exhibits salarimble offers, of the Company of the Company of Maxer, of Maxer, Cassan, Seville (112, p. 1535). [13] metric Biomorphis Mexico. The other chibiting countries are Pourr, Austra, and Austra, Arranata, Parks, Salmetta, Care, Pourre cast, Marria, and Sourta Arranata; but, moneya part part of accidence, their is no northy or particular group game of accidence, their is no northy or particular group game of accidence, their is no northy or particular group game of accidence, their is no northy or particular group game of accidence, their is no northy or particular group game of accidence, their is no northy or particular group.

C. I.-TEA.

The exhibitors are few in this division, and have confined themselves to imports from the Eastern World, whence this product is, however, admirably illastrated. Chirak tae is exhibited in abundance, and of the finest quality. The Brittish Indian produce, again, has never before been displayed in England as it is here by the

Assay The Concard, and the Hassochante Corty of Descross of the Rest Italia Company, who send good samples of the Himsley and Java growth in the best consider, and especially from Rio de Jaseiro, as also from Modelra, and especially from Rio de Jaseiro, as also from Chittagong, and various other countries in which the cultivation of ten has been attempted with more or less

BERNAL TRAN — The collection formed by P. W. BERNAL (T.), P. 18/21, A. Caston, expected for this Existation, is quite unrivalled, whether we report the excitation of the control of the c

The Jury regret to find that the rules of the Royal Commissioners preclude Mr. Ripler from receiving any stronger proof of the high estimation in which his collection is held than the award of a Prize Medal. The following scanty data are recorded for the information of the public on a branch of industry which has never he-

fore been adequately illustrated.

Full chests of various Pekee tens are exhibited, some

of which feeth 500, per lh, in the China market; whilst 75, is the very highest price any of the sort will feeth in England, and this only as a finery arricle. The plain and orrange-secrelled Pelevas more fieth little with an 1, in a families. The finest, however, never leave China, being looght up by the mandarian; for though the transit experies and 34, no 6, per lb, to the value when solds in fausti, per leave China, being looking to the price with the properties of 30, no 6, per lb, to the value when solds in fausti, period of the properties of 30, no 6, and the based of some greeiest polaria belonging to the consequent twin, edges and the based of some greeiest of plants belonging to the consequent twin, england the properties of plants belonging to the consequent twin, engage trule, magnetic markets.

furents, oled flowers, &c.

The Cong Souchong, or Ning-young teas are chiefly purchased for the American market. Oolong tea is the favourite drink in Calcutta, though less prized in Kngland, its delicate flavour being injured by the length of the

volvage.

For delicacy, no teas approach those usually called

"Mandarin tean," which being but slightly fired, and

"Mandarin tean," which being but slightly fired, and

the control of the control of

Of the Myspus district teas there are eight varieties, they are much prized in the American markets, but not so much so in England. Among the most important consistints in the collections are the cunterfeit teas of Castons, These are made of any refuse, such as most-water in a most-record of the control o

Various carfons tean used by the labouring clauses of Chinese are cabibled; some are merely coarte, and bad, sua-drired leaves; better qualities, chiefy from Ankoy, and the companies of the companies of the companies of latinates of Java, etc. Carfonely rolled and twisted panples, such as the "old num's cyclroves," "ball tes," such as the "old num's cyclroves," ball tes, "defice tean follow these in the series, and counst of cakes, the companies of the period of the companies of the companies of the companies of the period of the companies of the companies of the companies of the period of the companies of the companies of the companies of the period of the companies of the companies of the companies of the period of the companies of the comp

Lastly, there are specimens of the plant itself, leaf, flower, and bud; models and drawings to illustrate the processes amployed in its manufacture, packing, and shipment; samples of the materials need for secuting; ten pots, cups, &c.

Another collection of merit is that of W. P. HANMOND and Co.* (2, pp. 418, 449), which has also been awarded a Prize Medal. This contains, in 40 boxes, the various Prize Medal. teas more or less abundantly imported into England; and is further illustrated by good paintings of the processes employed in the culture, husbanding, and manufacture.

2. Jaca Teas.-Exhibited by the Singarose Con-MITTER Of the HONOGRADLE EAST INDIA COMPANY. These teas are good of sheir kind, but not equal in flavum to the Chinese, or even to the Kemaon. In respect of flavour, they resemble the Assam, but are inferior in

Tous .- Exhibited by the HONOURABLE East Ixula Cumpany (p. 872), are not very fully represented. In flavour these rank next to the Chinese tens: solited. In navour these rank next to the Contiene tens; and as a class, have rather the Ankoy flavour; being better adapted for greet ten than black. The manufacture is much improved of late. Three samples are exhibited; imperial hyson, young hyon, and southoug; for the two latter of which a Prize Medal has been awarded.

4. Assam Tens. Eight boxes are exhibited by the HONOURABLE EAST INDIA COMPANY (p. 872); all full of well-mode strong teas, superior in this respect to the Chi-nese, but much inferior in flavour, roasting, and seent. In point of manipulation they equal the Chinese. For mixing with the Chinese article they find a rendy sale in the English market; and are in every respect superior to the ordinary tea, than which they command a much higher price. The quantities exhibited in these boxes are too small, and have consequently lost much of their flavour during the voyage and subsequent exposur

The grey flowery pekoe is the best sample exhibited; in appearance and flower it cannot be surpassed by any China tea, but is rather wiry in the leaf, from the buds having been gathered too young; whence, perhaps, also its deficiency of flavour. It is of a much higher class than that of Kemaon and Java, and would command a high price in the English market. A Prize Medal is awarded to it.

5, Brick Ten of Tibet, - A sample of this enrious product is exhibited by the Honorague East India Con-PANY (p. 872). It is formed of the refuse tea-leaves and sweepings of the granaries, damped, and pressed into a mould, generally with a little bullock's blood. The finer sorts are friable masses, and are packed in paper; the coarser, as this, sewn up in sheep-skin. In this form, it is an article of commerce throughout Central and it is an article of commerce throughout Central and Northern Asia, and the Himmalyan provinces; and is consonned by Mongols, Tartars, and Thetans, churned with milk, eath, butter, and boiling-water, more as a soap than as tea proper. Certain quantities are forced upon the acceptance of the western ributaries of the Chiuese empire, in payment for the rapport of troops &c.; and is hence, from its convenient size and form, brought into circulation as a coin, over an area greater

6. Assam Tea .- Sent by the Assam Company, and exhibited in the British Department (143, p. 1956). This collection is contained in twelve chests: it is admirable, and in perfect order. As the indigenous plant has been monufactured in Assam, and the China plant has also been introduced and cultivated for the purpose, the exhibitors have judiciously sent samples of the different kinds of ten from each; thus enabling the Jury to establish the superiority of the introduced Chinese plant over the indigenous (or native Assam), for the mannfacture. There is a decided advantage in point of flavour pos-sessed by the Chinese leaf, though the manipulation appears perfectly equal in both.

A Prize Mesial has been awarded to the Assan Con-

than that of Enrope.

PANY for this valuable collection of admirably-prepared

" These exhibitors' names appear in list of Class IV., by which Jury they were also awarded a Prize Medal.

C. H .- SUBSTITUTES FOR TEA.

Of these the Exhibition contains hardly say examples.
One specimen of mate or "Phragany tea" (Hex Paraconvenie) is exhibited as a curiosity. This beverage is in universal use throughout Brazil, Urnguay, Paraguay, the Plate district, Chili, and Peru

Dr. Gardiner's prepared coffee-leaves (142, p. 193*) are worthy of notice, as affording a realty palatable drink when infused as ten is; more so perhaps than coffee is to the uninitiated. That this preparation contains a considerable amount of the nutritious principles of coffee is evident from the analysis; but as the leaves can only be collected in a good state, at the expense of the coffee-bash, it is doubtful whether the coffee produced by the berries be not, after all, the cheapest, as it certainly is the best.

C. III.-Coffee, Cocoa-serds, Nebs, &c.

Under this head the Jury have considered chocolates prepared for use, when plain, ar if only sugared, for ordinary use; and have excluded such as are made into pates, as more properly belonging to the Confectionery Department.

Many good samples of coffee are exhibited from various parts of the world, and amongst them some of excellent description from British colonies, which have never before been known to produce this article. On the other hand, there is a deficiency of specimens from the most important producing countries, as Jamaica, Dominica, Berbice, St. Domiago, Costa Rica, the Brazils, Manilla, and Java

Of coron the same may be said; the best producing countries export the choice of their produce for the mar-kets of Mexico, Spain, France, and Italy; the high dif-ferential duty obliging our manufacturers to be con-tented with the inferior products of Trinidad, Grazada, St. Lucia, &c. In chocolates (manufactured cocoa), France alone is well represented; England cannot here compete, for the reason just stated (under cocoa), and various adulterations are hence prevalent, the chief of which are potato-flour and sago.

1, GREAT BRITAIN.—R. SNOWDEN'S patent purified coffee-nils (28, p. 202) are the produce of an improvement in the method of preparing coffee for the table. The berry is split, and the busk (that formerly adhered to the whole berry), which is usually removed from all but the slit, is here extracted from that also: after which operation the herry is better adapted for reasting. The coffee thus prepared is of the finest quality. The illustration of the process is complete, and ample specimens are exhibited. A Prize Medal has been awarded to Mr. Snowness for his new method of separating the tough membrane from the fulds of the seed.

J. S. Fay and Sons' case of raw and prepared cocon and chocolate (31, p. 202) has been awarded a Prize Medal. This series is extensive, and of fine specimens; Medal. This series is extensive, must of how specimens, illustrating fully, by drawings and samples, the prepara-tion of cocon and chocolate of various kinds; also the plant in its natural state, with its history and manufac-ture, usode of packing and transport. The cocca seeds and nibs are exhibited from St. Lucis, Caraccas, Trinidad, New Grenada, Gnayaquil, Bahia, Peru, &c.
The chocolate of L. A. Monteno (34, p. 203) has

been awarded a Prize Medal for its excellent quality. It is, perbaps, a little over-roasted, if it has a fault. Honourable Mention has been made of W.

нан (38, p. 203) for good chocolnte. G. B. WRITE (32, p. 203) for the same. Other chocolates of fair quality are exhibited by the

PARIS CROCOLATE COMPANY (30, p. 202), but the specimens are too sweet. Besyamin Gritts' cocco (36, p. 203) is fine, but appears rather to be MacDalena than Caraccas, as it professes to be. J. T. Bunus' extruct of cocca (37, p. 203) is apparently damaged by exposure. W. R. LANE's essence of coffee (35, p. 203) is worthy of notice, and has been pronounced equal, if not superior to any similar preparation, though still not so good as coffee prepared by the usual process.

2. East lunus.—The recently extended cultivation

of coffee throughout our eastern possessions renders this

department of the Exhibition peculiarly interesting. The samples are, unfortunately, generally insufficient, dirty,

and inaccurately labelled.

Java exhibits good coffee, but none of marked superiority. Honourable Mention is made of one sample, marked as from the Menado district, which has a good, bold, well-formed berry; and also to some samples from Sourabaya; both are contributed by the "Sixcarons."

Souralways, both are contributed by the "Sincapous, Consulvays, both are contributed by the "Sincapous, Consulver," of the Honoceanis, East India Congaye. The Java coffee is only prized in the market for its delicacy of flavour, as in point of strength it falls short of the West Indian. The samples of Aden coffee contributed by the Ho-

The Hallpher to convert convertience of my control and more resemble the Berbers (Alysanian plant, unaslly earlied long-iserried mocha, that the genuine mochaties are directly and the stafferenty garbeiled (picked). Aden, alass Mocha coffee, is, along with the convertience of the stafferenty garbeiled (picked). Aden, alass Mocha coffee, is, along with the Arab ships, where it is "garbeiled" previously to its being exported to Eagland. The bean is always broad and small, and the climate of India is supposed to im-

prove its favour.

The best East India coffees in the Exhibition are those from the Peninsula, the Wynamad especially, supposed to have been introduced from Douisides, and originally entitated on the West Indian principle. Being always are introduced to the West Indian principle. Being always and the principle of the principle. The principle was a principle of the description of coffee Honoramble Mention is made of the two samples from Mysore, both exhibited by Capinal Moania. The berry is particularly hold and even in

Chittagong, and other excellent Bengal coffees, are

not exhibited, which is much to be regretted, as the introduction of coffee into the eastern districts was effected many years ago, and is due to the enterprise of Sir W. Jones, since whose time the cultivation has been pursued with great cancess by private individuals, some properties of the private individuals. Santon and the Santwak (p. 988), and is avarded a Prize Medal for its great superiority in colour and weight. It is the first anaple from that country ever seen by by days of

Cyrox.—The great extent and importance of the entiretion of office [p. 071] in this lished renders this department of the Jury's belown particularly interesting, percent, excellent, and work heaff interesting, percent, excellent, and work heaff interesting to enveyed by models of the drying-houses, sheels, and implements med in the manufacture of the berry (p. 852) to the local control of the property of the pr

Hosournhe Mention is made of two anuples; income he kitches estate, at 4,500 feet above the set, from the kitches estate, at 4,500 feet above the set, berry; the other from the Humangiru estate, 5,000 feet above the sea, which exhibits good pearl-berry, of peahory codes, a small westly, for which lamadyicking the pear of the set of the set

which, like the wild plant of Bengal, is of no value.

Normon, Islams needs an excellent sample of coffee, apparently of the Berbera variety; it is of good colour, well adapted for rossting, and is a most destinable novelty.

Sr. Helena.—There is an excellent sample of coffee

from this island, from the perinte parks of Mr. S. Mr. S. (Ap. 203), of which Homourable Mention is under Mr. S. H. S. (Ap. 203), of which Homourable Mention is under Derreaman, once the great coffee country, now cultivates very little indeed. Many samples, of various growths, are sent from the few remaining extasts. None are of much merit; the best (that from the estate "Nich Pouderopen" is good. Pent-berry coffee is also exhi-

bited, and poor samples of corea.

Barbapore sends corea of no merit.

Taxixaa exhibits very poor coffee, apparently degecented from plants originally of modes; and from its created from plants ariginally of modes; and from its The coors from the same ridand is rithy sugmitheen, and such as is sever reen in our market. Mr. Prauss, of Her Majerty's Ibstante Garlen, Trainfald, to when the feeting, sends ecces as prepared for both the English and Spanish (p. 574). With regard to the Spanish, such has round, ripe, chan, and of a fine heigherted colour. The English is good of in kind, but it, firerally, the refuse of and offere bitter. A Prize Medal in swardest to the

Spanish samples.
WEST AFRICA contributes indifferent coffee.

Posttogal, sends a very valuable series of coffees from various of her coloules; of ordinary description from St. Thomas; tolerably good from the Care, no Vasus Islances; bad from Thom; worse (but earlows from the very small size of the herry) from Mozamager; good from Asocola; and excellent from Maueira.

Phaseca: "There is a very extensive collection of eho-Phase care the present series of the herry than the present series of the herry than Mozamager; good from Asocola; and excellent from Maueira.

FRANCE. There is a very extensive collection of elocalest from this country, and some coffees also. Upwards of fifteen exhibitors contribute largedy, and the Medial have been awarded to Gar, viz. --F. A. TCRING (1946, p. 1228), who exhibits chocolate in every variety of from and flavorn, it the highest perfectlor, if. E. Peñanco (205, p. 1183), for the collection of the contribution of the contribution

Honourable Mention is made of the following: -C. CROQUART (1149, p. 1233), for chocolate; MENIER and Co. (925, p. 1224), for chocolate.

Hononrable Mention is also made of the Cho'en, a preparation of coffice and chorolate blended, sufficiently agreeable to the palate, and apparently wholesome and pleasant. The exhibitor is A. E. LEMOLT (303, p. 1191).

1191).
SWITZERLAND, SPAIN, PAUSSIA, and the NETHER-LANDS, all exhibit fair chocolates. Territy sends three samples of the Mocha variety of coffee, not remarkable, and of the usual or Egyptian class of berry.

C. IV.—CITICOM AND OTHER SCINITUTES FOR COFFEE.

Judging from the number of exhibitors and samples,
the cultivation of chicory is far from being extensive or
remmerative. Few of the specimens seat are of much
value, and sonce can, under any circumstances, represent
coffee in flavour. As an adulteration, the chicory may be
profitable, and, supposing this to be its principal use, the
exhibition of much was not to be expected.

GRIZAT BRIVAIN exhibits one sample only, and that very good indeed, meriting Honoramble Mention. It is from SAXYERES and GAYCHALL, of Dublin 1144, p. 1539. Honoramble Mention is also made of "Modar Set denistry prepared inhibition of coding, much superior to minthly prepared inhibition of coding, much suspector to any, Honoian, for beautifully cut and pecied dried chicery (69, p. 1368).

lesides the above, there are samples from Butswarren. Presensa, the NETHERLANDS, and Illuse, nose of nucleimportance except the preparations from Patients. There is a curious need exhibited from Tarkey called "Kengnel," it is said to be extensively cultivated in the Kair-ar-ch and Konath; and ronsted, ground, and need like coffee. The plant is the "Guntelia".

D. L.—FERMENTED LIQUORS.

The Rules of the Royal Commissioners were opposed to the exhibition of any objects of this class, except such as were remarkable for novelty of invention or production, hence the number exhibited is very limited.

A Sardinian orange wine, "Vino di Avancio" (9, p. 1302), is quite a novelty, and apparently a valuable one. This wine is prepared by P. Gatassini, of Geaca, solely from oranges that would otherwise be wasted: it is a remarkably agrecable bevezage, strongly recembling fine

Lanel in flavour, aronus, and quality. A Prize Medal has (40, p. 203). The eignrs smoke well, with a good white been awarded to the manufacturer.

In the Zollvere'o Department is some well-fermented good beer (1.5, p. 1688), smallentruely for long yoyages, by C. Cantertant. This was tasted, and found sound and good but too week; and being flavorened with absinthium, was unsaited either for the English us Indian markets, the control of the Company of the Company of the Company inquiry, to be highly reliabed by the beer-drinkers of Germany.

The Austrian "biot serior" is a hard, dry, and tough muss, fabricated from an extract of and and lape only, and anglement to the task, and fairly pertible. There probably with ligarious. Berw may prepared from each of these fee the Jusy; by the Exhibitor, after considerfree from any amplement favour, we at his and to atgreable to the English polate. The preparation had certainly start to the properties of the properties of the constant seriously affect in qualifician as prombal articles and the time close to a feet the properties of the propared of the properties of the properties of the propared of the properties of the properties of the properties of properties for properties been from it, nother it, prescribed, not properties for properties beer from it, nother it, prescribed, not properties for properties beer from it, nother it, prescribed, nother in prescribed, nother in prescribed to properties for properties beer from it, nother it, prescribed, nother in prescribed to the properties of the properties for properties and the properties and the properties and the properties and the properties of properties and the properties and the properties and the properties are properties and the properties and the properties are properties and the properties and the properties are properties and the properties are properties and the properties are properties are properties and the properties are properti

D. H.-Товассо.

The exhibition of nw and manufactured tulucco is upon the whole one of the most suifactory of the class on which the Jary were called apon to decide. The import trade is very fully represented by anmerous amples of receilest articles. The British, German, Algerine, and United States manufactured tobaccon for smoking the famous smif-mills of Scotland, Ireland, Portugal, and Austria are all allows.

I. Instruct Extunerous—The leastful cases of W. BERSON (20), 20.3 law been awarded a Prize Media they contain as epitome of the London tobacco trade; and amongst them a too of Herstannia (spirit, televel: "Pre-modern of the Control of the Control

equatericided flat only cigans called "Burwan".

Amang other raw or feat forbacco, the American varieties are porticularly well illustrated, but too insufficiently lands to overly much information to the public, the commoner "shag tolonco" is propared chiefly from the Commoner "shag tolonco" is propared chiefly from the "Mason" county leaf; the until lamanter and similar qualities from the thin, delientely flavoured, mild, this in the royal arey, from the Virginia leaf, &c.

Hungariaa tohaceo, almost suknown in Great Britain, is also exhibited both in this and in the Russian Department. It is very fine, and of peculiarly delicate flavour, much more so than the tobaceo usually cultivated in Turkey.

A Prize Medal has been awarded to Brs. Joxxa and Co. (43, p. 203) for their collection of Ibavanash ejgars, illustrating the English market. These are selected from the Exhibitors' stores, and are somewhat unequal in quality, and being picked for exhibiting, nor are they dressed awardes.

Cones and Onn (49, p. 204) have been awarded a Prize Medal for their Havannalis, "Ugues" brand; a very good eigar, imported by this firm only. Unatile mode along are conjugate with history

very good ergar, imported by than into both.

English-made cigars are copiously exhibited.

E. Joans and Brownesse (42, p. 263) have been awarded
a Prize Wedal for their very fine collection of different
varieties of cigars manufactured from the Havannah
leaf. These are sold at a very cheap rate, are beautifully
rolled, draw well, and are of fair flavour, the latter being

a quality mattalaable in perfection in England.

Lawaarr and Bettara have also received a Prize Medal for their excellent tobacco, cigars, sunffs, and Cavendish.

ash, and are of very fair flavour. The cut tolonce and sunfis are of excellent quality. Negro-bead and Cavendish are also exhibited, and are successful initiations of the American produce, though inferior in flavour. They are prepared by a peculiar process from the best Virginian leaf. A specimen of English-grown tobacco from the same exhibitor is worthy of notice, as a curiosity: it was raised on a poor light soil in Cambridge-shire, and is

as excellent specimes, but deficies in shavour.

Ricramanous Bancrusas, of Edishmaph (162, p. 204),
have been awarded a Prine Medal for their very fine
very fine awarded a Prine Medal for their very fine
versally sacel, in this form, is Secondard, both for elseving
and smoking; and the exhibiting banes empiles the
market to a great extent bell with this and Seocha andial,
market to a great extent bell with this and Seocha andial,
uncess of Virgleiain kerf (intended to illustrate the strickin araw statule arevery fine, and in the present state of
the aarket, which is low (awing to bad crops and specithe authors, which is a warded to be smull of Missers,
A Prine Medal is awarded to be smull of Missers,

A Prize Medal is awarded to the snuff of Messes, Lexev Foor and Co., of Dublin (44, p. 203), an article too well known to require more special notice, and of which the Exhibition samples are admirable.

which inexchanges suggested as the state of the control of the con

in which it is originally part up for expert.

M. HYAM' (p. 200) samples of fittish-made cigars and electrons, from the New Granada leef, deserve mutics from their extraordinary chappens, a does his specimes of Collandain tobacco. The Jury also meetino Birxa-kava and Torata (48), p. 20%, for their early-shelicated cherousts of tobacco and other marvoits berin and drugs, the most contracting visits and their contractions of the contraction of the contraction of their contractions. These cheroust draw well, but are very rank.

The Care of Good Harz schibit cajers and knauser

vention). These cheroots draw well, but are very mark. The Care of Good llars: exhibits cigars and kanaster tobacco (36, p. 950), grown in the colosy. The defects of the cigars seem to be in the manufacture and choice of leaf, for they are spongy, tough, and leathery, most clausily made, and smoke with a black sab. The flavour is, however, so far good, as to indace the Jury to encourage improvements in the colony, by the award of Ho-

rage improvements in the county, by the award of 10aourable Mention to N. Moss, the exhibitor. Canada contributes very fair leaf-tobacco for cigarnaking, from J. Lever (73, p. 963), of which Honourable ascation is made: it equals second-class Virginialeaf, and will probably be much improved by care in the

East India —The Honoranna East India Conraxt centribute Sourhaya (Ana) chrotos, of two qualities the first, a dark-coloured sample, are very well discoured, with a fair ash; they hurn pretty steedily, and rather strong, and are better than any English-made cigars, but siderior to the Manilla. The lighter-coloured samples are weak and poor. The Trichianophy cheroons exhibited (p. 873) are singu-

haly come made find; these, mover toyal in interlogue, that constrained for the second property of the country, have possibly been injured on the voyage. Some "Calcutta Manillas," as initiation Manillas are generally called, of five (almont) flavoured followers, hurn with a white sale, and are equal to second-class. Hawanakis (p. 532). Honomrable Merition is much of them, and of the Chinsurah Havanakis, manufactured probably from "Saad-cheal" tobacce, cultivated on the Armana

i from "Saad-head" tobucco, cultivated on the Armean t coust.

The Jury regret not having found in the East Indian

The Jury regret not having found in the East Indian Department, samples of Awailan and various other raw tobaccos, raised in different parts of our Eastern possessions; or of the Luska cheroots, made from tohaccogrown on the banks of the Godavery and Mahanuddy rivers, where its cultivation and manufacture are rapidly

increasing, and the cheroots are superior to any others TRINITAD scade cigars, very clumsily made, and defi-cient in aruna, but which have been awarded a Prize

Medal, for their excellent mild almost flavour, and for the novelty of the manufacture, which is worthy of en-

into the market

couragement (p. 974).

A great deal of tolorceo is exhibited from the Northern States of Europe, BELGIUM, the NETHERLANDS, &c.; of the manufactured produce, Honourable Mention is made of the cigars (69, p. 1145) of A. VAN DER LANDEN, of HOLLAND, which are composed, some of Dutch and some of Java tolorce. Also of the cigars of J. P. MCLEST (11, p. 1126), of the Grand Duchy of Hesse. Paussta exhibits various samples, generally of common and coarse cigars. Homourable Mention is made of those of A. P. CARSTANJEN Sons (468, p. 1077), which are better flayoured and mure fragrant than any English-made article. AUSTRIA sends many fine snuffs.

The most important exhibition of German tobacco is that from Maunheim, sent by Wn. Sacus, which, unfortenately, owing to the lateness of the crop, arrived too late to be placed on the Award List. It is but fair to the producer to state that it has been pronounced superior in flavour, and in point of curing, to any European tobacco known in the English market. The Agricultural Society of Badea has encouraged the culture of this crop, which has rapidly increased to 200,000 cwt., annually grown on the banks of the Rhine. The enltivation is carried on the banks of the finite. The children is carried on by small proprietors, and employs 20,000 hauds; and the produce is sold at a very cheap rate. It is exported in leaf, in vast quantities, to Eugland, Belgium, Spain, and, in bad scasons, to the Havannah itself; and the cigars are consumed in the United States to a great amount. Great attention is paid to the selection of fine covering leaves, upon the goodness of which the hurning and drawing so materially depend; and in this the manufac-turers, judging from the samples exhibited, seem to have been eminently successful. Though still inferior to the best American tobacco, it surpasses much that is brought

The Spanish Department excels all others in the beauty and variety of its cigars. The Havannahs are here alluded to, for the Manilla cheroots are scarcely represented in the Exhibition, which is very much to be regretted

The best Havannah tohacco farms are confined to a very anrow area on the south-west part of the great island of Cuba. This district, 27 lengues long and only 7 broad, is bounded on the north by mountains, on the south and west by the ocean, whilst eastward, though there is no ostural limit, the tobacco sensibly degenerates in quality. A light saudy soil, and rather low situation, sait the best. Of the small collection of cigars shown, two exhibitors have been awarded Prize Medals. The one, Don BEENAVENTURA GONZALEZ ALVERA, for his "Ramas" eigurs (126, p. 1336); these are considered the best it is possible to produce, and fetch 30l, per 1,000 in the Havananh. They proved extremely fine in flavour. and perfect in burning qualities, but they were so tightly rolled as to draw with difficulty, which is rather considered an advantage by the Spaniards in this eigar, other Prize Medal was given to a much milder eigar, other Prize Meets, and considered equally deliciously fla-drawing freely, and considered equally deliciously fla-voured, by the Jury; the exhibitor is known as De Cananas and Canazal (1268, p. 1336). There are also in the Spanish Department a few Manilla

cheroots, some beautiful samples of the Manilla leaf, from the three principal districts of the island, Visagas, Ygurotes, and Cagayan, and some admirable eigarillus.

PORTIGAL exhibits eigars, eigarettes, cut tubaccos, and sauffs; of which the latter are very good, and well cured. There are two qualities of eigars, the one is too mild, but excellent in flavour, and burns well; the other is a compressed darker eigar, resembling the Havanuah "Bravas," delicately flavoured and sufficiently strong. A Prize Medal is given for these eigers (1203 & 1207, p. 1318), fabricated at the Royal Tobacco and Smiff Company. There is also a great number of anuffs from the ume Company, and from other manufacturers; of the former, Honougable Mention is made of Nor. 1172 & 1183

(p. 1318). The others are, for the most part, too much flavoured with orris-root. The eigarettes are very hi-

ferior to the Spanish. ALGIERS contributes an extensive assortment of tobaccos of many kinds: it is becoming the great tobucco mart of Frauce. Both the Havannah leaf, the Syrian, and the Manilia, appear to be cultivated and cured by Arabs as well as colonists: the specimens sent are from exceedingly well-grown, beautiful crops: the curing is perfectly well-grown, beautiful crops: the curing is perfectly well conducted, and the rolling, &c., of the cigars is sometimes faultless; all are, however, utterly deficient in flavour and strragth, being small, poor in quality, and very pule-coloured. The Krucheua's cigara are the best, and of the tobacco, a sample from Oran, resembling the Shiraz. Some Philippine Island leaf, exhibited by M. Monis, of El Biar, is very fine, bot in appearance only. There are some cigars made from the imported Havanuals leaf, sold at an extraordinarity cheap

rate, and eignrillas still cheaper.

A Prize Medal has been awarded to the magnificent A Prize Medal has been awarded to the magnificent TURKHSI collection of buzzar tobacces: it is extensive, and the samples are all particularly fine and abundant, Latakin of the best quality in carbibited here, dark in colour, and if a good tarry flavour. The Moldavian tobacco is also particularly fine. The Jury much regret their inability to give any detailed account of this admirable collection, information being wanted on the sub-ject of the growth of the fluor qualities of Oriental to-

acces particularly

Pessta is justly renowned for the quality of its to-baccos, both mild and strong: of those, the most celebrated amongst the milder performed sorts, is called "Aburika," or "Father of Perfumes i" two samples are exhibited; one, the urdinary dark-coloured, in leaf; the other, loosely twisted into a roll, is paler, more prized in the country, and given as presents amongst the nobles. It is much too mild for appreciation in England, however delicate the flavour. The Damascus tobacco is of the same quality as the celebrated Shiraz, pale-coloured, but rather thick and firm in the leaf, and very strong.

EGYPT sends two bales of "Gerbali tobacco," culti-

vated, we believe, in the Delta of the Nile, and made into cigars ordinarily used in Egypt; but even there con-

sidered very inferior

RUSSIA. - The exhibition is small, bot the samples all RUSSIA.—1 he exhibition is small, bot the samples all of good quality, especially the eigarillas of A. SPIGLAZOY?
(76, p. 1369), which are as large as ordinary cheroots, and supplied with a short broad reed-tube at the mouth end, a piessant contrivance. The tobacco used is Russiangrown, very mild, and rathers weet-flavoured, though not aual in aroma to the Havannah cigarillas. A Prize Medal is awarded them. Hosourable Mention is unde uf the Turkish tobacco (75, p. 1369), grawn is the Circasian Provinces by Mistarita Idanor, which is equal to the best grown in Turkey.

UNITED STATES OF ANERICA.—The exhibition is chiefly of Cavendish tobaccos, and is both extensive and

admirable; the contributions of many makers attesting the importance of the manufacture, and the prevalence of chewing, for which these are principally used in the United States, whilst in England they are most prized as the strongest and best flavoured for smoking. The finest Virginia leaf is used in the manufacture, which consists chiefly in carring and pressing the leaf into flat square cakes of various sizes, a little molasses or sugar being sometimes added. Prize Medals have been awarded to— DILL and MULCUAREN (273, p. 1452) for their Cavendish; James H. Grant (284, p. 1453), Black Cavendish; Poirtaux Romisson (265, p. 1452), Cavendish.

Honourable Mention has been made of Mooklas and Honourable mention and documents above a source and CHILES (8, p. 1433); Thomas and Co. (268, p. 1452), for Cavendish:

JAMES Thomas (528, p. 1467), for Negro-head. Also of the Maryland leaf toloacco and eigans, exhibited by the MARYLAND COMMITTEE (included in Prize Medal awarded by Jury of Class IV.)

-SPICES AND CONDIMENTS, VINEGAR AND PICKLES, CINNAMON, Cassia, &c.—This product is at present confined to the Continent and Archipelago of India, where various number are next more lowerer, equal-to-the term from the control of the control of

NYTHOU, AC.—There are two grown collections of price, which have been avaised first which. Meers, respectively, the property of the property o

uf great encouragement in the West Indies, a Prize Medal is awarded to H. Gnoze (1, p. 976, the Eshibitor. Texturan exhibits a fine collection of both East and West Indian spiece, many of them cultivated in the west Indian spiece, many of them cultivated in the value of the spiece of the spiece of the spiece of the whom a Prize Medal is newarded for excellent nature, p. fine cloves, name, ginger, habed, white, and Cayenne pepper, turmeric and vanilla. Meastr. Hamson'a collection (2, p. 988) of Eastern Meastr. Hamson'a collection (2, p. 988) of Eastern

Messrs. Hammonn's collection (2, p. 988) of Eastern Archipelago spices deserves Hononrable Mention: the cloves are of the very fixest description, and the nutmegs,

mure, pinger, and pippers are all good.

How the property of t

Posttoal sends capers of a fine description. Egypt and Turkey exhibit large collections of aromatic seeds, used as condiments; such as anise, cumin, fented, cardamonts, &c.

unitions, sec.

Movranoi are exhibited abundantly from Faxver, the celebrated "Moutarde de Maille" being, perhaps, the finest in the Exhibition. T. Dewan a preparations of mount (110, p. 307) have received Honourable Menicola, In the United States this plant seems to be very extensively evaluated, and the specimens are good from Brancos, MALLIARTER, and TEASTERILLS, of Kentucky;

* This exhibitor has been awarded a Prize Medal by the Jury of Class IV., In whose list his name appears.

and J. D. McCl'LLAGH, of Kentucky, sends samples of wonderful pungency. The Spanish mustards of Saxya-RELLA, and the RUSSIAN are also excellent. Mustard-sect is exhibited from the Caylor Good Horg, Eaver, INDIA, PORTYGHA, and Syrais, where, as also in India, it is cultivated more for the oil contained in the seeds than for any

other purpose. Vision are seartly exhibited: some of the malt vinegars of Hills and Understoon (7, p. 201) are particularly delicate, and a Princ Netal is awarded for the collection. The wood-vinegar of GILLISHE and Co., of Canada (132, p. 986), is worthy of Honourable Mention, as is the respectively energy and capillaire of 2.

collection. The wood-vinegar of GILLEAPER and Co., of Canada (13a, 9.86), is worthy of Honosamble Manien, as in the rasplerety-vilegar and explinite of J. between the control of the Honosamble Manien, as in the rasplerety-vilegar of the Honosamble Menien to the Honosamble Menien has been made of that of two other cabilities in the Fernch Department, Caurant Ractur (135a, p. 1257), and Richard L. G. W. G.

F.-STARCHES.

The various flours having been reported under A. 6, starches for manufacturing purposes being excluded from this class allogether, and there being no lichen food exlibited, there remains nothing to be considered under this head hat a few mixedianeous feetule, frairse used in tropical countries, or produced there for export; as sago, arrowroot, tspicea, &c.

Annowacor is largely exhibited, especially from our ropical colonies. That from the BERMEDA, imported by H. C. T. GARV and SON, is admirable, and worther than the followership of the Company of the Com

PLANTAIN MEAT, prepared from bananas, sliced, diried, ground, and washed, lass laidy attracted some notice in Eagland: samples are exhibited both from DEMEARAM and MANIMA. Hosourable Mention is made of the DEMEARAM assumptes exhibited by W. DAVIDON (12, p. 978). TOSK IAM MINI BOUNT OF SECRETARY OF THE MEAT OF THE MEA

C.wava. Maxa. and Buxa., perpared from the roots of two species of unphorthaceous plants are exhibited from two species of unphorthaceous plants are exhibited from text the extent form Jacobse marries, a very simitar sense, a exhibited from Taxinaa, Cixtoo, and Awoxia. A species of the Jacobse marries, a repetition of the plants reep and along, and age from, are sent from the Eastern Archipelago and Derson, also Homorable Menton in under of the period of the plants of the period of the plants of the Homorable East and the period of the period

hrought together from countries almost at the antipodes of one another, and both sew to the Jurray; the one is a starch washed from a species of Zania, found wild in Sr. Dostsoon, and exhibited by Sr. It. Scruosmeson. Sr. Dostsoon, and exhibited by Sr. It. Scruosmeson. Sr. Dostsoon, and exhibited by Sr. It. Scruosmeson. as carried to the starch from a starch from a sense of the as a carried to 1914. The other is a starch from a stardard starch from the starch from a starch from a stararowarous, which, in every respect of fred and taste, it

tentententhrough the Exhibition, but do not appear important.

G.-SUGAR

A very limited number of samples of this article are exhibited, and the deficiency is most marked in the contributious from the principal sogar-growing countries. For instance, Januica, Tobugo, St. Vioceat, and every other west fullam colony, except Tribaidad, Demerara, and Barbadnes, have failed to send specimens. There are noue from the foreign possessions in the Old World, Porto Rico, the Brazils, or Havananh, none from Manilla and China, whist Java and Madras send little more than

one sample each.

In refined sugar the British manufactories are wholly unrepresented.

A specimen of sagar, from cane grown in England, deserves notice as a curiosity. The sample was made without filtration, by Dr. Evans, from case grown by II. Penkins, Eq., in Surrey.

EAST INDIAN POSSESSIONS.—A sample of Ganjam

ALTERIANS. PORTECUTION.—A sample of Guijan Land Parks. Portection of the Conference of the Conference

Ja's achilists two fair samples from Souralays, to which a Print Medha base here awarded: both are elapsed sugarst one is said to be manufactured on a new (undescribed) plant, the other by the two repeasure reasonapus process; both are superior to the ordinary. Datch (Xq. p. 9.6), from the Phenart ceates of Wass Bhorrisas and Co.; it is a spleudid sample, dry, well erystallized, produced by the reasonaps and passing process; but perfectly granulated and free from coloning matter. A ord W. P. Hautsons and (Xo. the very this Sainn agent.

DARRAKA.—A Prize Medal is awarded to the fine, well-crystallized sample produced by the vacuum-and, and exhibited by G. Andrakoon and Co. (36, p. 979). Tannians sends good samples: one is curious, from the being purified with animal charcoal. Barradues exhibits für specimens.

FRANCE.—The collection of beet root sugars, especially

If action 1 are consecuted to mice root supera-present manifest but of member of the m

from which potsus and alcohol are procured in sufficient abundance, and of such a quality as to be very remunerative.

M. NUNA GAIR receives the Council Medal for sagar (667, p. 1211) obtained from beet-root by the largic process. It is stated to be applicable to the refuse molasses of any manufactory, precipitated with barytes, and afterwards wholly freed from this poisonous ingredient.

The molasses thus treated yields a large perceatage of sugar.

Three Prize Medals have been awarded to Exhibitors

T. Gressen-Delisse, of Arras (465, p. 200), for excellent best-root augus, prepared by the ordinary method. Jeant Prevoer and Co. (1277, p. 1328), for augus prepared in moulds by stamping. ROUSSEAU BROTHERS (4457, p. 1245), for several sam-

ples prepared "sans raffunge."

Span exhibits a few good sugars of sative and colo-

min growth, for which three Price Medals are awarded: to J. N. Excurser (176, pp. 33), ably, for redden sings made from billings proved came; in J. H. Sander sings, redden of the estate itself; and to on, above, and sings, redden of the estate itself; and to on, above, and sings, redden of the estate itself; and to on, above, and (179a, p. 1300), also for excellent likewamsh usign; (179a, p. 1300), also for excellent likewamsh usign; (179a, p. 1300), also for excellent likewamsh usign; (179a, p. 1300), also for excellent likewamsh using, p. 1000), for five tign for soons; of daubhe-redden best-tool sings of the for good sings-crossly. Homogradie Vestition is made of the Moravian best-root sauger of the Best-lerx Chevacuts of the sings of the Best-lerx Cheva-(185a), p. 1007. Also of the Prices Peransana vo Lora-

(35, p. 1099). Also of the Prince Fashinaad You Lobcowtz, Blobenia (38, p. 1002), and of the sugar mannfactory at TLYARC, in Gallicia (60, p. 1010). BEARIEN exhibits in every respect the flosest angarcandy (81, p. 113) which has ever been seen by Lurors, Jurors, A Princ Medal in aurarded for it to Mesers. CLARS and CARBON, of Gand (81, p. 1134), who exhibit also a fine series of coloured and uther sugars. These are pro-

hably all cane produce, judging by their appearance, weight, and hardness. Russia and Purasia, exhibit a few sugars, but none of any great merit, except the best-root sugar of Hissimans, Hissimshour, and Ravitcu (72, p. 1869), and that of Brussia and Cu. (63, p. 1888), of both of which

Hunourable Mention is made.
UNITED STATES,—A good sample of came Muscovado
(397, p. 1462) is exhibited by M. White, of New Orleans, for which Honourable Mention was awarded.

Maria Kova, "This substance, which is dissolvantly asset in America for cosmon propers, has builty had a seed in America for cosmon propers, has builty had a single produce of in propular shown." In the product a force, and the difficulty of depriving the many control of the product and the product and the seed of the product and th

PALN SCOARS. These are exhibited chiefly as enricalties, and coasis of Geometri-plan magar (Arreage acceluraforu) from Java; date-palm sugar from the Decean; Nips angar (from steam of Nips firstlears), probably from the Sanderbunds, exhibited by the Honorevants the Healy flower of Bazaria Injefish, as Amar Indian tree, from whose fleshy flowers, after fermentation, an ardent spirit a distiller.

GRAPE SUGAR is exhibited of fair quality from Tunis and from the Zollverein States; also, as molasses, from Spain.

LAQUORICE.—Nothing of any importance is contributed of this description. The Spanish is almost the only sample: it is very good.

ANIMAL KINGDOM.

II. I.—PRESERVED ALIMENTARY SUBSTANCES,

It is impossible to over-estimate the importance of these preparations. The invention of the process by which similar slow expectable food are preserved in a fresh and sever state for an indefinite period has only been considered to the process of the process o

1 - Choose

cold elimates, their use was extended to hot mes, and for serve to advantage. The more farinaceous do not prethe siek on board ship under all eircumstanees. Hitherto they had only been employed as a substitute for salt beef or pork at sea, and, if eaten ashore, it was, at first, speedily became evident, especially in Itsia, where European families are scattered, and where, consequently, on the shughter of a large minual, more is wasted than can be consumed by a family of the ardinary number. The consumption of preserved means became, at nace, enormous: hundreds of tons are annually transported to the East Indies and all our colonial possessions, and many are consumed by our fleets.

The cheapness of these preparations is most remarkable. This arises from the processes and materials for the cases being inexpensive, and from there being no waste of the meat: all that is good goes into the case, which is always filled. It is affirmed by the manufacturers and others, and probably with truth, that meat in this form supplies troops, and the fleet, with a ebenper animal diet than salt provisions, from avoiding the expense of casks, leakage, brine, bone, shrinking, stowage, &c., which are all heavy items, and entail great waste and expenditure: added to this, the damage of one eask of salt ment risks the loss of all its contents: whilst the meat emisters are, comparatively speaking, imperishable, and an accident to one occasious a loss of at most but from 2 lbs. to 4 lbs. of food,

Several hundred canisters of meat are exhibited from various countries, and in some of these by many different persons. Their merits were tested by a selection from caeb: the cases were opened in the presence of the Jory, and tasted by themselves; and, where advisable, by as-sociates. The majority are of English manufacture, especially the more substantial viands; France and Germany exhibiting chiefly made dishes, game, and delica-cies-of meat, fish, some, and vegetables.

The Jury desire to draw attention to the fact of viands of this description being extensively prepared in Australia, Tasmania, the Cape of Good Hope, Canada, &c., of equally good description with the English. Animal food is most abundant and cheap in some of those colonies. In Australia, especially, during seasons of drought, lt is wasted in extraordinary quantities: flocks are slaughtered for the tallow alone, and herds for their bones und hides. Were the meat on these occasions preserved, it cannot be doubted that it could be imported into England, and sold at a cheaper rate than fresh meat in our metropolitan markets, to the great benefit of the lower classes

Among all the preparations exhibited by France, England, &c., there is no perceptible difference either in the mode or perfection of preservation. To seal, bermethe mode or percention of preservation. To seal, secure tically, full tin canisters is the general principle adopted; and it is effected by plunging them in boiling water, and soldering a small orifice left purposely, by which all the air is expelled; this principle, variously modified, being the same throughout

The contents of all the eases, of whatever kind, have lost much of the freshuess in taste and flavour peculiar to newly-killed ment: they are always soft, and, as it were, overdone: the untritious principles are, however, perfectly preserved. As nutriment they are unexceptionable: they are wholesome and agreeable, and often pleasantly flavoured. Vouchers are given for some of the samples tasted by the Jurors having been preserved for twentyfive years and upwards: these were in a perfectly sound state, and did not perceptibly differ from the contents of canisters only a few months old. So long as the scaling remains sound, the viands appear to undergo no change. Any difference between the contents of the properly-prepared cases is to be attributed to the state of the food before preparation, or to the cooking, and not to the method employed for preserving, which is simple and universally applicable.

Vegetables, preserved in a similar manner, have been considered by the Jury with the animal food. Generally speaking, their flavour is fresher than that of the ments, especially in the case of those abounding in saccharine principle, as bect, currots, parsneps, salsafy, which pre-

serve so well, such as green peas, &c.; whilst those abounding in volatile oils are hardly worth preseggation at all (especially cabbages, turnips, and celery), except as anti-scorbutics. M. E. Masson's dried compressed vegetables (1348, p

1240) demand especial actice, as showing one of the most remarkable discoveries of modern times in this branch of manufacture: they have been awarded a Council Medal, By M. Masson's process, the most bulky, soft, and sueculcut vegetables are reduced to a fraction of their volume, and are preserved in a dry, indestructible state, After boiling for a rather longer time than usual, they are restored to something of their original form and consistence, retaining all their nutritious principles, and much of their flavour. Chollet and Co., the manufacturers of these preserved vegetables, use only desicention and compression in the process, which is Masson's invention. According to a statement published in the "Comptee Rendus," as read before the Paris Academy, the vegetables are reduced seven-eighths in weight, and propor-tionally in bulk. They require to be builed for oue hour tables are recuced serves against the boiled for one hour tionally in bulk. They require to be boiled for one hour and a half to one hour and three-quarters, and on cooling, are found to have regnined nearly all their evaporated

If, as the Jorors have reason to believe, these preparations retain their good qualities for several years, they cannot be too strongly recommended in public attention, it would probably be necessary for long voyages that these square cakes be packed in perfectly dry casks or tauks, as biscuits are.

In the British Department, J. II. Gamble (12, p. 201) and RITCHIE and McCall (15, p. 202) exhibit very fine samples of preserved viauds and vegetables, and to each a Prize Medal is awarded for excellence of material and preservation. Richie and McCull's articles deserve especial notice for the great size of the pieces of ment, combined with all the firmness of texture that is attainable. All are said to be prepared by Goldner's process, the results of which are equal, but not superior, to the ordinary process, as far as the Jury could decide, after a very

protracted examination and comparison. COPLAND, BARNES, and Co. (11, p. 201) exhibit few leads, but abundance of fish, hams, and vegetables. dressed in various ways. A Prize Medal has been awarded for these in conjouction with the admirable tart-fruits referred to elsewhere

A preserved pig, entire (14, p. 202), a conspicuous feature in the English Department, deserves notice as a remarkably successful instance of curing on a large scale.

J. and J. P. LEONARD's fresh meats (26, p. 206), prepared on Toplin's principle, are not so successful a snuple of preserved animal food as would be imagined from their appearance of freshuess und goodness. WHITNEY's fresh beef (grated?) (26, p. 202) looks sound, but is not exbibited in sufficient abundance, and particulars of trial are wanting

MADANE D. St. ETIENNE exhibits specimens of vegetoanimal substances, ment flours, &c., prepared for voyages; also a bottle of dried and pulverised spinach (138, p. 208), of which Honourable Mention is made. It is a p. 2053, of which itonourable election is make. It is a curious preparation, resembling M. Masson's; but the quantity exhibited is too small, and the general applica-bility of the process is not known. Canada demands very prominent mention for the abundance and excellence of the preserved viands exhi-

bited; but all are of the ordinary description of cured meats, and none have any peculiar merit or novelty to entitle them to reward, except the bams of G. Reix-Hardy, of Montreal, which have been awarded a Prize Medal. There are barrels of beef, pork, and tongues, cases of smoked hams, bacons, and sausages, kegs of lard, &c., all produced at a remarkably cheap rate.

NEW BRUNSWICK and NOVA SCOTIA contribute excel-

lent fresh salmon, preserved in tin eauisters, and quite equal to the English. Honourable Mention is made of that of T. HOLLIDAY, of Halifax, and W. J. FRAMER, of Miramichi (24, p. 969).

AUSTRALIA.—11. E. & M. Moses (101) are exhibitors of excellent preserved fresh meats, in all respects equal

to the English, but exhibited in small quantity and in no variety. Honourable Meation is mode of them. The New-CASTLE (N.S.W.) PRESERVING COMPANY (7, p. 989) contri-butes admirable boiled mutton in tin cases, whose especial goodness is evidently owing to the execllence of the material, for the process is the ordinary one, and its peculiarities are the same as the English. A Prize Medal has been swarded the Company. Some excellent spiced beef hams were exhibited by J. BRILARS (2A, p. 989), which have received Honograble Mention.

van Diemen's Land sends excellent hams, prepared by Marshall, of Hobarton, and exhibited by F. Lirs-come (297, p. 992), of which Honourable Meation is Also good preserved ments prepared by Aucocx, of Hobarton (p. 992).

New Zealann.—Some dried mullets are exhibited from this colony, cured for the Chiua market, which appear sound, but not high flavoured. The Care or Goon Hope sends casks of salt beef and

pork, both of good description.
FRANCE.—The collection of hermetically-scaled means

is very extensive and good, but differing from the English in the same degree as a French table differs from an English one, namely, in the smuller quantities preserved, in their being generally made-dishes, and in a greater proportion being objects rather of luxury than of common use. A Prize Medal has been awarded to GUIDERT, DES LANDELLES, & Co. (1262, p. 1237), for a very fine series of preserved meats and vegetables, and to CHEVET, peries of press' series are executive, and vegetables, especially truffles. Of the latter there are many exhibitors in the Freneh Department, and all are good. Honourable Mention is made of the "moutton roit," and sardines in oil, of J. PENEAU (950, p. 1223), also of the preserved game of GRENAILLY (246, p. 1188).

For vegetables is particular, Honourable Mention is made of the preserved green peas of F. ROCHIKE & Son (994, p. 1226), and of the salssify of RÖDEL & Son* (992, p. 1226), which were the two best amongst many samples of all kinds of preserved vegetables exhibited by them in this department. are abundantly exhibited, and the Jury have

made Honourable Mention of the santines in oil of A. Gillet (521, p. 1204), Pellier Brothers (948, p. 1218), and M. Cam's (789). AUSTRIA is almost the only other contributor of fresh

meats preserved by hermetically scaling. Honourable Meation is made of the preserved larks of C. Well. (25).

SPAIN sends a good supply of beef, pork, bacen, and hams, all of excellent quality. The hams are particu-larly good, especially the Montanchis hams (139n, p. 1337), to which a Prize Medal is awarded: it is exhibited by, and sent from, the Bosoucht of Aviles. There is so some good Spanish salt butter,

LUBECK contributes a selection of hermetically-scaled provisions in tia cases, all very good. A Prize Medal is awarded to the exhibitor, D. H. Carstens (2, p. 1140). Switzemand.—Some fish and meats dried and preserved in a fresh state by simple desiceation, are very re-markable. They are exhibited by II. Barr (52, p. 1269, 1270), to whom a Prize Medal is awarded. They want flavour, and are discoloured, but both the muscle and fat of the meat are perfectly sweet and fresh. Simplicity and cheapness of preservation are the great recommendations of these articles, to which may be added the absence of any foreign matter. They will apparently keep well, but they want testing hy exposure to a damp tropical cli-mate, and by confinement in bulk. Russia exhibits dried fish, apparently is exceedingly

good order. UNITED STATES.—The hauss are of a very superior description indeed, and have been pronounced by com-petent indiges to be unsurpassable. Prize Medals have

petent judges to be unsurpassable. Prize Medals bave been awarded to two contributors of this article, Charles DUTTELD, of Louisville (363, p. 1459), and Schooler and Hough, of Cincinoati (200, p. 1449). The lard is exceedingly fine, and Honourable Mention is made of that of G Doninic (21, p. 1434), also by Jury of Class IV.

11. 11.—PORTABLE SOUPS, CONCENTRATED MEATS, &c. A more simple, economical, and efficient form of nortable concentrated food than the American meat biscuit of GALL Bonnes (524, p. 1467) has never been brought before the public. The inventor combines the best when flour with the autriment of the finest beef, and presents them for use as food in the form of a dry, incdorous, that brittle cake, which will keep, when dry, for an unlimited period. It only requires hot water and sensoning to the taste to produce a first-rate agreeably-flavoured, highly-nutritious soup, somewhat of the consistence of sugo. One pound of the biscuit contains the nutritive matter (fal excepted) of five pounds of prime beef, mixed with half a pound of the lest whent flour. One ounce of the biscuit grated, and boiled in a pint of water, forms a rich nutritious soup. It is averred by the inventor, and he is supported by authority satisfactory to the Jury, that 10 pounds of this satisfactor, with a proper allowance of water, afford, both in bulk and nutriment, food sufficient to support the physical and mental powers of a bealthy working man for a month. The Jury further believe it to be as portable and unchangable as the inventor de-

Chemical analysis shows the proportion of meat to starch to vary in different samples, but that in all cases the meat is perfectly sound and free from putridity, and the starch unaltered. Ou an uverage it contains 4'9 per the March ulliance. On an inverse it consumers per cent, of introduce, or 3185 per cent, of fibeth-forming prin-ciples. A Council Medal is awarded to this excellent preparation of Mr. Gall. Boaden, The osmazome of G. Wajashen (Cl. III., 21, p. 202) is

the nutritious matter or juice of meat which is set free during the operation of boiling down fat for tallow in Australia. This is afterwards concentrated and preserved in the form of sansages. A great amount of untriment is thus obtained in a portable form, and when boiled with gelatine, it forms a pulatable diet. The price is very moderate, is, per lb., and it hence communds a market and is much used to form a gravy to meat. The exhibitors declare that one nound weight is the equivalent of the nutriment of 30 lbs, of fibrine, which argues a high economic value. Chemical examination gives 2 l per cent. of nitrogen, or 15:63 per cent. of fiesh-forming principle. Hononrable Mention was awarded,

De Liscort & Co.'s " biscuit beef," in the French Department (1328, pp. 1239, 1340), in form resembles ordinary coarse ship-biscuit, of a large size, and has an animol, sal and nnt very agreeable taste, It is exhibited in two forms, the ordinary biscuit above mentioued, and another marked P., which is to be ground up and boiled, 30 or 40 minutes, as soup. 600 grammes (equal to 1-322 bs, avoir.) are stated to be the equivalent of a soldier's complete daily rations. PRISERVED MILES. - Several specimens of these valu-

able preserves, possessing vorious degrees of merit, have been submitted to the attention of the Jury. Of these the "Concentrated Preserved Milk" of E. D. Moone (139, p, 193*) has received a Prize Medal. It contains all the sutritions qualities and much of the flavour of fresh milk, J. H. Ganale (12, p. 201), and Retente and McCall. (15, p. 202), both exhibit preserved milks in hermeticallysealed cases, but the samples from each vary considerably Honourable Meution is made of MARTIN DE LIGNAC'S

consolidated milk, France (922, p. 1224). Tent of V. B. Fadeuller (Cl. III., 140, p. 193*) is also worthy of thorice as a curious preparation; but it appears to attract moisture, and has a decided flavour of cheese. The preparation of Outsia & Co., of Paris (1375, p. 1242), and the Lubeck preserved milk (2, p. 1140), are too much sagared.

H. III. and IV .- CAVIARE, TREPANG, &c. SWALLOWS' NESTS, &c.

Russian caviare of the very finest quality is exhibited by Nikita Vskyolopowitch Vsivolosiky (338, p. 1382). It receives Honograble Mention.

^{*} These exhibitors were awarded a Prize Medal by the Jury of Class XXIX., in whose list their names appear.

mer, or sen-sing;, in considerable abundance; and magnificent specimens are exhibited in the Chinese Department by H. Hanneron Lindsay (11, p. 1422).

Swallows' nests, used extensively for some by the Chiuese and natives of the Eastern Archipelago, are exhibited of very high quality, by H. H. Landsav (11, p. 1422), in the Chinese Department, together with an excellent model of the made of attachment to the sea-cliffs, adopted by the birds for their nests. The material used is believed to be a sea-weed, resembling in form and substance the Carrageen moss of the Irish seas, which becomes glutinous when thrown up on the beach and decomposing: a peculiar fluid secreted by the swallow aids in the process of constructing the nest. Borneo and Ceylon supply inferior nests, and Java some of good quality

Malacen, Singapore, and Macassar, all send agar-agar, a very similar natural production to that from which the swallows' nests are formed, and employed for the same

ew Zealand, Manilla, and Malacca soud sharks' fine. which are another favourite article of food with the Chinese

H. V .- HONEY.

There is a considerable variety of specimens of honey, both in the comb and run; also of bives, simple and co pliented, for practical or scientific purposes, but no novelty of importance. Among 38 hives exhibited, none preof importance. Auong 38 bives exhibited, none pre-sent any practical improvement. Coly one, which dates apwards of two centuries ago, is really adapted to the requirements of the bees. To this the depriving system (which deprives the bees of a portion of their honey, with-out destroying them) was nadded a century later. Mineb ingenity has since been expended, chiefly in complicatlog hives with various contrivances for ventilation, &c., in no instance producing a return correspondent to the increased expenditure, the chief result being a hindrance to the extension of bee culture.

Butroot. - Among many bives and exhibitors, one alone has been selected as worthy of a Prize Medal; viz., J. M11-TON (Cl. IX., 291, p. 402), who sends an improved entrage hive, with single glass and cover. Simplicity and adapt-ation to practical purposes are here the objects aimed at; the hive is ebeap and available for all classes. Mr. Mil. Tox also exhibits bees well managed and working profitably in a "mansion of industry," a leaf-hive, on Hubert's plan, for scientific investigation;—of merit, for its correct proportion and adaptation to the purposes required; also beautiful honey,

Of the various samples of honeycomb, that of W. C. Of the various samples of honeycomb, that of W. C. Ktrichtenka, Newmarket (Cl. III., 5, p. 2011, bus been selected as of great superiority, that in the upright ghash being perfect in every point. The glass of honey in con-exhibited by Miss Mourtnock, is of equal benaty. Both law been rewarded with Honourable Mention. FORTENS and Mason's exhibition of various honeys (55, p. 294) is good and enrican, and well worthy of attention; it is the result of much pains to illustrate this branch of trade. 2. Canana (131, p. 966) exhibits honey, but course,

and of dark colour 3. Burrish Griana.- The produce of a native bee, said to be of easy domestication, is exhibited from Woodland's Plantation (Mahaica River) (124, p. 986). Its qualities appear remarkably good, particularly as to flavour and sweetness, but it has undercone fermentation. honey is the produce of a stingless bee; it is deposited in pouches, from which it is extracted by paneture, after which the bee stups up the orifice and refills the pouch. 4. The Care of Good Hore sends excellent honey (52, p. 952;, fit for the English market, firm, finely granulated,

rather opaque, but of good pale-yellow colour, and delicate flavour. Honourable Mention was made of the exhibitor, J. G. JOUDERT. 5. Tasmanta produces excellent honey; and several samples were forwarded to the Exhibition, but the jars

arrived in a broken state. 6. FRANCE.-Chevalier DE BEAUVOYS (47, p. 1175) exhibits a large series of bee-hives and aplarian apparatus, all manufactured for practical purposes. The workman-

Borneo and Singapore both supply trepang (beche de : ship, generally good, is in parts unequal. Some of the ances are better snited to the climate of France than England. A Prize Medal is awarded for the hive on Huber's plan, well adapted to the climate of France. The same exhibitor sends various boneys and straining

apparates. The artificial honeycomb of M. DANAISVILLE, of Crossy (153, p. 1178), is a clever and apparently new con-trivance, well adapted to the breeding of bees, though perhaps it would be better so if the cells were less deep. It has been rewarded with a Prize Medal,

Honourable Mention is made of a coopered cask of run honey, of the finest quality as to granulation, consistent delicate colour, and fine flavour. It is properly exhibited in bulk (1558, p. 1251), sent by Challoux La-PAGE and Pornoy.

Au equally fire and perhaps higher-flavoured honey, from the Bases Alper, is exhibited by M. Laugten

(1640, p. 1255). 7. Spars.-Much of the honey from this country is admirable; but it is to be regretted that all the samples in the Catalogue are not forthcoming, particularly the Hinojos honey, said to be the chief product of the district, The El Moral virgin-honey (180, p. 1540), exhibited by A. Molina, is excellent, of good colour and granulation, delicate and highly flavoured, and of renarkable sweetness in after-taste. It is rewarded with Honourable Men-

Many of the orange-flower houeys are good, especially those of Gandalajuna, the great orange-flower honey producing district of Spain; but all are injured by trans-

8. PORTURAL.- All the honeys, six samples, are deteiorated by being put in suppered bottles. Hoonorable Meution is made of No. 593 (p. 1314), from J. B. Die

MATTON 9. SARDINIA sends two samples of honey, one sweet, and one bitter It, Switzenland contributes a beebive, next, strong,

and larger than those of English make. It is on the depriving system, consisting of a conical stock-hive, with a cap, and is exhibited by L. Dawraax (7), p. 1271), of whose invention Honourable Mention is made.

11. GERMANY exhibits fair wood-hives, on the started principle, probably well fitted for the climate.

12. Garacs. — A jar of Hymettus honey, from A. Tsir-ZIMBARDS, of Athens (13, p. 1402), deserves Hommrable Mention. The specimens were brought over in the ori-

ginal jars, and part removed into glass Jars, whereby the quality is injured. The Rhodomeli honey, from Carneto, in Euloru, exhibited by the Bission of Euroga (14, p. 1402), also receives Honourable Mention. It is rather more aromatic and pungent than that of Hymettus. 13. AUSTRIA sends honey, and a Carniolian apiary :

neither is remarkable, 14. EGVPT.- Various buocys, in large jars, dirty, of lead colour, and peculiar flavour, and all in a state of fer-

mentation. TURKET.—The honeys are goverally of good colour and favour. Of one sample (2918, p. 1386) Honourable Mention is made: it is of a fine rose flavour, yellow, and semitransparent

16. Tunta exhibits a sample of honey of the Egyptian character, and not fitted for the European market. 17. Russia. A strong straw bive is exhibited.

18. United States. Joseph Hall, Burlington, New Jersey, sends a hive of living bees.

H. VI.-PREPARATIONS OF BLOOD,

The only examples are those of P. Broccuteni (16), who attempts to utilise the untritions principles of the blood of animals killed for food, by reducing it to a concentrated and dried state, for preservation during long periods. The first step is to prepare a liquid, considered innocuous and untiseptic by the exhibitor, by which various bloods are kept fluid and apparently fresh. Samples of these are exhibited Another series of specimens shows the solid parts forming the crassamentum, or clot, is a dried and semierystalline state. These solid constituents, including the gelatine, albumen, and fibrine, are uext produced, combined with small proportions of flour, in the form of light dry masses, like loaves, cakes, or biscuits. Lastly, they are shown combined with sugar, as cakes and bon-bons.

The larger masses, uncombined with sugar, are inolorous, almost flavourless, and may be made the basis of bighly-nutritious soups. They are very uniform in composition, containing half the hitrogen of dried blood, or 44 per cent, of dry flesh, the equivalent of double the nutritive value of ordinary butcher-neat. Both the hull's and calf \$800d gare 65 ger cent of nitrogen, equal to 43

per cent of field-firming principles.

The value of N. Bioccurina's process depends on the power of preserving the results, in an undecomposed state, during lengthened periods, fee, and though the Jary have understood that the preparations have been even, the evidence is not complete; and the condition of some of the specimens of mixed blood and sugar, once in the Exhibition, The uncombined dried calses seem, however, adapted for this purpose, the condition of the condition of

kes and bon-bons.

The larger masses, uncombined with sugar, are in-

the otherwise wasted blood, M. BROCKHERI's experiments describe encourageness and commendation; and the Jury have felt called upon to award him a testimonial of Homourable Mention. H. VII.—ISLOLASS.

Begarded as an allienceury, substance, intiglate has little citizin upon the attention of the Payer, They laws, however, to report near the scenario of the Payer. They have been considered the scenario of the Payer and the scenario of the Payer and the Control of the Control

Kew, August 1851.

J. D. HOOKER, REPORTER.

F 2

CLASS IV.

REPORT ON ANIMAL AND VEGETABLE SUBSTANCES, CHIEFLY USED IN MANUFACTURES, AS IMPLEMENTS, OR FOR ORNAMENTS.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.

Jury.

Professor Richard Owen, F.R S., Clairman and Reporter on the Animal Substances, College of

Protessor KERARD UPEN, F.H. S., Clorimon and Reporter on the Animal Substances, College of Supgroup, Lincoln's Inn Fields, 'Untratit to the College of Surgeon, College of Surgeon, A. P. Aves, Inpute Cuairmon, France; Member of the Institute, Professor to the Museum of Arts and Seisenes, Member of the Central Jury, E. B. Live, A. Charles, Member of the Central Jury, E. B. Live, A. Charles, Lincoln States, D. P., F. R. Ole, F.R.S., Healthield Lodge, Acton; Professor of Materia Medlea, King's Col-Dy, J. F. Roy, F. R.S., Healthield Lodge, Acton; Professor of Materia Medlea, King's Col-Dy, J. F. Roy, F. R.S., Healthield Lodge, Acton; Professor of Materia Medlea, King's Col-Dy, J. F. Roy, F. R.S., Healthield Lodge, Acton; Professor of Materia Medlea, King's Col-Dy, J. F. Roy, L. R.S., Healthield Lodge, Acton; Professor of Materia Medlea, King's Col-Dy, J. F. Roy, L. R.S., Healthield Lodge, Acton; Professor of Materia Medlea, King's Col-Dy, J. R. Roy, L. R. R. L. R. R. R. L. R

lege.

Botanical Gardens, Calcutta. F. WEYHE, Zollverein; Councillor of Home Economy,

Grownz Parkuson, Russin; 22 Craven Street, Strand; Member of the Scientific Committee for the Administration of the Domains of the Empire. (Juror in Class xxvutt.)

PRELIMINARY REMARKS.

For the "Raw Materials" from the Vegetable and Animal Kingdoms mankind owes more to the powers and operations of Nature than to the inventions and appliances of Art, and in the series of the various organic products of nlmost every climate which are exposed in view in the "Exhibition of the Works of Industry of All Nations," the "Exhibition of the Works of Industry of All Nations, relative excellence of the objects to be enuspared might be deemed to be due rather to peculiarities of soil and sky than to the individual merits of the Exhibitors,

Almost every vegetable or animal substance may, how-ever, be modified, and, in relation to its utility to man, improved by a change of the circumstances under which it is naturally developed, the modifications being suggested by a patient study of the respective influences of those circumstances upon the useful properties of such

substance. A further improvement may be effected by carefully defeuding the raw material during the progress of its development from all external influences calculated to deteriorate or injuriously affect it.

The value of every organic product in commerce is much influenced by the mode of its collection, or removal from the animal or plant when developed, and by the processes for separating the useless or less valuable parts or heterogenessus matters from the marketable constihas been extended in its application to that section of the Exhibition assigned to the Jury of Class IV., great scope for both chemical and mechanical skill has been afforded in the extraction and preparation of several of the vege-table and animal substances applied "in Manufactures, as Implements, or for Ornaments.

In the examination and comparison of the very name rous and diversified substnaces confided to their judgment, this Jury have been guided and influenced by the consideration of the invention, ingenuity, skill, and industry manifested in the antelioration and perfection of these several substances, and by the degrees in which unfavourable conditions of suil and climate have been thereby overconic: and in deciding on individual merit, they have carefully taken into account the natural facilities which may have favoured, and the untural difficulties which may have opposed, the realization of the desired qualities in the raw produce transmitted for exhibition.

After a preliminary general survey of their field of operations had shown its vast extent and the great prac-tical importance of the objects to be compared, the Jury, having regard, also, to the earnest desire expressed for expedition in their decisions, resolved themselves into two Committees, one for the Vegetable, the other for the Animal Kingdom; reviewing and testing from time to time in general meetings the evidence of the special examinations confided to those Committees. In preparing their Report of the results of these labours, it has been deemed advisable to divide it into corresponding sections, the classification of the subjects in each being made, as far as it was practicable, in accordance with that of the original "Jury Lists;" the chief differences being that original "Jury Lists"; the enter directed seeing, that—
"Destrine" or starch gum, and "Starch" as employed in
manufactures, have been added to the "Gum and Resin"
series, at the recommendation of the Jury of Class JIII,
and that spermaceti, stearine, stearic acid, with the cussideration of the various recognists until section. sideration of the various processes, partly chemical and partly mechanical, employed in the preparation of these substances, have been referred to the Jury of Class XXIX., in relation to the mannfacture of enadles and AAIA, in relation to the mannifeture of candics and other precised applications of these substances, already maker the review of that July Mannifeture (Therein) and the review of that July (Therein) and the request of the July of Class 1. "Allian "extrema ferred to other articles of stationery, the subjects of Class XVIII. Lastly, the subdivision C, including the "Vegetable Acids," such as sectic, citric, trataric, oxalic, and other organic acids employed in the arts being, in almost all cases, the products of distinct chemical operations, have been brought under the consideration of the Jury of Class II. Subject to these changes, therefore, in the list of objects originally assigned to this Class, the present Report will be subdivided, as respects the Vegetable kingdom into eight beads, and as respects the Animal Kingdom into five heads; with a preliminary section explanatory of the grounds on which the awards of the Council Medal have been recommended.

RECOMMENDATIONS FOR THE COUNCIL MEDAL.

Among the numerous samples of Raw Produce contributed by different countries, there are several collections of especial value, which derive additional merit from their completeness, and from the fact that they illustrate

great; and the Jury, therefore, being desirous of express-ing their approbation of the practical benefits to be derived from the formation and study of such collections, and the advantages which the commercial and manufacturing community may obtain by their means, have determined to recommend the award of the Council Medal to the Governments of those countries the natural produce of which were thus so instructively and completely exhibited.

The Jury have, accordingly, recommended the award of a Council Medal* to the Honormania East India COMPANY for the very valuable and important collection of the raw produce of the Indiau empire exhibited by them (pp. 876-878), which illustrates in a remarkable manner the vast and putural resources of that empire, and places before manufacturers a number of valuable new or little known substances, many of which are likely, hereafter, to become considerable articles of import,

The Jury have, on the same grounds, recommended the award of a Council Medal* to the Tructon Government for the very valuable and important collection of the raw produce of the Turkish empire (p. 1386), shown in the Turkish Deportment, and which, from its cateut and completeness, is most interesting and instructive. Both this collection and that of the Hon. East India Company derive odditional value from the fact, that the specimens are not merely picked samples of fine produce, but really represent the average quality of each article; and also from the exhibition of specimens showing the different degrees of goodness, and the comparative superiority or inferiority of the productions of different districts

A Conneil Medal has also been awarded to the Government of Spain* for the valuable and extensive collection of raw products, illustrating the natural resonrees of that

country (pp. 1337, 1338).

The Jury have also recommended the award of a Council Medal* to the French Mixingren or Wan for the very complete and well-arranged collection of Raw Produce of Algeria (p. 1259), remarkable for excellence in many respects, and affording a good example of the progress and improvement of a young colony—in the ame-lioration of the native productions, and in the successful introduction and enltivation of new branches of industri - by the judicious application of practical science to the development of the raw materials used in various manu-

After comparing together the various American cotton, and contrasting them with those of admiration of the nurivalled excellence of the long-staple cottons of the United Stotes, depending not merely on the length, strength, and silky fineness of the fibre, but being also due to the improved modes of culture, cleaning, and packing—the results of long experience and repeated efforts. The Jury found it quite impossible to decide between the minute slades of difference of the individual bales of cotton; besides which they considered that the merit was due not to any one exhibitor, but rather to the cotton-planters of America generally: they, therefore, recommended the award of a Council Medal* TO THE GOVERNMENT OF THE UNITED STATES for the excellent samples of long-staple cotton shown, which exhibit such marked and superior excellence as to leave hardly any further improvement to be desired (p. 1431). On the same grounds the Jory were desirous of testi-

fying their sense of the peculiar value and excellence of the felting wools (p. 1005), adapted to the manufacture of the finest kinds of cloth, which are exhibited in the Austrian Department, by recommending the transmission of a Council Medal* TO THE GUVERNMENT OF THAT And with regard to the superior quality of the raw ailks shown in the French Department, the Jury, by their recommendation of the award of the Conneil Medal* to the "Central Society of Sericiculture of France,

* Owing to technical objections, these Council Medals were not passed by the Council of Chairmen.

the trade and manufactures of an entire country. The have desired to testify their admiration of the specimens importonce of such collections, not only in a coromercial, exhibited by many members of that Society, and their but in a statistical and scientific point of view, is very appreciation of the importon influence which it has eaereised in the improvement of this beautiful and valuable product of the animal kinedom.

Two other collections, though not quite analogous to these, were, for similar reasons, deemed worthy by the Jury of the highest commendation, and have been ac cordingly recommended for the award of the Council Medal; namely, the collection of Messrs, Lawson of Ediuhurgh, and the series of Liverpool Imports. The former consists of a most complete and well-arranged collection of the vegetable productions of Scotland, value of the whole mainly depending on the excellent systematic summer in which the specimens are arranged and classified; the careful and accurate information which accompanies the different samples; the manner in which the practical uses of each raw product are shown and illustrated; and the valuable catalogues which have been drawn up by Messrs, Lawson,

The LIVERPOOL COLLECTION OF IMPORTS Class XXIX... p. 803), though it does not of course represent either the exports or the imports of any individual country, is nevertheless, owing to the extensive trade of that port, and the large number of imports which it includes, a fair repre-sentation of a very large portion of the commerce of the country: like the preceding collection of Messrs, Lawson, it derives much of its practical value from its son, it derives much of its practical value from its arrangement, and from the useful information which accompanies each specimen. Much valuable knowledge, which no book can give, is to be obtained from the attentive study of this collection, as the different pro-ductions of various countries are, in it, placed side by side, with a memorandum appended to each, showing the quantity of it imported into Liverpool during the last ten 1 core

The Jory also recommended the award of a Council Medal to the 'Royal Society for the Improvement of the Cultivation of Flax in Ireland' (p. 203*), for their persevering and successful efforts to improve the growth and preparation of flax in the British empire. The Jut believe that the rapid and progressive advance which during the last dozen years, has been made in the cultivation of flax in Ireland, is mainly, if not entirely, due to the exertions and influence of this valuable institution.

In the class of vegetable raw produce, the following subject was found to be of sufficient importance, in the opinion of the Jury, to merit special commendation, namely, Mexcen's Process for Medifying the Fibre of Cottoo (Class XVIII., 48, p. 56); this was considered so valuable and so important a discovery that the Jury determined to recommend it as worthy of the distinction of a Council Medal. The process, itself, consists principally in steeping cotton in a dilute solution of caustio sods, the effect of which is, to after the physical and chemical properties of the fibre in a very remarkable manner, causing each single fibre to reassume, to some extent, its original character old microscopic appearance exchanging the ribbon-like or tlattened appearance which cotton ordinarily presents, for one of a more or less dis-tinetly cyliodrical character. The shrinking of the fibre which is thus caused, whilst it produces a most remarkable difference in the appearance of all woven fabrics, does not at all decrease its strength, but, on the contrary, renders it even stronger. At the same time that these physical alterations are produced, the chemical oature of the cotton is likewise modified, and its relation to colouring matter and mordants is changed in an equally remarkable manner; the prepared cotton taking the dyes more easily ond fir more perfectly than that which has not heen prepared, so that the colour dyed in the same vat is Among the vegetable charcoals which this Jury were quested to examine and report upon, they found worthy of special notice the following series, exhibited in France.

Class III., lo whose Award List it is inserted.

^{*} Owing to technical objections, this Council Medal was not passed by the Council of Chairmen.

+ This Medal was given conjointly with the Jury of

No. 1404, by M. POPPLIN DCCARRE (p. 1243); vis., specimens of prepared charcoal in cylindrical masses, called 'charbon de Pariss' specimens of carbonized twigs and small branches of trees and of carbonized tan, accompanied with models of the machinery employed in

the manufacture of the prepared charcoal. The first merit of the ingratious invention here illustrated, and that which renders it of special importance in countries dependent on wood for feel, is the modification of the ovens for carbonizing, without incineration, those small ligaeous portions of plants and shrubs which had previously been of no value in the formation of charcoal, and were regarded as the waste of the forest; this mode of carbonization is equally applicable to underwood, furzebushes, cane-brake, and even to the refuse tan of many manufactures. The charcoal thus produced, together with the dust from ordinary charcoal magazines, is then converted into a kind of artificial coke, in a manoer analogous to that by which coal-dust has been for many years past converted into similar fuel in Eugland. The produce of the ovens in M. Popelin Ducarre's extensive works is pulverized, mixed with a certain proportion of coal-tar or gas-tar (gondron de honille), and monided into small cylinders, which are a second time submitted to carbonization. The machinery effecting these purposes is remarkable for its ingenuity and efficiency; and the result is a regular, solid, hard, heavy, but porous the result is a regular, solid, mard, neavy, but porous charcoal-coke, which is used with economy and success, as is amply testified by the Reports of the "Central Jury" of the Exposition at Paris in 1849, of the "Society of Encouragement," and of the "Central Society of Agri culture," of France, and by the written testimonials of many eminent manufacturers in France, requiring large quantities of an economical fuel. The "charbon de Paris" is peculiarly adapted for those manufactures in which a low and long-sustained heat is required to be maintained, and it is sold at a rate one-fourth cheaper than ordinary charcoal.

The Jury, appreciating the value of this invention of the ingenious Exhibitor, especially to countries which, like France, are not abundantly supplied with coal, have recommended the award of the Council Medal to M. POPELIN DECABLE.

Amongst the series of wools shown in the French Department are specimens characterised by a well-skilled English Expert as "a wool of singular and peculiar properties—the hair glossy and silky, similar to mobalr, retaining at the same time certain prosperties of the merinhred." This woul is exhibited under No. 245 (p. 1185), the distribution of the produce of a peculiar variety of the merino bered of sheep.

The Jary cotered icto an inquiry, not only into the commercial rales and application, but into the particulars of the production of this new kind of wool, and finding it to be one of the very few instances is which the origination of a distinct variety of a domestic quadruped can be satisfactorly traced, with althe circumstances attending its development well authenticated, a brief statement of these has been deemed appropriate in the present

Reporting year 1828, near of the crew of the flow, of mericons in the form of Machanian produced a run which became remarkable for the long, amouth, straight, and the like years are sufficiently observed as the flow of the work, and for the season of the control of the contro

long neck, narrow chest, and long flanks of the abnormal ogenitor, whilst others combined the ordinary and better-formed body with the fine silky wool. M. Graux, profiting by this partial resumption of the normal type of the merino in certain of the descendants of the malformed original variety, at length succeeded, by a judicious system of crossing and interpreeding, in obtaining a flock combining the long fine sitky fleece with a smaller head, shorter neck, broader flanks, and more capacinus chest. Of this breed the flocks have become sufficiently chest. Of this breed the flocks have become safficiently numerous to eable the peoprietor to sell examples of the hreed for exportation. The crossing of the Manchamp variety with the ordinary merino has also produced a valuable quality of wool, known in France as the "Manchamp-neeriso." The fine sikly wool of the pure Manchamp breed is remarkable for its qualities as comb ing-wool, owing to the strength as well as the length and fincuess of the fibre. It is found of great value by the manufacturers of Cachemere shawls, being second only to the true Cachemere ficece in the fine flexible delicacy of the fabric, and is of particular utility, when combined with the Cachemere wool, in imparting to the manufacture qualities of strength and consistence in which the pure Cachemere is deficient.

Although the quantity of the wool yielded by the Mauchamp variety is less than that given by the ordinary merinos, the higher price which it obtains in the Prench markets (25 per cent. above the best meriae wools*), and the present value of the hered have fully compensated M. Graux for the pains and care which he has manifested in the establishment of the Mauchamp variety.

The Jury, considering the quality of invention which has been superabled to the skill and industry requisite for obtaining the finer qualities of wool under any circamatances, in the development of the new variety of sheep yielding the specimens exhibited in No. 245, have recommended that the Conneil Medal be awarded to J. L. GRACK.

The most remarkable progress in the economical extmetion and preparation of pure gelatines and glues from the waste remnants of the skins, bones, tendons, ligaments, and other gelatinous tissues of animals, has been made in France, where the well-organised and admirablyarranged establishments for the slaughter of cattle, she and horses in large towns, give great and valuable facili-ties for the economical applications of all the waste parts of animal bodies. Among the beautiful productions of this industry, the specimens exhibited by its chief origipeculiar approbation. They include different kinds of gelatine is this layers, adapted for the dressing of stuffs, and for gelatinous baths, in the clarification of wines which contain a sufficient quantity of tannia to precipitate the gelatine; pure and white gelatines cut into threads for the use of the confectioner; very thin white and transparent sheets called papier glace or ice paper, for copying drawings; and finally, a quantity of objects of luxury or armaments formed of dyed, silvered, or gilt gelatines, adapted to a variety of purposes, and to the fabrication of artificial or fancy flowers. M. Grenet, narication of artificial or faircy flowers. M. Great who was the first to fabricate on a brige scale, out of various residues of animal bodies of little value, these beautiful and diversified products, many of which had previously been derived from singlass, has been deemed by the Jury to meet a special antice in the by the Jury to merit special notice in the present section of the Report, and they have recommended to him the award of the Council Medal.

A considerable number of collections of my preduce from various countries are exhibited, each including a number of different specimens, many of which, taken singly or in groups, are of importance, either from their norely, their superior excellence, or the locality from which they are sent; the Jury considered it most navisament of the properties of the properties of the contraction of the properties of the properties of the following collections respectively; --

According to the able Report of M. A. Yvart, Inspector of the Veterinary Schools and National Sheepfold of France, p. 42. To Hon, Lieut-Colonel Buttrawonth, Governor of Prince of Wales' Island and Singapore, for a collection of raw produce from Singapore and the Straits (876-890). To Major F. Jeskiss, Chairman of the Assan Committee, for the collection of the raw produce of

Assam.

To the Admicultural Society of the Cape of Good Hore, for the collection of the raw produce of that coleny (No. 1 to 55, pp. 950, 952).

colony (No. t to 55, pp. 950, 952).

To the Presupert of the Montreal Committee, for the collection of the timber and other woods of Canada (80, pp. 963, 964).

Canada (80, pp. 963, 964).

To the Royal Agricultural and Commercial Society of Bayrish Gulana, for the collection of the raw produce of that colony (977).

To His Excellency Lord Hanats, Governor of Trinidad, for the collection of the raw produce of Trinidad (pp. 973, 973), To His Excellency Sir W. T. Dentson, Governor of

To His Excellency Sir W. T. Dentson, Governor of Van Diemen's Land, for the collection of the raw produce of that colony (p. 903). To Mesers, W. P. Hammond and Co., for a collection

of the raw produce of Siam and the Indian Archipelago, including fine specimens of caoutchoue, gutta perchapsamboge, gutus and resins, terra japonica, shells, ivory, isinglass, &c. (2, 988).

To the COLONIZATION AISURANCE COMPORATION, per

W. B. P. Wood, for a collection of the raw produce of Western Australia (988).
To Sid Manno'n Benyad of Tunis, Commissioner

for the Government of Tunis, for a collection of the raw produce of that country (1412).

To Anura Havin of Alexandria, Commissioner for

the Government of Egypt, for a collection of the raw produce of that country (1408).

To the President of the Maryland Committee.

for a collection of specimens of the principal raw produce of that state (U. S. 371, p. 1459). To the Admiculturenal Board of Valencia, for the collection of raw produce (173, 209, pp. 1339 & 1342).

To the Academica List, 205, pp. 1939 to 1928.

To the Academica Holan or Saracossa for the collection of raw produce (148, pp. 1937, 1938

To Sir Roman Schommung, H. M. Consul to the Dominican Republic, for specimens of the raw produce of

that republic (1428).
To the Royal Technological Institute of Tuscant, for the collection of the raw produce of that country (47, p. 1294).

PART I.—VEGETABLE KINGDOM. From the fact that the Exhibition is the first attempt to

bring together a complete collection of the natural raw produce of all parts of the globe, and from the very different views which were entertained in various countries as to the nature of the Exhibition, and the kind of substances which it was desirable to collect and exhibit, it necessarily follows that the collection, viewed as a whole, is very incomplete. In some cases, abundant and numerous specimens have been sent of all the various kinds of raw produce, constituting the staple productions of the country, their value and importance having been evidently felt and neknowledged; whilst, in other instances, it is apparent that the mere raw materials of any manufacture have been regarded as of comparatively little importance, and are consequently either not shown at all, or else are but imperfectly and inadequately exhihited, in the form of small or inferior samples. This cirenmstance, whilst, on the one hand, it has perhaps somewhat diminished the labour of the Jury, has, at the same time, rendered their task even more difficult than it would have been had the entire collection been more uniform and complete. It is therefore necessary to bear in mind, that as the duty of the Jury was only to consider and decide on the individual merits of the different specimens exhibited, so it necessarily happens that in some cases they have to report,—as being the best sample shown,—a specimen of second-rate quality, and one, even, decidedly inferior to what is often met with in commerce as an import from some other country, specimens of which,

however, do not happen to be shown in the Exhibition. Every substance was examined carefully sud considered separately; and in awarding a prize, it was only compared with substances of a similar nature. It is, of course, evident, that the award of a medal to two different things does not infer that they are of equal merit or importance; but, merely, that each taken separately, and mon its own merits alone, was found worthy of high commendation and approval. It is also right to observe, that as the value of any sample of raw produce does not rest merely on its own intrinsic superiority, but depends on a number of different circum-stances, which may modify its value; so, even a secondrate sample, either from a new locality, or prepared by a new and more advantageous method, may have more real merit, and be more fully entitled to favourable mention, than a superior sample possessing no peculiar novelty, and deriving its excellence rather from accident than from either the skill or the ingennity of the producers. These remarks apply to all the classes of subjects brought under the consideration of the Jury; but in no instance do they apply more strongly than in the case of gums and resins

Secreton I,—GUN AND RESEN SERIES, A great deal of practical inconvenience and confusion

to exacely to the indiscriminate names in which the terms that be an extractly the anticipate of the districtions englept in instance in the distriction englept in the security of the distriction englept in the calculation of the contract of the distriction expects of the contract vegetable accusations which could be contracted to the contract vegetable accusations which could be contracted to the contract vegetable accusations which could be contracted to the contract vegetable accusations which contract the contract vegetable accusations which contract the contract vegetable accusation is sufficient to the contract vegetable accusation of the contract vegetable accus

"Com," properly so called, it mod in large quantities for a number of purposes in the arts: it is presently disformed to the property of the property of the company of t

common turpeutine, are used as sources of the volatile oils. Gum resins are chiefly used in medicine. The total quantity of "gum" imported into England in 1848 and 1849, as shown by the Custom-house returns, was,—

Arabic 24	eta, Cuta. .092 33.136
	404 6,577
Copel and anime (resins) - 2	958 4,315
Tragacanth	234 314
Total St	,618 44,342

The largest import of gum, therefore, is of Arabic, and under this head a considerable variety is probably included; the countries from which the 33,136 cwts. were imported in 1849, are as follows:--

The East	Indi	e)n	Emp	te	-	-	13,687	
Egypt	-	-	-	-	-	-	6,232	
Moroeco	-	-	-	-	-	-	6,064	
South Afr	rican	C	olonic	4	-	-	4,876	
Italy -	-	-	-	-	-	-	664	
Gibraltar	-	_	-	-	-		460	
Aden	-	-	-	-	-	-	397	
Australia	-	-	-	-	-	-	372	
France	-	-	-	-		-	212	
Miscellan	cours	-	-	-	-	-	172	
	Tes	tet		_	_	_	33 135	

Of the resins and oleo-resins, the most important are trippetitive and lac. Of the former, 412,042 evts, were imported in 1849, nearly the whole of which was brought from the United States. The quantity of fac imported in 1849 was 14,786 ewts.; of this, 14,556 ewts, were the produce of the East Indian empire.

The collection of resists exhibited by E. Biza (116), and "he was "he was a state of the collection cased by a state of the collection of the collection cased by a state of the collection of t

the "latest loop gam," a dark red brittle William reals, and the "yellog came," on energy velor real medium and the "yellog came," contage yellow rein recombing different real medium and the "yellog game," in the said, may be that its larger than the proposes being in some respects uptor as good, if no intermediate the proposes being in some respects quite as good, if no in the manufaction of the fine error of sending-wax; the vax which separate during the purposes of the loss in the manufaction of the loss of the said of the sa

A series of the ardinary torpentines of commerce in shown by Excutors 19 ATTENT CAMPINES CONTANT OF IIII (6), p. 10°7), accompanied by samples of rosin, and refused to the properties of the series of the series of the series of resin are by no means find-rate; they serve sorrely as of resin are by no means find-rate; they serve sorrely as with in commerce. The collection also centains a number of samples of oils and oil-secols (see page 8°4). The Jury december the whole series worthy of Boosonrishe

Some very capital specimens of various resins and gumersins are chibited in the interesting collection of the Loxido David Traini (Class II. 117, p. 199). These are reperially valuable because several samples of each substance are shown, those of first-rate quality being constant of the residual promoterial products. The Jury considered this part of the series well worthy of Ilonomable Buestion.

copia, mino, houri pum or New Zenhari copia, damone:

In the very admirable and instructive collection of many and instructive collection of many and instructive collection of many attention to common tarpention, and near or anothersche, manife, draw-series of genus, revine, and generates. The chief of genus proints, and generates. The chief of genus proints, and generates. The chief of the contractive collection of the contractive collection of genus, revine, and generates. The chief of the contractive collection of genus, revine, and generates in the following Table, the last two versus the series of the contractive collection of genus the substance which has distinct revisions growthered from the Martholman and the collection of genus the Martholman and the genus the substance which has distinct revisions growthered from the Sartholman and the substance which has distinct revisions growthered from the Sartholman and the substance which has distinct revisions growthered from the Sartholman and the substance which has distinct revisions growthered from the fact we consider the substance which has distinct revisions growthered from the Sartholman and the substance which has distinct revisions growthered from the substance which has distinct revisions growthered from the substance which has distinct revisions growthered the

Name.			Plant which	jield	it.				Whence I	mpce	ted.	1819	1850
Ammoniscum								-		-		Tons.	Total Cat
Ammonacum	-	-	Dorema ammoniacum	-	-	-	-	-	Bombay	-	-	- 14	17 0
Assafertida	-	-	Hymenous courburii -	-	-	-	-	-	**	-	-	- 14	17 0
2nd ouslity	-	-	Narthax assafetida -	-	_	-	-	-	19	**	-	-1 7	2 0
2nd quanty	-	-	n " m - 7-	-	-	-	-	-	19	**	-		
Bensolu (drop)	-	-	Bowellia thurifera -	-	-	-	-	-	19	-	-		-
Bensoln	-	-		-	-	-	-	-	Singapore	-	-	- 4	7 0
" let quality -	-	-	77 29	-	-	-	-	-	**	-	-		-
,, 2nd quality -	-	-	,, ,,	-	-	-	-	-	99	-	-		-
" 3rd quality -	-	-	,, ,,	-	-	-	-	-	te.	-	-		-
,, 4th quality -	-	-	., ,,	-	-	-	-	-	**	-	-		-
Black-boy resin	-	-	Xanthurhora arborea -	-	-	-	-	-	Swan Hive	-	-		-
Burgundy pitch	-	-	Abies excelsa	-	-	-	-	-	Hamburg	-	-		0 10
annda balsam	-	-	Abies balsamea	-	-	-	-	-	Quebec -		-		0 17
'acutchouc	-	-	Siphones elastica -	-	-	-	-	-	Maranham	-	-	- 40	500 0
Copaiba balsam	-	-	Copaifers sp	-	-	-	-	-	Para -	-	-	- 7	11 0
opal, African	-	-	Hymenga so. (?) -	-	-	_	-	-	Sierra Leon		-	- 14	17 0
Copul, New Zealand -	-	- 3	Dammara Australia -	-	-	-	-	-	New Zenlas	иI	-	- 14	17 0
Copal, Brazil	-			num	_	-	-	-1	South Ame	rica	-		81.0
Dragon's-blood	-	-	Dracons drare	-	-	-	-	-	Calcutta	-	-		0 18
Dragon's-blood (tears)	-	-	Doretten ammoniacum	-	-	_	_	-		_	-		0.5
Elemi	-	-						- !	Hamburg		_		0 17
Franklacense	_	-	Ables excelsa	-	_	_	-	-	_	-	-		0.6
jamboge, pipe		-	Hehradendron	-	-	-	-	-	Africa -	_	_		
ambore lump	-	-							Siam -	_	-	-! -	-
Guniacum	-	-	Guaiacum officinale -	_	_	_	_	-	Jamaica	_	_	- 4	-7 0
ium-arabie	_	-1	Acacia vera, Arabica, a	nd of	her	mee	Cs	-	Turkey -	-	_	27	32 0
ium-arabic elect	-	-1								_	-	-! -:	- 1
Gum-barbary	-	-	Acacia gummifera (?)	_		-	-		Mocadore	_	_		1 -
ium-comrawuttee -		-1		=	=	_	_	- 21	East Indies	-	-	- 14	17 0
inm-gedda	~	-	77 79	_	_	-	_	- 21	Gedda =	_			1 17 0
ium-seneral	-	- 21	" "	. ´ .				-71	Africa -				-
Sum-tragacanth, or drag	on	-	Astrogalus gummlfera a	and e	ther	ener	les	-		Ξ			15 0
Gutta percha		- 2	lsousadra gutta	6		-Loc		- 21	Singapore	=		200	280 0
ac stick			Coccus lucca						Calcutte	=			280 0

Name.			Pla	at wh	och y	ield	s it.			- 1	Whence Impo	eted.		1849	1850
Lac, lump	_		Coccus laces	_	_	_	_	_	_	_	Calcutta -			Tons.	Tres Car
Lac. seed	-		Correspondent	-	-	=	-	- 5		- 51		_	-51	10	16 0
lac, plate	-		PF PF	-	_	-		-	-	_	,,	-		10	10 0
ac, liver plate	-	-	19 10	-	-	-	-	-	-	-	, -	-	-	-	-
ac, nver pance = =	-	-	19 29	-	-	-	-	-	-	-	" -	-	-	-	-
ac, garnet	-	-	19 19	-	-	-	-	-	-	-	19	-	-	-	-
ac, livery orange -	-	-	39 90	-	-	-	-	-	-	-		-	-	-	-
ac. orange	-	-	** . ** .	-	-	-	-	-	-	-		-	-	-	-
dastie	-	-	Pistacia lentisco	us nu	id at	lant	lica -	-	-	-	Constantinople	-	-	-	0.15
dyrrh	-	-	Balsamodendror	n my	rrha	-	-	-	-	-	Persian Gulf	-	-	-	0.30
Myrrh	-	-	**			-	-	-	-	-	Turkey -		-	-	-
Hiteanuro	-	-	Bowellia thuris	ferra.	-	-	-	-	-	-	East Indies -	-		-	5 6
ern balsam	-	-	Myrospermum i	berni	ferm	m	-	-	_	_	Lima	_	-		0 5
tosin, American	-	_ '	Abies sp. and I	inus	600	-	_	_	-		United States	-		600	500 0
tosin, American, pole	_	_		-	30	=	=	-	-	- 51	Chited Council	-	- 51	(0.4)	
Sandarach, or Juniper	_	- 5	Callitris quadri	nated.		_	_		_	-	Mogadore -	_		-	-
Seammony, Virgin -	_	_	Convolvatus ser			-	-		-	- 1	Smyrna -	-	-	-	-
cammony, virgin =	-	-	Convolentas ser	WINGSHIP	(36511)	-	-	-	-	-	Smyrna -	_		-	
	-	-			-	-	-	-	-	-	United States	-	-	-	0.15
arpentine	-	-	Pinus palustris	-	-	-	-	-	-	-	United States	-	-	100	120 (
Carpentine, common -	-	-	10 10	-	-	-	-	-	-	-	**	-	-	300	175 €
urpentine, 2nd quality	-	-		-	-	-	-	-	-	-		-	-	100	100 0
fellow gum	-	-	Xantborbon ha	utilis		-	-	-	-	-	Swan River	-	-	-	-

la the collection of imports, exhibited by the Hell. COMMITTEE, there are samples of common turpentine and of rosin from the United States; of the former, about 30,000 harrels, and of the latter, about 2,000 harrels are annually imported into Hall. Tarpentine is separated by distillation into oil or spirit of turpentine, sometimes called camphine, and resin or colophony. In its raw state

tarpentine is of very little use; it is chiefly important as yielding those substances. The collection of gams and resins exhibited by the East India Company (pp. 376, 377) is very extensive and interesting, and forms an important division of the great collection of the raw produce of the Indian empire, für which the Jury have recommended the award of a Council Medal. The series is so numerous, and many of the substances which it contains are so little known in Europe, that it would hardly be possible, at present, to give any detailed report on the individual samples. In the following remarks, therefore, only a few of the more striking substances are noticed, whilst a great number of substances are necessarily reserved for fature study and investigation. Even a slight examination of the natural raw produce of India shows the immense resources of the country; and when we remember the varied and abundant productions which may be had in almost unlimited quantities, and at very little more trouble than the mere cost of collection (for in such a soil and climate nature needs but little artificial aid), it is not saying too much to assert that no portion of the globe is more highly favoured by nature, or more able to supply those substances which minister to the wants and luxuries of mankind. With a fertile soil and a generous climate, vegetation of all sorts is rapid and luxuriant; and as labour is cheap and abundant, everything seems most favourable to agriculture and the growth of all vegetable products. There are, however, several great obstacles which have ever retarded the increasing prosperity of India, and which present the most serious difficulties in the way of its commercial development; especially the inert, care-less, and indifferent habits of the natives, confirmed and kept up by religious peculiarities and long-established prejudices. Not only are the natives of India wholly ignorant of the value of many of the natural productions of the empire, and therefore quite indifferent to their very existence, but at the some time, also, the manufac-turers of Enrope being anacquainted with many of these substances, or being ignorant that they may be had in almost unlimited quantities from our eastern possessions, do not avail themselves of the advantages which are in fact within their reach. Many of the natural productions of India will unquestionably become important articles of trade to this country, when their vaine is better known; and this result, whilst advantageous to our own country, will, at the same time greatly benefit India, and will lead to the construction of good roads, or other modes of transit, by means of which, internal traffic,

and the speedy, cheap, and safe carriage of merchan-dize may be effected. The continued and persevering efforts of European skill and capital, will no doubt in time, to a great extent, remove or diminish these obstacles; but, in the mean time, the evil effect which they produce on the natural advantages of the Indian empire is enormous.

Among the East Indian resins there are some interesting specimens of lac; the sample of shell-hie in large, thin orange sheets is of very superior excellence, and is altogether far alove any met with in commerce.

The specimens of lac from Singapore, which is stated

to be abundant in the jurgles of the Peninsula, but has not hitherto been collected as an article of commerce, though not first-rate, are still highly commendable, and worthy of encouragement. The Jury deem them de-serving of Honourable Me, ion,

Good samples of lac are also contributed from Bombay : from Ganiam, by A. P. Onslow: by G. G. Nicol, from Siam; from Nepal, by His Highness the Managart of Name: from Nepas, ny 1110 Higginges the Namanasan on NEFAL: from Beerthloom, specimens of the two varieties called bain and chanch; and from the Rajpootana States, samples of bur-lar, or lee produced on the Fiew indica, also lae from the Fiew religious, Ziegphus jujuba, and the Acacia concinna or Mimosa abstergens. An interesting series of samples from Assam, illustrating the formation, collection, and ases of lac, is contributed by Dr. C. HUFF-NAOLE. For this series, together with several other small collections of raw produce shown in illustration of the native manufactures of India, the Jury awarded a

Prize Medal to Dr. Huffungle.

The samples of gutta percha from Johore, Malay penin-sula, contributed by W. Kern, of Singapore, together with the illustrations of the native modes of working the substance, and the purposes to which it is applied, are interesting and important. It is to be regretted that the same careless and wasteful mode of collecting this valuable substance, is, for the most part, still employed, as was originally the case when it was first introduced into Euoriginative the case when it was first introduced into Eu-rope eight years since by Dr. Moutgonerie, of Singa-pore; namely, recklessly earting down the large trees for the sake of a few pounds of the substance; from this, it naturally follows that the tree gradually becomes less abundant, and, consequently, ere long the price of the substantial control of the price of the substantial price o article will probably increase so much as to preclade it altogether from being used for many purposes. The Jary awarded a Prize Medal for this series. Some of the first samples of gutta percha (Isowandra gutta), sent over to the East India Company by Dr. Montgomeric, and for the introduction of which he received the Gold Medal of the Society for the Encouragement of Arts and Manufactures, in 1843, are exhibited by Col. Bonner of the East India House.

The specimen of gutta trap from Singapore, a sub-stance evidently allied to gutta percha and caoutchone, and employed there in the manufacture of bird-line, is

interesting. It is stated to be the inspinanted juice of an Astecarpus; and it is highly peculiade that there are a number of similar veperation productions, such as the analysis of the productions, such as the different productions, such as the different production of the producti

The samples of caoutelone or India-rubber are of considerable interest: those from Sumatra and Java, in particular, are deserving of notice. A considerable unmber of specimens of enoutehoue from different localities, and prepared in different manners, is shown by Dr. ROYLE (p. 869), including samples of India-rubber, obtained from the Ficus elawica in Assam by Captain Veitch, and some prepared by Dr. Scott; and a portion of the wood and juice of the Urccelo elastica, from Singapore, is contributed by W. BROCKEDON, as well as a vonug plant of the Ficus elastica. A good series of samples of the different forms of India rabber, commonly known in commerce, is also exhibited by Messrs. Mackistoni, in commerce, it must extinute a by Mesers. MANNISTON, in-illustration of the various useful und beautiful applica-tions which are made of it in the arts. Many of the specimens of East Iodian caoutehooe, however, show that unfurtunate "tackiness" which so greatly dimi-nishes the value of some forms of Iudia-rubber. The samples from Assam, in particular, illustrate the great importance of care and attention in the preparation of enoutchone: the specimens sent over some years since by Captain Veitch are of excellent quality, and bave not undergone any chaoge since they have been in England. They were evidently formed from many successive layers of sup, each layer being allowed to dry before a fresh one was applied. On the other hand, many of the more recent specimens are sticky and in a partially decompos-ing state. These bave plainly been formed by the congulation of a considerable hulk of the sap rapidly collected; a little time and attention have thus been saved, but at the sacrifice of the most useful properties of the caoutehoue. All samples of Iudiu-rubber from new localities, where

there is any poolsability of a large quantity being obtioned, are valuable. One specimen, purpristed attration, and the speciment of the speciment of the time dependency of the speciment of the specimens, as the specimens, as a specimen of the specimens of the manufacture of the specimens of the specimens of the specimens of likelyshey. It is of a dark-laws recloser, coppier every list this pieces, is hard and oneswhat and present of likelyshey. It is of a dark-laws recloser, coppier every list this pieces, is hard and oneswhat heat is beling water it is perfectly insulability, but in becomes soft, which, and remarkably sixtly and ablowly. The specimens of the specimens. I make a law the specimens of the specimens of specimens of the specim

or guita perioda.

This remarkation unleature appears to be a hydroThis remarkation substance appears to be a hydroThis remarkation femonthene and guita previous
in chemical composition, but considerably different from
both in phyrical characters. It is said to be used as a
comean for joining metal, fastening buile-handles, &c.;
and there is little dools that it in mish be advantageously
employed for a great number of purposes in the arts.
Culcitomaton correlat a minute and carried examination;
under series; and the Jury have necordingly awarded a
Prins Wedal to Mr. Exiltor's for its attroduction.

Excelent samples of the different forms of contribute meanly net with in commerce, are thorn by LOKINGTON, these, and Co. Class XXVIII., 77, p. 1785); and the state of the commerce and the state of th

The sample of stragon's blood from Sumatra, called Heroduccan, being of superior quality, was deemed worthy of Hugourable Meution.

Animors the other cellections of games and review, the specimens shown by J. Lorz, Log. (5p. p. 609, &c., and specimens shown by J. Lorz, Log. (5p. p. 609, &c., and contributed by Hill Highest her Harman Protipes in the Daesa reconsidered by Harman Protipes in the Daesa theory, the turpertine from Churra Protipes in the Daesa from the Shown reduced, from the Protection and from Blausuphore; the Theether resis, from Arraeut; the Kredu resis, from Aones, contributed by Jajor Halsayat, the Dammer, from Malacea, Sumatra, Java, and other places, discrete meters. The numerons arries of resists,

of these are as follows:-

	Meruka.
3.	Morkubong.
4.	Mintangor Jenki
5.	Klabit.
6.	Singat.
7.	Menliorut.

^{6.} Singut.
7. Menliurut.
8. Godob.
9. Samyang.
10. Uras mara.
11. Liong sundok.
12. Mana kuchio.
13. Saruk balachaa.
14. Neranli boya.

18. Rusult.
19. Garmyong.
20. Salutong.
21. Kandis.
22. Rabac-rior.
23. Gutta percha.
24. Taboo
25. Gayn.
26. Bulao yok.
27. Gutta biotangor.

Nopok.
 Meng kabang.
 Miniak kapur.

In the following list the chief Indian gums and resins, &c., are necessarily placed under one common head, as, without a minute examination, it would not be possible to class them more accurately.

Babool gam, gond babool, &c., obtained from the Acaria arabica, or babool tree; an inferiur sort of gumanabic from Bengal.
 Cattie gam, a variety of the babool gam, largely.

 Gattie gum, a variety of the babool gum, largely produced in the Decena, Coucan, and Gusreat; well known in commerce as East Indian gum-arabe; u specimen is also contributed from Bombay.
 Kheir gum, the produce of Acucia catechy.

closely resembling the preceding; from the Rajpootana

 Jumma jegota (Acacia leucophlara); from Vizagnpatam.

 Keekur gond, babool tree (1 arhellia farmesiana); from Bengal; both closely resembling the babool gum, and consequently varieties of arabic.

 Wood-apple gum, obtained from the wood-apple, or Feronia elephantien; from Vizagapatam; a good and useful gum.

7. Margosa gam, from the margosa tree (Melia azadirachta); from Madura, Tinnevelly, and Palameottah; inferior. 8. Mallaga jegota, from the Moringa pterggosperma;

from Vizagapatam.
9. Pagada jegoto (Mimuopa eleagi); from Vizaga-

 Tanjada jegota (Cassia anriculata); from Vizagapatam. These three appear likewise to be suft, with difficultly soluble, and inferior gams.
 Ballee gond, or spurious tragacaath, obtained from

the Streedia urras; sent from Bombay.

12. Kutecra (Cochlospermon goasypium), like the preceding, a sort of inferior tragacauth; contributed from

13. Vatoria reain, an excellent reain obtained from the Fateria indica, from which it exudes as a halam in a semi-fluid state, constituting the peynic variabit; it soon becomes hard when exposed to the sir. This resin is shown both in the fluid state and also when solidified:

from Malabar and Canara.

14. Dhoon, or Saul dammar, a good resin ahandantly obtained from the soul tree (Shorae robusta), common in the northern parts of Hindostan; contributed by his Highness the Manaadan of Nepat, and from Bengal and Blagatlpore, in the Moorshedshold district.

 Soundroos, or copal; imported from Africa through Arabia, and often called anime. 16, Guggilam (Vatica tembugaia); from Canara and imgapatam (p. 876). 17. Tendoo resia (Diospyros sp.); from the Raipootana

CLOSS IV.1

- 18. Gaup resin, obtained from the Gaup tree (Embry-
- opteris glatinifera); from Ilhagulpore. 19. Mekae-sta Dittoona, or Kerela resia; from Assam. 20, Odina resin, a resinous substance obtained from the Oding Wodier; from Calcutta and from Meerut 21. Narceda jegota (Eugenis jambolana); from Viza-
- 22. Olibanum, saleh gond, Lobaa (Bouvellia thurifera); from Chota Nagpore, and Patna 23, Cumbi resta, or Dikamali (Gardenia Iscida): from
- Rombay. 24. Dammar (Dammara orientalis); from Malacca, Java, Sumatra, and Borneo.
- 25. Jiliadi pulu (Culotropis gigantes); from Vizagapatam.
- 26, Ammoniaeum; imported from Arabia. 27. Assafatisla (Narthax assafertida); imported from Persia and Siadh.
- 28. Bdellium (Ameris comminhera, Balsamodendron Anglocky). Of this two or three varieties are exhibited : the solid gum resin, and an eleo-resin or balsam, said to be obtained from the same tree; the former in frequently met with in commerce, being falsely called "myrrh,
- and sometimes under the name of " galbanum. 29. Myrrh; imported from Africa through Ambia, &c. 30. Dragou's-blood; imported from Aden, also from
- 31. Gamboge; from Singapore, Mysore, Canara, &c. 32. Camboley (Merus indica); from Paulghat.
- 34. Manndi jegotn (Mangifera indica) 35. Dadinin jegota (Punica grasatum); from Vizaga-
- 36. Benzoin (Styrax benzoin): from Sumatra; specimens of a similar resin, also called benzoin, are contributed from Malabar and Canara. 37. Storax; from Rajpootana states
- 38. Turpentine (Pinne Khanyana); from Churra Poonice, in the Dacca division, and from Ullwar,

- 39. Moochrus (Bombax heptaphylla), a gum; from Calentta hoznars.
 - 41. Manjegota (Fiers indice): from Vizagapatam, Atti jegota (Fiena racemosa); from Vizagaputano.
 Nepalapi pulu (Jatropha curems); from Vizaga-
- patam and Ganjam. 44. Coorg resin, a pale green and very excellent resin; from Coorg, contributed by His Highaess the RAJAH of TRAVANCORE. It seems to deserve further inquiry and
- examination, as it might probably be well adapted for varuishes, &c. Besides these, a very considerable aumber of other
- Indian retins, gums, and gum resins, is included in Dr. Royle's extensive enlection of the raw produce of ladia; amongst these are many of the preceding ones, and also the following: -
 - 45. Galbanum; from Surat. 46. Cherry gum (Prense puddum); from Surat
- 47. Sem ke gond, or gota gond (Bashisia Fahlii); from Devra and Ilajpore. 48. Labdanum, or ladun (Cistus ladeniferus); from
- Surat. 49. Mastie, or mustagee (Pistacia Iratiscus); from Caubul
- 50. Scammony, or sukmoonyn (Cenvolvulus scammonia): from Surut. 51, Knauee gond, or jiagun ke gond (Icica resinifera);
- from the Khera Pass 52. Toon ke gond (Cedrela toona).

53. Sohunjae ke gnud (Morison ptergosp According to Mr. Thomas, the "gum" o " of Coimbatore is a mixture of various gums and resins: he mentions twenty-fuur different plants, the natural exadations of which are collected; and be observes that they are said to be nearly all collected promisenously, and sold in the aggregate as gum—the mass being, of course, very impure; but that, when dissolved in a large quantity of water, and straiged through a fine cloth, it yields a solu-tion from which a good and very adhesive gum may be ultained by evaporation. The plants from which these various substances thus associated together are collected, are, according to Dr. Wight-

Vilvey pissin -	_	_	_ '	Ægie marmelos	_	-	- (Good arabie.
Avarum pissin		-	-	Cassia auriculata	-	-	- 1	Brown and soft.
Vullam pissin	-	_	-	Feronia elephantus	m	-	- 3	Good arable.
Vel Vails marom	_	-	_	Acacia ferruginea	_	-	- 1	Inferior.
Vavpum marum	-	-	-	Melia azadirachta		_	- 1	Tolerable,
Man marom -	_	-	- 1	Mangifera indica -	_	-	- 1	laferior.
Curvaiala marum	-	_	- 1	Acacia arabica	-		- 1	Inferior.
Ellipie marum	_	-	_	Bassin longifolia	_	-	_	Inferior.
Yellandle marum	-	-	- 1	Ziayphus jujuba .	-	_	- 1	Not a true gum.
Murungoo pissin	_	_	_	Moringa pterygosp	werm		- 1	Soft, difficultly soluble.
Kerray yaugay m	arm		- 1	Acacia odoratissim	10		_	Tolerable.
Vellay nagah naa	nm	-	- 1	Conocarpus latifoli		_	- 1	Tolerable.
Choar Kullie mar	um	_	-	Soymeda febrifuga	,	_	_ !	Tolerable.
Mullee vemboo	-	_	-	Meila azadirachta		_	- 1	Inferior.
Vellay bootslije	-		_	Stereulia ureno	_		- 1	Inferior tragacanth,
Vengay marum	-	-	_	Pterocarpus marsa	min	m	- 1	Inferior kino.
Kedawah persh	_	_	_	Chloroxylon Swiet			_	Inferior.
Cat colugeo maru	DI.	-	-	Bombay malabaric	um		_	Good colour, but inferior
Carabemboo mare		_	_	Garuga pinnata	_	_	_	Inferior.
Vunny marum	-	_	-	Prosopis spicigera			_	Good arabic.
Curun Gallie may	20.00	_	_	Acacia sandra	_	-	_	Very good arabie.
Vidah vullle mae		_	_	Vacbellia farnesia	na .		_	Soft, red, Inferior.
Wadallee marum		_	_	Acacia estechu				Inferior.
Peru morato -	Ξ.	Ξ	=	Ailanthus excelsa	=		Ξ.	A resin.
Woody marum				Odina Wodier	_		Ξ	Tolerable.
Nacyallic marum	Ξ	=		Cordin Rothii -	Ξ.	=	= 1	Inferior.
	_	_	-	Colum Motibit -	-	-	-	· mer ior .

From this list it is evident how much the value of the good gum must be deteriorated by the inferior gums and resinous matter mixed with it : a little care in the collection, only the better sorts being chosen, would be amply repaid by the increased value of the article.

The very remarkable wood-oils and native varaishes of

India, obtained from various species of Diptercarpes, beisng properly to the "resin" series, and may therefore be mentioned here in connexion with the balsams and alco-resits. These eurious substances, though fluid

when first obtained, soon harden and solidify (p. 876); they constitute the basis of the best Burmese and other eustern varuishes and lacquers. Specimens of the Thetsee, Melanorrhaa multatissima, employed as a lacquer, from Arracan; of the Themakthn, also used in Arracan, in the manufacture of papier-mache work, and in rendering umbrellas water-proof; and of the Garjua, or wood-oil, from various Dipterocurpi, from Madura, Tinnevells, Chittagong, Pegu, and Mahurmanee, are shown. The or varnish-tree of the llurmese, is spread Theet-see,

over a wide runge of country attending from Naniper (Le 2) N, long of 19th, 10 Tarvey (at 18 N, long, 10 th, 20 N, long) and the N N, long, 10 th, 20 N, long of 19th, 10 Tarvey (at 18 N, long, 10 th, 20 N, long of 19th, 20 N, lo

straight stem of more than 40 feet to the first branch, and a circumference of 13 feet and upwards.

Samples of the empyreumatic oil of teal-wood are contributed by W. P. Houstaw, from Palameottab. Two remarkable oils, apparently analogous to the wood-uils, are contributed from Coorg, but without any information; one of these, a thick blood-red oil, is stated to be ob-

tained from the Bettlern incertain.

Interesting specimens of the "Galanish" or engleInteresting specimens of the "Galanish" or engleInteresting specimens of the "Galanish" or englehighly electured in the East as a perfinne or incense, are
shown in the Bast as a perfinne or incense, are
shown in the Bast Indian collection. This reasonable
wood, which comision is large, quantity of an electiferous
pelage, and in produced by the Abecyslen angulacture,
Loars, when heated it undergoes a sort of imperfect
the price in Sountain is about 30 fpc ext.; inferior
specimens are lakewise contributed from Malesca. EagleAculture annihelot in Shiet. The tree cangle-wood is

however, very scarce.

The specimens of African gums and resins from Aden, sent by the Boxnav Consurrer, and exhibited in the East Indian collection, are reunrhably fine. The samples shown are varieties of myrth, ollusum, dragon's-blood,

and gum-ambie.

The collection of gums and resins exhibited by T. A.
Pigras, of Kandy (p. 938), is interesting a unfortunately, it is not accompanied by any botanical or statistical information, which considerably diminishes its practical value. The specimens shown are labelled—

Diwol gum.
 Devul gum.
 Gokhuto gum.
 Kekuna gum.
 Danmar.
 Kohombe gum.

7. Othium gam, 8. Kes gum, 9. Ilick. 10. Gamboge. 11. Hildumusele gum. 12. Cadjie gum,

Of these specimens is may be observed that No. 2 seems to be executed upon "arable;" No. 7 resembles inferior game-arabe; and No. 1 appears to be a variety of "Cherryrome arabe; and No. 1 appears to be a variety of "Cherryton" of the property of the property of the protor of any great value; No. 10 seems of the programbore; No. 10 is gambore, probably obtained from the Historica consologistics, and No. 12, though it and 7, is remarkably pure and of good colour. The Jury decount this series worthy of a Pine Moda, in conjunction with the cellection of all from Cryston, also shown Very few specimes of Alfricas games or exists are Very few specimes of Alfricas games or exists are

Very few specimens of African guns or resins are shown. A tolerable snaple of the gun of Aerical horizin, shown. A tolerable snaple of the gun of Aerical horizin, of Good Hope, is exhibited by \$22. From the Cape of Good Hope, is exhibited by \$22. From the Cape of Good Hope, is exhibited by \$22. From the Cape western coast. There are also shown in the sample of western coast. There are also shown in the sample of vestern coast. There are also shown in the sample of vestern coast. There are also shown in the sample of vestern coast. There are also shown in the sample of vestern coast. There are also shown in the sample of vestern coast. There are also shown in the sample of vestern coast. There are also shown in the sample of vestern coast. There are also shown in the sample of the vestern coast. The sample of the sample of the sample of the vestern coast. There are also shown in the sample of the vestern coast. The sample of th

incense, and called Omm-el-harker, or "the mother of

bleasing."
T. B. Dicours (49, p. 980) exhibits a fine sample of anime, said to be abundantly produced by the simiri, or locust-tree, on the river Berbice: this was deemed worthy of Honourable Mention.
A specimen of Hawai gam, a variety of frankincense.

J. S. Sturenmar (46, pp. 979, 980). Fine specimens of anime from the locust-tree (Hymenou corrierit), from Arima (p. 973), and also of incense (Trichila trisitesis), are shown in the collection of raw produce of Trinidad, southly his Excellency Loan Harnis,

the Governor (see p. 71).

Several good specimens of recin and guars are shown in the Australian and Van Dienere's Land cellections in the Australian and Van Dienere's Land cellections, including the guars of the black and after wards, don't all carries and the contract of the Carrier of the contract of the contract of the contract of the Carrier of the contract of the contr

The resums shown by J. Millican, of Flinders' Island, Bass's Straits, including specimens of the "Black-boy gmm" (Xauthorhea resin, 81, p. 994); the foe pale resin of the Oyster-bay pine (Callitris Australis), from the eastern coast of Van Diemen's Land, and the Acada sucrosata gum, also from Flinders' Island (234, p. 997), were likewise deemed worthy of Honograph Mention.

A fine sample of Kauri, or cowrec copal, the produce of Danmera Asstralia, a very beautiful resis from New Zealand, exhibited by W. Baown (16, p. 1001), was deemed worthy, by the Jarry, of a Prize Medal. It is stated that this resis may be obtained, in any quantity, in the northern parts of New Zealand, ranging from 20 milet worth of Airckhaul to the North Cape. A small sample of worthy of Honoumble Mettion.

Some excellent specimens of lae, benjamin, dammer, gutta percha, and caontchour, &c., from the Eastern Archipelago, are exhibited by Messrs. W. P. HAMNON and Co. (p. 988), in the collection of raw produce, for which a Price Medal has been nwarded by the Jury (see p. 71).

Dr. FERCHTWANDER, of New York (469, pp. 1464, 1465), has shown a very excellent specimen of bleached shell lac. This was deemed deserving of Hononrable Mention.

In the Mexican collection is a sample of a remarkable orange-colonred resin, called Pipitzahuae, but of which no particulars are given.

The Egyptian collection of raw produce, for which, as a whole, a Prize Medal has been awarded by the Jury (see p. 71), contains some good specimeus of gum (120, 121, p. 1409). The selected gum of Seunaar is of excellent quality, and was deemed worthy of Honourable Mention. The purified turpentine shows by J. F. Egyra's, of Bor-

deaux (214, p. 1184), prepared by a patent process, was found to be excellent, and therefore deemed worthy of Hosourable Mention.

A fine sample of copal, from Angola, shown in the Portuguese collection by F. R. Batalha (458, p. 1313),

rortuguese consection by F. R. BATALRA (498, p. 1313), was also deemed worthy of Honourable Meution.

An excellent series of specimens of turpentine, and of the resine and volatile oil obtained from it by distillation, is shown by Froms, Caldesson, & Co., of Barros (241).

grants Google

It was deemed deserving of Honourable British gam. In February, 1842, Mr. Colman took ont 1314). In the Turkish collection, very good samples of the ordinary guans and resins for commerce are shown, in-cluding the following:

he following:				
1. Gum-aral	bic -	-	-	Egypt.
2	-	-	-	Tripoli,
3. Gum-tras	cacanth	-	-	Damascus.
4		-	-	Sparta.
5. Gum che	rry-free	-	-	Damascus.
6. Caramani		-	-	Konish.
7. Pine rosi	n -	-	-	Asia Minor.
8. ,, ,,	-	_	_	Smyrna.
9. ,, ,,	-	-	-	Brocsa.
10	-	-	-	Koniah.
II : :	_	-	-	Berkoftcha.
12	Ξ	-	-	Wellschia.
13	-	-	-	Tripoli.
14. Mastic		-	-	Scio.
15		-	-	Keniah.
16. Sandarac	h -	-	_	Kaissarigh.
17. Storax		-	-	Smyras.
18 lic	trid -	-	-	Asia Minor.
19. Balm of	Meeca	-	-	Mecca.
20. Labdann	m -	-	_	Rhetipo.
21. Libanum		-	-	Arabia.
22 Posin (2)		_	_	Amatolia

The samples of arabie and of mastic are excellent, is stated that the resin from Anatolia is used for making the handles of knives, and for similar purposes.

STARCH SERIES.

In examining the starch series, or rather the starch and starch-gum or dextrine series, the Jury have only taken notice of those substances prepared especially for manufacturing purposes, or which they conceived might be advantageously employed by manufacturers. have altogether passed over those forms of starch and form intended, specifically, as articles of food, or which, from their cost or the mode in which they were prepared.

would not be suitable for the former purposes.

The specimens of starch from rice, exhibited by Messrs. ORLANDO JONES & Co. (Class III., 128, p. 208, are remarkably good. Rice contains, on an average, about 84 per cent- of starch; but, till comparatively a few years ago, no starch was manufactured from it, notwith-standing its low price and the large quantity of starch which exists in it. The reason of this was, that the old process of fermentation, by means of which starch is proenred from grain, was not found to be applicable to rice; and hence the latter only became available as a source of starch in 1840, when Mr. O. Jones introduced his new process, for which be obtained a patent. This process consisted in macerating the rice for about 20 hours in a dilute solution of caustic potash, coataining about 200 grains of the atkali in every gallon; the liquor is then drawn off, the rice dried, reduced to powder by grindiag, then a second time digested in a similar atkaline lye for 24 hours, repeatedly agitated: after this it is allowed to settle, and well washed with pure cold water. The Jury awarded a Prize Medal to Mr. O. Jones for his rice

Mr. S. Berger (Class III., 130, p. 268), of Bromley, Mr. S. Benoux (Class III., 130, p. 208), of Bremiley, also exhibits starch prepared from rice, which is of similar excellence, though said to be prepared in a different manner. It place of employing a dilute colution of caustic potash to dissolve the "gluten" and other insoluble matters of the grain, Mr. Berger ness n solution of carbonate of soda, containing half-a-possed to the gallon The rice is steeped in cold water for 48 hours; levigated in a suitable mill; and the pulp thus formed is treated with the solution of carbonate of soda for 60 or 70 hours. being repeatedly stirred: it is then allowed to settle for some hours, the alkaline liquor is drawn off, and the starch is washed and purified. This process was patented by Mr. Berger in December 1841. The Jury awarded a Prize Medal to Mr. Berger for his rice starch

A third series of samples of rice starch, also prepared y a different process, is exhibited by Mesers. J. and J. Colman (Class III., 117, p. 207), who also show good specimens of ordinary wheat starch, and dextrine or

a patent for the manufacture of starch from rice, by the action of dilute muriatie acid, which was employed for the same purpose as the caustic potasti and carbonate of soda in the patents of Messrs, O. Jones & Berger. The samples exhibited by Messrs, Colman are excellent, and the Jury consequently awarded to them a Prize Medal,

Some very good specimens of starch and starch gum are exhibited by R. G. Treagan, of Leuton, near Notting-ham (Class III., 121, p. 207). The former in the state in which it is used by the Nottingham lace-dressers; the latter, as it is obtained by the action of a carefully-graduated temperature in starch; fit for the use of dvers, who use it to give body and thickness to the colours which they employ in dyeing cotton, woollen cloths, and silk, they emptoy in dyening cottons, wootien citotis, and silk. It is also used by paper-stainers, or printers; and as a elecap but strong grun in the manufacture of adhesive labels. The specimens shown by Mr. Tacker are ex-tent, and the Jury awarded to bim a Prize Medal. In the proceeding cases, account bas licen taken not

merely of the superior excellence of the samples of starch, but at the same time the Jury have also takes into consideration the novelty or ingeauity of the process, and other circumstances which appeared to them to demand once virconstances which appeared to them to demand peculiar notice. The specimens shown by Messrs. Baows & Potsox, of Paisley (Class III., 123, p. 208), con-sisting of several varieties of starch and dextrine from wheat, potato, and sugo, are good, and deserve Honourable Meution. The preparation of starch from sago, or rather the purification of sago meal, which consists chiefly of starch, in now carried on to a very considerable extent. Messrs, Brown & Polson appear to have been the first to employ ehemical means in bleaching or improving the colour of sago-meal, and by the introduction of certain improvements in this process they succeeded in rendering the hleuched starch more perfectly soluble in water than it is in its ordinary state. The samples exhibited by it is in its ordinary state. The samples exhibited by Mesers. Recurr & Son, of Hull (Class III., 125, p. 208) of the same substances, are also deserving uf Honourable Mention. The other samples of starch shown in the English Department are all good; and several of them. indeed, judged merely for quality alone, are excellent. indeed, judged merely for quality alone, are excellent, Some very beautiful starch, prepared from sago, is shown by R. WOTHERSTOON, of Glenfield, near Plaisley (Class 111, 124, p. 208). The Jury deem these, and likewise the samples of potato-starch shown by E. Tecker, of leelfant (Class 111, 122, pp. 207, 208), each deserving of Honourable Mention.

The Jury also deem worthy of Henourable Mention the specimens of starch shown by Messrs. Shand and Muckarr, of Montrose (Class III., 126, p. 208); and that of A. Stickhouse, of Perth (Class III., 154, p. 193*).

As excellent series of specimens of starch from various sources is exhibited by Messrs. D. and W. Millen, of Musselburgh, near Edinburgh (Class III., 127, p. 193*). The Jury considered these, as well as the specimens of starch and dextrine shown by C. Cooney, of Dublin (Class II., 70, p. 200%), and those of H. C. Jennikou, of London (Class II., 99, p. 197), severally deserving of Honourable Mention

In the collections of the Honourable East India Con-PANY (pp. 874, 875), there are several samples of storch for manufacturing purposes; and there is little doubt that they might be prepared in any quantity, and sent over at a low price, as the Rainh of Vizianagram states that any quantity of excellent arrowroot may be had in the northern Circurs for about 4s. (d. per cwt. The specimen of Marana starch, or arrowroot, of Messrs. Cocknuss, of Moorshedalud (pp. 874, 875), is particularly fine, and the Jury accordingly awarded to it

a Prize Medal. The Cassava starch, or fecula of the Jatropha, hibited by Messrs. SPEEDE, of Culcutta (pp. 874, 875),

was also found to be remarkably good, and the Jury accordingly awarded to it a Prize Medal. specimens of sago, and sago-meal or flour (pp. 874, 875), obtained from the sago-palm, Arerga succharifera (Suguerus Rumphii), are contributed from Sumatra, Singapore, and Cuttack,

Besides these, good examples of similar kinds of starch are exhibited by T. Oxtav, of Siegapore (sp. 84, 878), from various parts of the Indian Archipelage, Bornes, Moluccas, Java, Singapore, &c., and by other individuals from Caleutta, from Assam, from Cuttack, Vizagapatam, Tenasserim provinces, Bhattaghlerry, &c.

Some good specimens of starches are also shown in the Ceylon Department (p. 937), especially arrowroot,

and the fecule of the Jatropha; repeated and the fecule of the Jatropha; From Western Africa, a fair sample of arrowroot, together with the plant from which it is obtained, is shown by Warwick Weston (1, p. 952).

In the Canadian Collection, J. PRENDERGAST (125,

In the Canadian Collection, J. PARNDERGAST (123), p. 966) exhibits two specimens of starch, apparently irepared from wheat, one being white, and the obsecoloured blue, for domestic use. These are both very good, and the Jury deemed them worthy of Honourable Mection.

A specimen of starch from potatoes is also shown by BRUNDER & SHIPTON, of St. Hilaire (128, p. 966). This also was deemed worthy of Hononrable Mention.

In the excellent collection of raw produce from British Guitans, sent over by the Breat A materixers at ASS (Science, 1987), there are visual as a first Bedalice p. 17), there are visual as a first Bedalice p. 17), there are visual as a first Bedalice p. 17), there are visual as a first Bedalice p. 17), there are visual as a first Bedalice p. 17), the product these are, starch from the bitter essaws, and arrowners, propared by H. T. Gasartar, of Henrichten places are produced by the production of the production of price places in the production of the production the sweet ensures, plastatian and heek yam, from the cautern coast of Demention of the production of the prod

ablo Warnest a FIRE sercon.

Very fine samples of arrow root and other starches are shown in the collection of Trinidad raw produce, transmitted by the Guerreno, Lord Hansus. The sampless of coastra or Jatropha starch, arrowroot, and Telman claims or Jatropha starch, arrowroot, and Telman claims of the same starch, are considered specially to deserve Honourable Mention. It is stated that the cultivation of the casawa from which this starch is obtained is found to be every profitable, the vield

being from one to two tons per aere.

Two good specimens of arrowroot from Bermuda are shuwo: the Jury deemed that of — Grav (1, p. 971) worthy of Honourable Mention.

worthy of Honournile Mention.
Some fine arrowrost from Norfolk Island is exhibited
by Sir W. T. DENISON (25, p. 993), and a very good
sample of starch, apparently from wheat, is shown by
W. Mirasay, of Hobert Town (18, p. 993). The Jury
dermad both of these steecimens worthy of Honourable

The Dawego Stanch Factors, of New York (104, p. 1440), shows some samples of starch manufactured from maize or Iudian corn, of superior quality, for which the Jury awarded a Prize Medal.

Some very fine samples of pearl starch are also shown by W. COLEGATE & Co., of New York (301, p. 1453): to these, likewise, the Jury awarded a Prize Medal for excellence.

Au interesting series of flour and starch prepared from maize is contributed by B. B. Kietlann, of Greenhush, New York (84, p. 1438). Among these samples of the various products obtained from maize are specimens of oil.

Good specimens of dextrine or starch-gum are shown by 8. ENGLIMANN, of Karslinenthal, near Progne (Austria 22, p. 1008). The Jury awarded a Prize Medal for these preparations.

Several samples of starch are shown in the Belgian collection. Especially deserving of notice is the starch prepared from maize by C. Van Gestrauten, of Stamme (East Flunders 489, p. 1166). The Jury awarded to this a Prize Medial.

Very good potato starch, prepared from diseased potatoes, is shown by Docquin & Panrs, of St. Josse-ten-Noode, near Brussels (68, p. 1153). This was deemed deserving of Honourable Mention.

The samples of white and blue starch manufactured by H. BOCKEN & Co. (73, p. 1153); the potato-starch of C. VAN BUNNEN, of Bruges (74, p. 1153); and the potato-

starch of G. Beyckarnts,* of Tirlemont (78, p. 1153), were also good, and the Jury deemed them severally deserving of Honourable Mentium.

In the Freach Department there are several exhibitors of starch and starch-gum, derived from different sources. Anongst the specimens most deserving attention is the

starch shown by L. Riuz, of Cambrai (363, p. 1194): to this the Jury awarded a Prize Medal.

An excellent series of starches and dextrines, manu-

An executive series of wareness and dextrines, in manifectured for the use of calico-printers, in shown by J. J. STEINBACH, of Rouen (382, p. 1195): the Jury considered these of superior quality, and accordingly awarded to them a Prize Medal.

these of superior quality, and accordingly awarded to them a Prize Medal.

A very superior sample of starch is likewise exhibited by Belleville Baothems, of Nancy (1078, p. 1229); for this also the Jury awarded a Prize Medal.

for this also the Jury awarded a Prize Medal.
Good samples of well-prepared potato starch are shown
by H. LEBLASE, of Pont l'Abbé, Finistère (570, p. 1205),
and by L. LE PAISANT, also of Pont l'Abbé (590, p. 1206).

and by L. Le Passaw, also of Pont Pable (39), p. 1208), A good specimen of wheat switch is exhibited by Vazow A good specimen of wheat switch is exhibited by Vazow well-manufactured starches from wheat and pointoes are shown by H. Haszer, of Paris (109), p. 1238), and some excellent destrine by M. Accoxa, also of Paris (12), p. 1170). The Jary deemed these five severally worthy of Hommaalle Muttion.

Starch obtained from a species of Canaa (C. discolor) is shown by M. Chapta, of Kunba in Algeria (16, p. 1200). This, though exhibited really as an article of food, the Jury deemed worthy of Hunourable Mention in coanexion with the other forms of starch suitable for

manufacturing purposes.

A considerable number of specimens of starch, &c., are shown in the collection of the Zollverein States, and several of them are of excellent quality. In particular, the wheat starch manufactured by J. C. Haller, of Illale (509, p. 1088), is deserving of special commendation, and

the Jary accordingly awarded to it a Prize Medal.

The "improved" potato starch manufactured by A. C.
WELCKER, Of Wallersheim, near Coblesta (331, p. 1069), and said to be exteasively used for stiffening inuslin, is:
likewise highly deserving of praise, and the Jury, then

fore, awarded a Prize Medal to it.

The Jury also award a Prize Medal to A. Wentz and Co., of Bonn (333, p. 1070), for their superior potato starch.

Samples of wheat starch, manufactured by A. T. Krusz, of Straisund (19, p. 1949), C. G. Kranstra and Soxs (128, p. 1955), and by Beast and Körtra, of Libseck (827, p. 1995), were severally deemed worthy of Honuurable Mention.

ands atention.

Marches prepared from potatoes by L. von Uzeltattz, of Midhiradilitz, in Silevia (21, p. 1692), by L. Elepsential, of Newwice (200, p. 1692); and the sage and central, of Newwice (200, p. 1692); and the sage and vere also decende, each of them, deserting Hamouroble Mention. Some good samples of potatos starch, and starch guin, are also shown by the Louiso Factors at Magdeburg (594, p. 1688).

In the collection from the Netherlands, three exhibitors of starch appear especially deserving of notice. The samples of starch manufactured by C. C. Patss, of Wormerveer (12, p. 1143), are excellent, and the Jary accordingly awarded to them a Prize Medal.

The specimens of potato starch, and dextrine prepared from it, exhibited by SCHÖNNYELD and WESTERBAAN, or Gouda (13, p. 1143), were also judged superior, and a Prise Medal was accordingly awarded for them.

A capital sample of potatu starch is likewise shown by Vissua, Noler, and Co., of Scheidam (15, p. 1143). This the Jury deemed worthy of Hunourable Meution.

Amongst the small series of the natural productions of the natural production of the natura

^{*} Awarded also by Jury of Class III,

of Honourable Mention.

Some good samples of starch are shown by D. G. MIRAT, of Salamanen (128, p. 1337).

Two specimens of starch in the Portuguese Department are found to merit notice, namely, the starch from Estrenusdura, exhibited by MM. Holdeche (454, p. 1313), and the starch from Alemtejo, Evora (453, p. 1313); the Jury deemed both these deserving of Houourable Mention. In the Russian collections, there is a good sample of potnto starch exhibited by Yunghesson, of Marieno, in the government and district of Navgorod (72, p. 1368); the government and district of Navignion - 2-2, to many, ulso a specimen of destrine prepared from potato starch, in the district of Shazk, government of Tamboff, exhibited by the Prince V. Volkonsky (70, p. 1363); some samples of starch and dextrine, manufactured by Verman and Co., of Moscow (30, p. 1367); and some excellent

wheat starch exhibited by C. ROTERNAN, of Reval (71, p. 1368). The Jury deemed these, severally, deserving SECTION 2 .- OIL SERIES.

Notwithstanding the great importance of oil, and the number of purposes to which it is applied in the arts and manufactures, comparatively few English exhibitors have contributed specimens, independent of those sent in illustration of the manufacture of caudles, all of which, as already stated, have been referred to Class XXIX. This is certainly remarkable, when we remember the large quantities of oil annually imported, and the extensive use of it in the arts of enadle and soap making, for hurning in lamps, for diminishing friction in machinery of all kinds, - and especially for locomotives ;-in wool dressing, in the manufacture of paints and variables, as an article of food, for medical purposes, &c. Oils are generally divided into the fat or fixed oils, and the essential or volutile oils; the former class being again subdivided, into fixed greasy oils and drying oils; and, lastly, the fixed greasy oils are separated into those which are usually fluid at all ordinary temperatures, and those which are generally solid, the latter being called tallows, butters, or solid vils. The quality of any oil depends, in part, an the nature and goodness of the seed or unit from which it is expressed; but it is influenced far more by the process employed in its extraction; the value of the oil for many purposes depending on its purity, or the consequently being greatly affected by the conditions under which it is expressed, the mode in which the seed is crushed, the kind of press employed, and, above all, the temperature at which it is pressed.

Among the oils (of which there is a very great number), there are several which are admirably suited for various purposes, but which, nevertheless, on account of their price, depending, generally, on local circumstances, such as cost of freight, &c., are very little or not at all used by our manufacturers. The knowledge, however, that such oils may, at any time, be procured in large quantities, is of great practical value; because, not only is it possible that, by the introduction of improved machinery, or by increased facilities of conveyance, their price may be reduced; but the very existence of such substances tends to equalize the market value of those oils now generally employed-and should, at any time, accidental eiremistances cause the price of the latter to advance, these substances would then be most advantageously introduced. and would probably, ere long, altogether superseds the oils in the place of which they had been originally im-ported. Thus the price of tallow is, to some extent, regulated and kept in elseck by that of palm and coccuant oil; and should the value of the latter nils at any time rise, there are a number of other solid vegetable oils. equally good for all practical purposes, which with a very little trouble might be had in almost any quantity. There are, however, some special purposes in which oils are used, for which it would not be so easy to had good substitutes; such, for example, as the lubrication of fine machinery, and the operations of the wool-spinner. It is probable that, among the numerous little-known oils of tropical countries, there may be many as well smited for both of these purposes as those now generally employed;

siderable practical interest. Whilst, on the one hand, it is desirable to draw the attention of manufacturers and consumers to the numerous foreign and colonial oils not at present imported into this country,-it is at the same time also useful to point out how greatly the value of such oils depends on the care bestowed on their preparation, especially as regards cleanliness of the seed, and the exclusion of impurity of all sorts in the process of extracting the oil.

Of the six principal vegetable oils, namely, palm, eccoanut, easter, clive, linseed, and rape, the first four are imported in the state of oil, only; the two last chiefly as seed: the proportion in which they were imported in year 1850, is shown in the following Table; and if to these quantities are added about a million and a half ewts, of tallow, and about 20,000 tons of whale oil and spermaceti, they will nearly represent the total quantity of oil imported into Great Britain.

						Linseed.	Rape-seed.
					- 0	Qea.	Qrs.
From	Roperin	-	_	-	- 3	482,813	3,235
	Sweden	-	-	_	- 1	870	-
	Norway	-	_	-	-	268	-
	Denmark	-	_	_	-	37	3.092
	Prussia	-	-	_	-	87,273	645
	Dame To	wns	_	-	-	1.153	2,872
	Holland	-	-	**	-	7,734	201
	Naples	_	_	_	-	1.476	-
	Austrian	Ten	Itos	See	-	40	2,480
	Greece	-	-		_	- "	1,637
	Wallachia	600	1 11	olde	cla.	910	1,280
	Egypt		-	-	-	17,517	-
	I set India	n F	meri	re	-	26,142	13,126
	Miscellan			-	-	262	922
	To	te l	_	_	- [606, 435	29,450

The quantity of the four principal vegetable oils annually imported into Great Britain is shown by the following Table:—

	1618	1849	1850		
Palm Oil = Cocos-nut Oi Cestor Uil Olive Oil =	- 510,218 cwts il 85,463 m - 4,588 m - 10,086 tuns	493,331 cwts. 64,452 " 9,681 " 16,964 tuns.	448,589 cwts 58,040 ,, 20,783 tune		

The proportion in which these oils were furnished by various countries in 1849 was :-

	Palm Oil.	Otive Oil.	Castor Oil
	Cwte.	Tuns.	Cuts.
From Western Africa -	475.364	1	-
United States -	13,349	- '	230
Naples and Sicily	14	9,661	-
East Indies	-	-	9.315
Canary Islands -	3,719	-	-
Malta		2,237	-
Turkish Empire -	-	1.712	-
Tuscany	-	832	-
Similar	} -	753	-
Brazil	595	-	-
lonian Islands -	-	566	-
Morocco	-	268	
Madeira	353	-	-
Sardinia	-	333	14
Miscellaneous -	7	461	65
Total	493,331	16,864	9,681

An interesting and valuable series of specimens of cotton seed, and of the oil and cake obtained from it after the expression of the oil, is shown by R. Bunn, of Edinburgh (Class III., 68, p. 204). The oil of cotton seed has been made in small quantities for a considerable number of years. In 1785, the Society for the Euconragement of Arts and Commerce offered a prize for its good specimens of new oils are, therefore, always of con- manufacture on a large scale; but it does not seem to have been then taken up extensively, probably in congenerate of the distally of participing. In I has, howexpected of the distally of participing. In I has, however, and the properties of the properties of the conlocation of the participation of the properties of the annual ratios. Of that years this oil has attracted a good and a rate of the properties of the properties of the proticed of the properties of the properties of the proticed of the properties of the properties of the proticed on many; it is only a lower for a reknowted an annuary; it has it have been a properties of the construction of the properties of the properties of the day of the properties of the properties of the proticed of the properties of the properties of the proticed of the properties of the properties of the proticed of the properties of the protensive of the properties of the properties of the protensive of the properties of the properties of the properties of the protensive of the properties of the properties of the properties of the protensive of the properties of the properties of the properties of the protensive of the properties of the prope

Modal.

Some very good numbered rape, offer, and almost oil, Some very good numbered rape, offer, and almost oil, p. 1907), including specimens of rape-seed, both of Eggs, p. 1907, including specimens of rape-seed, both of Eggs, p. 1907, including specimens of rape-seed, both of Eggs, p. 1907, including specimens of rape-seed, both of Eggs, p. 1907, including specimens of the period of the better sinted than any other oil, for the hillsen of the seed of the period of the pe

Specimens of purified oil, employed for Inbricating machinery, and in perfomery, are shown by F. Hillana (28, p. 197*). The oils are remarkably well purified, nearly colouries, and apparently devoid of all impurity; the Jury, therefore, us articled a Prize Medal.

Specimens of essential oils, including sweet oil of turpentine, me exhibited by Ilharun and Co. (62, p. 199*). Refused oil, prepared for the use of watch and clock taskers; and suitable for Inhricating delicate machinery, is shown by W. A. Haraure, (Class II., 80, p. 196). Good samples of linseed and rape oils are contributed by Md1:newnd Sone (Class III. 179). and

by M'GARAY und Sons (Class III., 132, p. 208).
Fine specimens of various volatile cisk, especially the oil of einnamon leaf, are included in the collection of the LONDOV DEAT TRAIN (CLASS II., 117); and a good sample of English attar of roses is exhibited by J. Ball (Class II., 116, p. 199).

Specimens of clarified oil for machinery, and for hurning in lamps, are contributed by W. A. Rose (Class IV., 27, p. 197*).

Samples of vegetable oils are shown by T. Peterson (Class III., 65, p. 204). A good specimen of blenched linseed oil, for the mannfacture of varnish, is exhibited by H. Penney (Class IV.,

64, p. 199*). In the collection of Excutsun's Patent Camphine Conpaxy (Class IV., 61, p. 199*), sheady alluded to, there is a number of samples of new and refused oils: these are valuable because they are accompanied by samples of the seeds from which they are extracted. The Jury deemed these specimens worthy of Honourable Mention.

seeds from which they are extracted. The Jury deemed these specimens worthy of Honourable Mention.

In the extensive collection of Lavergool Informs, there is a valuable series of oils, including among the valuable

1. Aniseed.	7, Citronella.	13, Nutmegs,
2. Bergamotte.	8. Juniper.	14. Orange,
3, Cassia.	9. Lavender.	15. Peppermint.
4. Carraway.	10, Lemons,	16. Rosemary.
5. Cloves.	11. Lemon-grass.	17. Rose.
6. Clanamon,	12. Neroll.	18. Thyme.

1910 1950

The collection of fixed oils consists of --

			- 1									ferto	1900	1
			-	_								Tone.	Tune.	
Poppy-	-500	d	-	Papavo	r semulf	CTUE	n –	-	-			-	3	1
Groups	d-n:	at	-	Arachi	s bypogn	·a	-	-	-			80	90	
Castor	_	-	-	Ricinu	s commu	nis	-	East and V	N'cat	Indi	es :	5	45	
Seed	**	-	- 1	**	-		-	Lisbon -	-	-	-		700	
Rape	-	-	-1	Brassic	a napue	-	-	Antwerp	-	-	-	6	15	
	-	-	-			**	-	Antwerp	-	-	-	3	5	
Olive	-	-	-	Oles et	аториса	-	-	Manilla -	-	-	-	36	8	
11	-	-	-	77	**	-	**	Barbary	-	-	-	2,785	2,330	
**	-	-		**	22	-	-	Malaga -	-	-	-	246	-	
11	-	**	-0	**	11	-	-	Levant -	-	-	-	1,243	2,100	
**	-	-	-	22	**	-	-	Corfu -	-	**	-	280	762	
**	-	-	-	**	12	-	-	f.eghorn	-	-	-	-	15	
11	-	-	-			-	-	Palermn	-	**	-	2,785	8	
**	**	-	-	**	**	-	-	Gallipeli	-	-	-	2,420	4,815	

The collection of oils exhibited by the HONOTRAILE EAST INIAL COMPANY is very extensive, and contains a large number of highly interesting specimens; it continues, in fact, one of the most important divisions of the very valuable series of Indian raw produce which they exhibit.

Anamong the volatile oils must be particularly specified the attar of roses contributed by H. H. the Razar or Jerroars, H. H. the Razar or Korran, and H. B. the Razar or Kurstscents in the lippotoans autes; for these the Jury severally awarded Prize Medial. Very apperior attar error of the contributed by appropriate that of the contributed by the Jury awarded a Prize Medial. The property of the Contributed by the Jury awarded a Prize Medial. Besides these species of oftar, or oil of roses, a number

Besates these species of attar, or oil or roses, a numer of other volatile oils are exhibited, many of which are very good; and also a series of artificial attars, or mixtures in various highly-scented volatile oils, with fixed oils, obtained in the manuer sometimes adopted in pre-

paring spurious attar of roses. Oil of aloes wood is contributed from Nepal, Rajpootana, and Ghazeepore; and oil of saffrom by H. H. the Razan or Korati (p. 878), from the Rajpootana states. Several good specimeos of the attar of keora, the

Severa good specificos of the state of a scora, increase pica, or Pondersa educationis, are contributed by II. II. the RAJAN or Korax and others (p. 87%). Some accellent attans prepared from various flowers are also sent by a native perfumer at Benares; the samples of Jannine attas, function groundlymen and J. another; the analysis of the state of the st

able Mention.

Grass-seed oil, obtained from the Andropoyou schurnanthus (or Culomus aromaticus), accompanied by a portion of the seed, and some of the drivel plant itself, are earl tributed from Malwa by R. N. HANLITON, resident at Indore (p. 878): these were deemed worthy of Honourable

Specimens of Sirri, or lemon-grass oil, Andropogon schoosathand are likewise furwarded from Sumatra. The fragrant volatile oil obtained from various species of andropogou is now extensively imported into England for the use of perfumers; it is brought from Travancer under the name of oil of geranium.

A series of attars from different plants is sent from

A series of attars from different plants is sent from Moluccas; but unaccompanied by any information: they are labelled:—

1. Kodjamas. 4. Pulasare. 7. Tjindor. 2. Ananas. 5. Goelang. 8. Abler. 3. Yailang. 6. Tjoelang. 9. Rampsiog. A good sample of oil of cloves is exhibited by T. Key

A good sample of oil of cloves is exhinited by 1. Agr of bladras (p. 678); some excellent oils of kayn-patch, or cajeputi, and miscassar, from the Celches, are shown by STED DAMI (p. 878); and a fine sample of sandalwood oil, obtained from Santalass allows, is contributed from Cauran.

Good specimens of sandal-wood oil are also contributed from Mangalore and from Coorg.

In connection with the volatile sile, an interesting speimen of the Barra (Bornes) campber may be mentioned. General three the supply of the property of the control three three three three three three three three the price of common, campbor. It is asid that the Chines the price of common, campbor. It is asid that the Chines the price of common campbor. It is asid that the Chines ordinary campbor of commerce with, however, is highly improbable; it is most likely valued for its supposed Situations (Constituting Line) and were deemed worthy

of Honourable Mention.

The collection of Read fat oils is even still more numerical The collection of Read fat oils is even still more numerical than the state of the Read fat of the Read f

Honoritana Earl Ivan Courast'—

), Seammon II. Seammon II. Three varieties of til, or Sommon releasely, no extendively cultivated throughout that for more statement of the properties of the particular throughout that for a "unfield," if white early a size of the particular throughout that the particular throughout the particular through the blazar of Varassavas (s. 6.30). The blazar of Varassavas (s. 6.30) or springely seed, in stance to be about 4 per too in the N Circus. The samples shown by the Countainstance of the particular through the par

2. Sizan-ti oil. An oil resembling that of the seasons, obtained from the seed of the Ceristees derfere, a plant introduced from Abystinia, and common in Bengal. Gangian, are slown. From the latter place there is sample of the oil obtained from another variety of Gazardia, the Values many, or Giordeo Asposition, which is ramied, or valuation seeds, yield about 34 per cent. of oil, in Visinangarum the oil is used exclusively for branching; its value there is stated to be about 164 gallon, other in the control of the contr

 Ground-nut nil, obtained from the seed of the Bhoe moong (Moong phullee), or Arachis hypogra, a plant proty extensively entireted in various parts of India, the seeke contain hout 4 per rent of a clear pole-yclico oil, which is largely used as food, and for lamps. Sumples of this oil are set from Hombuy by T. Ker, Yrom Maley, and from Malecea. Two varieties of the ground-sut, or Kanjing tunah, are cultivated in Malecea, the white seed, and the lower seed; specimens of these, as well as of the are cultivated in Malecea, the white seed are are exhibited. This plant is made cultivated in Jays, in the vicinity of sugar plantations, and the oil-cake is used as montre.

4. Oil of Kossumba, or Kosm-oil, a pale hrownish-yellow oil, obtained from the seeds of Carthumus tincturius, which coutain about 28 per cent. A good sample of this oil, as well as of the carthamus seeds, is sent from Bombuv.

Sommer, or oil of mustard. Excellent oil is expressed to various parts of India from the seeds of different parts of the parts of India from the seeds of different couled black mustard, &c. Specimens of mustard oil from Sinspir toria, from Mecrut; from black mustard, from Tanjore; from Sinspir solutor, from the Choix Napore division; and mastard seed from Ghazcepore, and various localities, are shown.

6. Castor oil, obtained from the seeds of Ricinus commais. Good specimens of this are exhibited from Tanjore, contributed by Mr. Bissior, from Beerbboom, Bellary, Madum, Tinnevelly, and Java (p. 879). The common jougle lamp oil, of which a sample is also shown from Tanjore by T. Bissiur, is a variety of castor oil.

Taijore by T. Bismur, is a variety or canor on.

7. Poppy oil, obtained from the seeds of Fapazer nonniferum. Good specimens are sent from Tanjore, by Mr.
Bisnor, from Calcutta, and from Boarbay (p. 679). Toe
sample from Taijore is alknost coloniess, and deserves
sample from Taijore is alknost coloniess, and deserves

special commendation.

8. Croton oil. Expressed from the seeds of the Narpaula, or Croton sp. nearly allied to C. Liglions; samples of this are shown from Vizinasgram and Gaiping, a very good specimen is exhibited by J. KEY (p. 879).

9. Poon-seed oil. Horeda, cooder, or Plonacottay oil. The seeds of the Poonay tree, the Calophyllon insphyllons or Alexandrian bawel, contain a large quantity of oil,

y. Promiseed cit. Horonas, concley, or Pforascettay, cit. 10 or Alexandras and Saray Contains a large quantity of oil, which constitutes nearly of per cent. of their weight. As commonly perpared, it has a dark greenish colour, derived many common temperatures; but begins to getating their common temperatures; but begins to getating when cooked below 70. Specimens of this oil are exhibited from Palasacettah, from Homolay, from Maiara, and by T. Bienero, from Tanglore (p. 879).

 Limbolee oil, obtained from the seeds of Bergera konsigii; it is of n rich-yellow colour, perfectly clear and transparent; from Bombay.

11. Napala oil, procured from the seeds of the Castimunda, Bhoge cheriola, or Jaterylov ervers; the angularleaved physic unt. A beautiful pole-yellow oil, used by the natives in medicina, and as a hump-oil. Good spenimens are centribated by the COMMISSANT-GENERAL OR MARINES; from Vidinagerian oil Ganjana; an inferior MARINES; from Vidinagerian oil Ganjana; an inferior 12. Lioseed oil—time oil. Contribated, tagether with samples of linesed, from Moorabeland, Bomboy, Patria.

sampes of inseed, from Moorhedsbad, Bombay, Patns, 13. Mulu unnay oil, expressed from the Brumadnodoc unnay, the seed of the Argenove mericana, an oil used in various parts of India for lamps, and in medicine. 14. Cheercojee oil, obtained from the Tumbi pullum, the fruit of the Chirospia aspida, or Bechanania latifolia.

the trult of the Carecopal suprola, of Disconnection tauty-ties.

15, Kanapa nune, or Kurrusyn oil, processer from the seeds of the Passawain falser, to Cardelpus aerborra; a broavy-brown and almort testeries oil, fluid and communication of the Cardelpus aerborra; a broavy-brown and almort testeries oil, fluid and communication of the Cardelpus aerborra; and almost testeries oil, fluid and Tamana.

16, Monteckel oil; Varon sampalon Nouve, obtained from the seed of Disclose bifures \(\text{tested} \) exhibited by T. Bismor (b. 8.79). from Tailors': a pole-vellow clear oil.

trom the free and a second property of the second property of the listor (p. 879), from Tanjore; a paley-ellow clear oil.

17. Caja apple oil; Moontha maunarity moone; expressed from the seeds of the Kaja inavia, or Assecution secidentale; contributed by T. Bisnor (p. 879), from Tanjore.

18. Poonga or Poon (?) oil, from the seeds of Sapindus

enarginatus? contributed from Taniore by T. BISHOP and W. B. Horser (p. 879), from Palamcottah. Mr. Horsley is Honourahly Mentioned. 19. Badum noone, almond oil; Terminolia sp. from

Taniore.

 Coodivetty Poondoo oil.—Allium sp. from Tanjore.
 Malkammee oil, Celastrus poniculatus f from Mudras.
 Nahor nnt oil; contributed by Major Hannar (pp. 879, 880) 23. Moringa oil; Moringa pterygosper

24. Shammanatic oil; contributed by W. B. Horser, from Palameottah (pp. 879, 880). 25. Hingun of Hingota.—Bulanites Egyptiaca, from Bombay.

26. Dessy akhroot, obtained from Alearites triloba, the country walnut, from Bombay. 27. Saul tree seed oil. - Shoreu robusta.

28. Chendoorookoo oil, from Madura and Tinnevelly 29. Coorookoo oil, contributed by the Commissions-GENERAL OF MADRAS, from Madura and Tinnevelly, (pp. 879, 880). 30 Koodree oil

31. The collection of oils also includes some ver interesting vegetable hutters and tallows, some of which are almost entirely unknown in Europe. The samples of cocon-nut oil from Messrs. Satsvire (p. 880), of Cossipore, have been already alluded to; besides these, very good samples are contributed by the COMMISSARY-GENERAL OF MADRAS, T. BISHOP (p. 850), from Tanjore; and by other exhibitors from Malabar, Maduru, GENERAL OF Tiunevelly, and Sarawak in Borneo,

Three species of Bassia, indigenous to India, yield solid oils; and are remarkable for the fact, that they supply at the same time, saccharine matter, spirit, and oil, fit for both food and hurning in lamps.

32. Ilpa oil, Eloopei unnay, expressed from the seed of the illupee tree, or Bassia longifolia, a tree abundant in the Madras Presidency, and the southern parts of Hin-dostan generally. The oil is white and solid at common temperatures, fusing at from 70° to 80°. It may be ad-vantageously employed in the manufacture of both

vantageously employed in the manufacture of both candles and sopp. Specimens of this oil are contributed by the Comminant-General of Madhama, (p. 880), and J, Ker (p. 880), and from Madura and Timere-Valiya-(79), and J comminant of the property of the special con-form this seeds of the mal-lower, or Basia latifolia, which is common in most parts of the Bengal Presidency. The oil a good deal resembles than of the Hipphe tree, and may be used for similar purposes. It is solid at common temperatures, and begins to melt at about 70° The specimens of this oil shows by T. Coptestone (p. 880), from Mangalore, were deemed worthy of Honourable

Mention; it is also sent from Canara. 34. Phoolwa, or vegetable butter, expressed from the seed of the eboorie, or Hassia butyraces, a tree, which though far less generally abundant than the B. losgifolia and B. latifolia, is common in certain of the hill districts, especially in the castern parts of Kemaon: in the of Dotee, it is so ahundant, that the oil is

cheaper than ghee, or hutter, and is used to adulterate it; enemper usan give, or muter, and is used to adulterate it; it is likewise commonly hurst in lamps, for which purpose it is preferred to econ-mut oil. It is a white solid fat, fasible at about 190°, and exhibits very little tendency to become rancid when kept. Specimens of this oil, as prepared for food, are shown from Kennann.

35. Miniak Tenkawnng, a solid oil of a pale-greenish colour, a good deal resembling the oils of the Bassia in character, though rather more hard, and approaching more in properties to myrtle wax. This is probably the produce of the tallow tree of Java, described by Sir S. Raffles under the name of minyak kawon; and hy Crawford, as being very common in the western coun-tries of the Archipelago, where it is called "kawan." Mr. Crawford supposes it to be produced by a species of Bassis. According to Mr. Low, there are several varieties of solid oil commonly used in the islands of the Archi-pelago, and obtained from the seeds of different species of "Dipterocarpus." It is a hard yellowish-green coloured substance, brittle, and fassible at about 35°, and when fused, solidifies at about 86°. Specimens are contributed by the

SINGAPORE LOCAL COMMITTEE. It is very easily bleached: indeed, by mere exposure to air and light, it becomes perfectly white; if not too costly, it promises to be a valuable oil. 36. Piney tallow, obtained from the fruit of the peynic

marum, paeuoe, dammar, or doop tree, Valeria indica, a large and quick-growing tree, ahandant in Malabar and Canara. A white, solid oil, fusible at a temperature of 97°. This oil makes excellent gandles, especially when saponified and distilled in the manner now adopted with palm oil, &c.; it has one great advantage over cores-nut oil, that the candles made of it do not give out any sufficienting acrid vapours when extin-guished, as those made with the latter oil do. Samples are shown by T. Corlessone, from Mangalore (p. 879), and from Malabar and Canara.

and from Malabur and Cunara.

37. Cocum où, or kokum butter, obtained from the seeds of a kind of mangusteen, Garciaio parpuraa, unced in various parts of the peniusual to adulterate ghee or butter, and said to be exported to England for the purpose of mixing with bears' greate in the manufacture of pomatum. It is a white, or pale-greenish manufacture of pomatum. It is a white, or pale-greenish yellow, solid oil, brittle, or rather friable, having a faint, but not unpleasant smell, melting at about 95°, and when cooled after fusion, remaining liquid to 75°. Samples of this oil are contributed from Bombay.

38. Kali ziri, or khatzum obtained from the seed of the cast siragum, or buckchie, Fernonia anthelminica, a plant common in Guzerat and the Concan Ghata; there is, however, some uncertainty as to the plant from which this excellent oil is obtained, the label on one of the specimens describing it as the produce of the Salendora persico. It is a bright green, solid oil, having a consistence intermediate between that of tallow and wax, fusible at about 95°, and easily bleached; it has a peculiar and somewhat aromatic odour. Samples of this oil are sent from Bombay.

39. Neem oil, Vaypum unnny, obtained from the ripe finit of the Nim, Arishto, Vaypum, or Margosa tree, Melia azadirachta; a large and beantiful tree, by no means uncommon. The oil is pale yellow, and is solid at ordinary temperatures. Specimens are contributed at oralinary temperatures. Specimens are contributed by the Consinsant-diskinstant of Mannas (pp. 879, 889); from Bellary; hy T. Bisson (pp. 878, 889), from Tanjore; and hy J. Kav (pp. 879, 889).

40, Gutta podah; from Biliton; a sort of wax, of a bright-green colour, which might probably be advantageously used like the other kinds of vegetable wax, in the contribution of consideration of consideration and the contributions of the contribution of the contributio

in the manufacture of candles, associated with the more easily fusible fatty substances

easily fusible fatty substances. Good specimens of lemon-grass oil from Galle, are shown by G. Winters, (pp. 879, 880); and samples of eninamon and citron oils, and the oil of the Bengal quince, or Ægle marmetos, from Ceylon, are also exhibited; the elimanano oil from Meuers PALLETT, O'HALLOMAN, and Co. (pp. 879, 880), of Colombo, is very good. There are likewise some excellent specimens are years of the contract of the contra of cocon-nut oil, intended to illustrate the process of its manufacture, consisting of the copperab, or dried nut, the expressed oil, and the stearine and claime purified. and obtained separately; for this valuable series a Prize

Medal was awarded. A valuable series of eighteen samples of Ceylon oils in contributed by T. A. Picus (p. 938)—see also East India Collection (pp. 878, 879)—of Kaudy, the names of these are-

 Koola.
 Balegorande,
 Nagrawyene.
 Mahakoomare,
 Dummele.
 Chandenade, . Castor. 7. Kekuna. 8. Makula. 9. Kadjic. 10. Kelloomje. 2. Rape-seed. 3. Gingelly. 4. Branjemsty. 5. Siddharte. 6. Kolestesma. 11. Rattee,

The oils, Nos. 5 and 7, are nearly colourless. value of this collection would have been considerably range of this correction would make been accompanied by any practical information. The Jury awarded a Prize Medal for these oils, together with the series of gums and resins shown by the same exhibitor.

Some fine specimens of myrtle or berry wax, from the

Cape of Good Hope, are exhibited by J. LINDENGERO, of Worester district (45, p. 950). This is an excellent material for the mannfacture of candles, when employed in conjunction with other solid fits. The Jury awarded a Prize Medal for these specimens.

From Western Africa an interesting collection of ails and ail seeds in contributed by Warvarx Warrow (I, p. 1952), consisting of Shea butter, or palam butter, otherwise the first of the Miscolesia, or Hassing Parkin, a tree closely resembling the Busin Interfaces, and Parkin, it was to the Miscolesia and Fasting Miscolesia, and Fasting Africa, and the Africa Miscolesia and Sheath and Tallambara, the oil is solid, or a greyths-white colour, and fuses at 57°. Specimens are also shown of Beguies seed and Ground-nut (Arrotate Appropri), and of the oil expressed from them; and like-the Africa Miscolesia and Africa Africa

A specimen of the 8hea butter is also exhibited by Dr. McWillaian, from Eggs, on the river Niger (5a, p. 853, 854), which was deemed worthy of Honourable Mention. A good specimen of myrels or candle berry wax, accompanied by candles made from it in the crude auxention of the speciment of the speciment of the speciment of the beached state, and a dried branch of the plant itself, bearing lawree and fruit from New Branzie's (25, p. 870), or Honourable Mention.

Good samples of cocos-nut oil are contributed by the ROYAL SOCIETY OF NATURAL HISTORY OF THE MACRITUS, (4, p. 970), and by Mr. MELLON, likewise from the Mauritius (6, p. 956).

Specimen of hard oil, from the litter Pomerrom, Benedina of the or cargo all, from the Sacquist hard for the Grangian control of the Cargo and the Cargo and

Another sample of crub or caraya oil is also shown in the collection of Traindad, may produce, exhibited by Lazan Hazans (see p. 71; p. 753), as well as a portion of cocos ann inj. of which a considerable quantity is obtained of cacao batter, obtained from the seeds of the Theoleman canes, a well-known white soil dist, families at about 120°. Some excellent olive oil, the produce of New South Wales, it exhibited by R. Hazarz and Sowa (5, p. 951°). Independent of its interest as coming from a colony, this it was deemed worthy of Hosonrable Mention.

A good amples of dive oil, from Such Australia, is also challed by the Convariance American challed by the Convariance American (see p. 11). They also show some analysis and of the Legischief of the Convariance and the Convariance (see p. 11). They also show some analysis and of the Legistation of the Convariance of the Convarianc A remarkably good sample of oil of peppermint is shown by H. G. and L. B. Horchkiss, of Lyons, New York (156, pp. 1446, 1447); for this the Jury awarded a Prize Media.

An interesting specimen of maize, or Indian corn oil, is contributed by B. B. Kiatland, of Greenbush, New fork (84, p. 1432).

continuous by an An Accelerate reire of samples of Austrian lisreed and lisseed oil in exhibited by A. Szratsnocz, of St. Georgia, near Manthauen (108, p. 1013, consisting of University of St. Georgia, near Manthauen (108, p. 1013, consisting of University of St. Georgia, near Manthauen (108, p. 1013, consisting of St. Georgia, near Manthauen (108, p. 1013, consisting of St. Georgia, near the state of the Austrian of St. Georgia, p. 1014, p

(102, p. t013); this was deemed worthy of Honourable Mention.

The chief oils shown in the Belgian collection are of animal origin, but there are also several good vegetable oils. L. E. Bissel, of Anderlech, over Brussel, 687, p.

animal origin, but there are also accural good vegetable oids. L. E. Busk, of Anderleeb, oer finnesis (18, p. 105), exhibits remarkably fine clear samples of reflical vegetable oil: for these the Jury assured in Prize Media, Good Inseed oil, prepared for the use of gainters, and of Branche (18, p. 1945). L. Cataryo, of Branche (18, p. 1194). L. Cataryo, and Demacro-Brancount, of Courtai (29, p. 114), exhibits some good severally deemed descript of Homostale Mention.

Some vegetable was from China, is contributed by Irza Some vegetable was from China, is contributed by Irza Annual China (China) (Ch

Japan is also shown. Samples of eastor oil, lettuce oil, sufflower oil, turnipseed oil, oil of nielle or nigella, linseed oil, and oil of cotton seed, are sbown in the Egyptian collection; the latter is the most remarkable: the series of Egyptian oils was deemed worthy of Special Mention. Cotton-seed oil in the raw state, and the sams refined

Cotton-seed oil in the raw state, and the sams refined and Blosebed by a patient process, are exhibited by DE Géniny, of Marseilles, where the mannfecture of this oil from Egyptian seed, and its purification, are now carried on to a considerable extent (1613, p. 1284). For this specimen the Jury awarded a Prize Medal. Specimens of various volatile oils are shown by Hegures

janior, or Grasse, Var (881, p. 1222). These cilis are prepared by a direct process of distillation, discovered by the exhibitor about a year since, and by means of which so il is at one obtained in a struct or purity, so that no volution of the contract of the process of the contract of the contract

for tress one.

Specimens of volatile oils prepared for the use of perfumers, are also exhibited by C. D. Méxo, of Grasse, Var (1356, p. 1341). For these likewise the Jnry awarded a Prize Medal.

awarded a Prize Medal.

Samples of very superior hleached oil, for the use of painters and varnish-makers, are contributed by E. P. Hano, of Paris (866, p. 1221). The Jury swarded a Prize Medal for these specimens.

Some very interesting specimens of artificial volatile oils, and perfumed essences, are shown by M. A. C. Collas, of Paris (801, p. 1219). The Jury awarded a Prize Medal for these.

a Prize Medal for these.

Some very good hleached oil, prepared for the use of painters, is shown by Dr. Reotz. of Paris, (1466, p. 1246); this was decused worthy of Honourable Mention.

A very fine cake of purified campbor is exhibited by W. CONRAD, of Paris (1156, p. 1233); this was deemed wortby of Honourable Mention.

Purified oil, prepared for the use of watchmakers, for

diminishing friction in machinery, and for fire-arms, &c., is shown by F. Joller, of Mer, Loire-ct-Cher (276, p. 1192).

Oil for lamps and machinery of various sorts is also exhibited by M. Mozaku (325, p. 1192).

Purified lineed oil, and oil boiled with oxide of lead,

are shown by RENAULT, of Bordeaux.

A number of good samples of oils are shown by various exhibitors, in the very interesting collection of the raw produce of Algeria, contributed by the Minister of War (see p. 69). In particular, the series shown by Coater, junior, of Bab-el-Oned (22, p. 1261), deserves notice; it consists of good specimens of the oils of lineed, sanflower, cameline, sesamum, mardia, easter, olive, colza, mustard, and cotton seed, together with the seeds from which they are expressed. The Jury awarded a Prize Medal for this series.

A good collection of oils is also shown by H. J. MERCURE, of Cheragas (37, p. 1261), including ofive oil of 1850, and a sories of essential uils, for the use of perfumers, namely-

1 11 Petit grain

2. Citrine.	7 Geranium.	12. Neroli.
3. Melarose.	8. Jasmin.	13. Cedrat.
4. Absinthe. 5. Myrthe.	9. Citron. 10. Portugal.	14. Bergamotte.
For this also the	Jury awarded a Pri	ze Medal.
Fine samples o	f olive oil, prepared	in 1850, are likewi

1. Bigararde. | 6. Rose.

exhibited by J. Bonde, of Philipville, Constantine (9, p. 1259), and E. F. Marrae, of Bougie, Constantine (35, p. 1261); these were each deemed worthy of Honourable Mention.

A series of volatile oils, or essences, are also contributed by P. Simouner (51, p. 1262), consisting of-

1. Sauge. 2. Absinths. 3. Verveins. 4. Citronine.	5. Citron seste. 6. Melarose. 7. Portugal zests.	8. Bigarrarde, 9. Neseri, 10. Neroll,
Pine-peodle oil	a volatile liquid o	btained during the

desiccation of pine leaves, or needles, in preparing a fibrous material for the use of upbolsterers (see p. 82; p. 1054), is exhibited by C. G. Fanian, uf Humboldsaw, near Breslaw (95); this was deemed worthy of Humburable

Purified oil, intended for the use of watehmakers, is runned on meetical for the ase or watermakers, is exhibited by J. L. F. Schaanx, in Desau (806, p. 1094). Fair samples of rape-seed, and rape oil, from Holland, are shown by A. Di. Haax, of Rotterdam (9, p. 1143); these were considered deserving of Hosourable Mention. A large number of exhibitors of olive and other oils is found in the Portuguese collections. Among these may be specified fine samples of olive oil from J. L. DE CA-PRINCES MENEZES (460-1, p. 1313); from ALMEIDA PRARXCA (462-3-4, p. 1313); from De MADDO (465-6, p. 1313); from J. LARCHES (467-8, p. 1313); from the COUNT IN FARRODO (469-70, p. 1313); from J. B. PINTO (471-2, p. 1313); from Almenta Silva, and Co. (473-4-5-6-7, and 480, p. (313); from J. D'ALBEQUESQUE MELLO (478-9, p. 1313); from the Masquis DE Fixalbo (481-2, p. 1313); and from the COUNT DE LINHARDS (483-4, p. 1313); each of these was decided worthy of Honourable Meution.

Excellent specimens of several volatile oils, including those of lavender, juniper, rosemary, and lemon, are sent by F. M. C. Lean. (497-500, p. 1313); for these the Jury awarded a Prize Medal.

Very good samples of palm and ground-nut (arachis) oils, from Angola, are exhibited by F. R. HATALMA; (495A, p. 1313); these were deemed deserving of Hosourable Mention. Fair samples also of castor, linsced, and almond oils are likewise shown by V. Bunnay (493, n. 1313), from Estremadura.

From the Linsinsk Forest Institute, in the government of St. Petersburg, district of Czarskoe Sielo (83, p. 1369), are samples of the empyreumatic volatile oil, obtained by the destructive distillation of birch bark; this substance is employed in the preparation of Russia leather, and gives it that peculiar and agreeable odour, which helps

to preserve it from the attacks of insects. This oil has a dark-brown or almost black colour, is somewhat thick, and has a specific gravity of 0'939. Its odour is strong, disagreeable, and empyrenmatie; when poured upon paper, it farms a brown greasy stain, which, hawever, soon dres, and after a short time, when the empyreumatic odour is dissipated, there remains only the peculiar and agreeable scent which belongs to Russia leather. The Jury The Jury

secut which occurs to husain reather. The Jury awarded n Prize Medal for these specimens. Fine samples of walnut, linseed, colesced, and castor of the samples of walnut, linseed, colesced, and castor of, p. 1302). Good olive oil is also shown by the Cris-VALUE MANCU SIMONE, of Sussari (15, p. 1303); and by S. MESINA, of Nuoro (31, p. 1303); and some good linseed oil is contributed by J. Canvt, of Genoa (22, p. These were severally decided deserving of Honourable Mention.

In the Spanish collections, an excellent sample of the essential oil of lemons is shown by J. Canales, of Malaga, (242a, p. 1344). For this the Jury awarded a Prize Medal. The manufacture of olive oil in Soain has undergone very considerable improvement during the last few years; in particular, the process for expressing the oil has been rendered more rapid and effectual by the introduction of the bydraulic press, and thus the injurious consequences which resulted from the partial fermentation of the fruit are avoided.

Fire samples are contributed by the Province of Almeria (164, p. 1339); from Alburquerque, by C. S. Montestinos, of Badajoz (167, p. 1339); from Alma-dovar del Rio, by the Province of Cordova (165, p. 1339). dovar del Rio, by the Province of Cordova (165, p. 1339), being the produce of the wild olive; from the village of Nightlea, by J. Zavas, of Grausda (168, p. 1339); from Santa Fé, by A. Dizz DE RIDERA, of Granda (172, p. 1339); by M. FERNANDEZ, of Malaga (169, p. 1339); and by the Province of Seville (171, p. 1339). These were severally deemed worthy of Honourable Mention

Samples of olive oil are likewise exhibited by the AGRICELTURAL BOARD OF VALENCIA, from D. V. TORTOSA, and D. J. CARASCOSA (173, p. 1339): by the AGRICELTURAL BOARD OF COMINOVA; and by the COEVEY OF SORMANIES OF SATISONS (174, p. 1359). A specimen of linseed oil, from Lorea, is contributed by D. —, of Murrin (170, p. 1359); and nut oil from Ovledo, by D. S. ALVAREZ CALEJAA (166, p. 1359). ALLEJA (166, p. 1339).

A cake of hard vegetable wax, obtained from n plant

indigenous to the northern parts of St. Domingo, is conreibated by Sir R, SCHOMBURGK amongst the other raw produce of that island. It is not saited for the manu-facture of candles alone, but, like the herry wax of the Cape of Good Hope, serves very well to mix with other

fatty substances (see p. 83; p. 1429).

A few samples of oils are contributed from Tunis, including, besides some of the common fixed oils, samples of several of the volatile oils used in perfumery, specially the oil or attar of roses, and of jasmine, together with a few mixed essences, such as those of quinee, grange,

benzoin, alocs, &c. Some good specimens of linseed oil, and of rape oil, both refined and unrefined, are shown by Joseph Owen, of Copenhagen (44, p. 1359); these were deemed worthy of Honourable Mention.

The Turkish collection of raw produce includes a nu-merous and interesting series of oils, both fixed and volatile, from various localities, the former include the following (see p. 69):-1. Almond 2. Castor -- Damascus.

	Laure		-	-	-	Diendgiya.
	Linses	d	-	-	-	Constantinople
5.	Olive	-	-	-	-	Damascus.
6.		-	-	-	-	Broosa.
7.	**	~	~	-	-	Candia.
8.		-	-	-	-	Adramati.
9.	**	-	-	-	-	Mentesche.
10.	**	-	-	-	-	Tripoll.
11.		-	-	-	-	Erzeroum.
	Seram	um	-	-	-	Constantinople
13.			-	-	-	Beyrout.
14.	Suntio	wer	-	-	-	Moldsvin.

Among the volatile oils from Turkey, the oil or attar advance made to the investigation of those chemical laws of roses, and the oil of geranium or andropogon used to oux with and adulterate oil of roses, are specially worthy of oscution. The oil of orange flowers is also deserving of notice. The series of Turkish oils shown, includes the following :-

1.	Almonds, 1	litter	-	_	Sara.
	Fennel -	-	_	-	Broosa.
3,	Garanlam	-	-	-	Mecca.
4.	Laurel -	-	-	-	Salonica,
5,	Lavender	_	_	-	Briosa.
6.	Lemon -	_	-	_	Nalonica,
7.		-	-	-	Scio.
8.	Orange flor	Ters	-	-	Constantinople.
9.	Origanum	-	-	-	Salonica.
10,		-	-	-	Carlova.
n.		-	-	_	Kezar.
12.	Peppermin	t	-	-	Janina.
			-	-	Kezar.
14.			-	-	Carlova.
15,	**		-	-	Saida.
16.	Rosemary	-	-	-	Smyron.
		-	-	-	Kazemlik.
8.	Sago -	-	-	-	Elliferm.
9.		-	-	-	Constantinople.
80.	Sabine -	-	-	-	Brooss,
и.	Splke -	-	-	-	- 11
12.	Turpentine	-	-	-	Constantinaple.
3.		-	-	-	Broosa.

Good samples of olive oil are exhibited in the Tuscan door samples of one of are called to be belley districts near that place (31, p. 1293); by Rusch llaothers, from Calici, near Pisa (32, p. 1293); by D. PACINI, from Buti, near Pisa (33, p. 1294); and by the Chevalier C. A. Saracini, of Seemin, from Castel-move, Berardenga, near Sienna (34, p. 1294). These, al severally deemed worthy of Honourable Mention, These, also, were

SECTION III .- DYES AND COLOURS.

The arts of dyeing and printing in colours have undergone very considerable modifications during the last balfgone very considerable modifications during the last balter than the control of the priority of the proportion in which some of the priority dynamics. Dyring is purely a chemista. Dyring is purely a chemical operation; and the following table, which represents the imports for consequently it has improved in exact proportion to the following table, which represents the imports for consequently it has improved in exact proportion to the following table, which represents the imports for consequently it has improved in exact proportion to the following table, which represents the imports for consequently in the imports for consequently in the imports for consequently in the importance of the priority of the importance of the priority of the proportion in which some of the priority dynamics of the priority of the proportion in which some of the priority of the proportion in which some of the priority of the proportion in which some of the priority of the proportion in which some of the priority of the proportion in the proporti

which regulate the formation of colour, and the union of colouring matter with the various vegetable and animal substances which come under the operation of the dyer, A vast number of new colouring materials have been discovered or made available, and improved modes have bosn devised of economically applying those already in use: so that the dyer of the present time employs many substances of the very existence of which his practical predecessors were wholly ignorant. From the increased use of many of the vegetable colours, and from the imuse of many of the vegetante consults, and from the im-proved modes of applying the colouring matters, a demand has maturally sprung up for various dye-stoffs; and at the present time, many of the dyeing materials of distant countries are beginning to exerte the attention of practical me; for though they have long been acquainted with

many of these substances, it is only recently that the even practicable. even practicance.

At the present time, by far the greater number of the vegetable dye-stuffs used in Great Britain are derived from foreign countries. The following Table shows the quantity of some of the chief of those substances imported io the years 1848, 1849, and 1850; but it must be remarked, that it includes the quantities imported for re-exportation, as well as those retained for home consumption by our manufacturers:-

			1948	1849	1850
			Cwts.	Cure.	Cets.
Cochines! -		-	18,380	18,254	22,451
Fustle		-	154,320	175,840	-
Indigo	-	-	59, 127	81,332	70,482
Lac dye		-	4,449	13,585	18,124
Logwood -	-	-	463,840	479,840	6 3,800
Madder		-	220,724	254,722	261,861
Nicaragua wee	×1 -	-	47,220	54,020	-
Safflower -		-	8,144	10,452	-
Yellow-berries	-	-1	5,421	7,761	-

				Logwood.	Madder.	Fustie.	Indigo.	Lac Dye.	Soffwee
T . 1 11 11 11 .				Cwts.	Cute.	Cuts.	Cets.	Certa	Cuts
East Indian Empire		-	-	-	424	-	77,793	13,546	10,308
British Gulana and	West	Ind	ies	84,120	-	25,140	73	101010	10,000
British North Amer	ica	-	_	4,460	-	420	- "	1 -	_
Malta	-			.,	2,246			_	_
France	_	_	_	_	80,568	_		_	53
Holland	_	-	- =	_	31,570	-	-	-	5/3
Spain	=	- 5	- 5		4,001	-	-	-	-
Naples	_	_	_		34,632	-	-	-	-
Turkey	-	-	=	-	34,632	-	-	-	-
United States -	-	-			99,701		-	-	-
Central America -	-	-	-	44,340	169	15,920	45	39	-
Central America -	-	-	-	2,520	-	-	2,494	-	-
Mexico	-	-	-	144,860	-	13,090	-	-	-
Cuba	-	-	-	2,580	-	42,340	14	-	-
New Granada -	-	-	-	-	-	56,640	317	- 1	_
Haytl	-	-	-	122,320	-	2,560	-	_	_
lionduras	-	-	-	72,960	-	14	214		
Brazil	-	-	-	-	_	11,800			_
Chili	-	-	-	420	_	11,000	216		_
Venezuela	_	_	- 1		1 =	8,860	3	- 1	-
Miscellaneous -	-	-		1,260	1.321	1,066	163	- 1	- 91
				11000	1,021	1,000	103		
Total	_	_	- 2	479,840	254,722	175,840	81.332	13,585	10,452

The series of dve-stuffs, included in the collection of LIVERPOOL IMPORTS, consists of the following:-

					П		1849	1850
					u		Tota	Totas.
Alkanet	-	-	Anchusa tinctoria -	-	-	Smyrna		-
	-	-	Baphia nitida	-	Ξ	Hamburg	400	350
Barwood	-	-	Baphis nitida	-				
Brazil wood -	-	-	Cresalpinia braziliensis	-		Rio de Janeiro	1,800	3,120
Brazilletto -	-	-	, bahamensis	-	-	New Providence		
Camwood -	-	-	Baphia nitida	-	-	Sierra Leone	180	210
Finvine	-	-	(Yellow dye)	-		New York	-	70
Fustio	-	-	Maclura tinctoria -	-	-	St. Domingo	100	420
	-	-	72 77 -	-	-		400	1,450
**	-	-		-	-		300	1,220
Garancine -	-	_	(Madder red)	-	-		2,340	2,985
Green ebouy -	-	-		-	-	Brazit	36	30
Indigo	-	-	Indicofera tinctoria -	-	-			1 7
	_	-		-	-	Bombay	8	9
	-	- 3	anil	-	_	Brazil	-	
Logwood	_		Hæmatoxylon eampechis	num		Honduras	1,530	1.300
	-		11 11			Tobasco	4:20	390
,,	=					Campenchy	1.700	1,860
Madder	=	а	Rubia tinctoria - '	_	_		1,100	,,000
	Ξ	_		_	Ξ	Seville		
,,	Ξ			-	Ξ		2,340	2,985
,,	-	-		=	1			1
Municet	=	0	Rubia cordifolia	Ξ.	Ξ		405	525
Nicaragua wood	=	Ξ	Cersalpinia echinata -	-	Ξ	Lima	400	1.570
Orchilla weed	-	Ξ	Roscella	=	Ξ		400	1,540
	-			Ξ	Ξ		-	8
Quereltron bark	-	Ξ	Querent tinctoria		Ξ		296	514
Querettron bark	-			-	Ξ		190	246
Red Sanders -	-	-		-				
SatBower	-	-	Carthamus tinctorius	-	Ξ		11	1 .4
	-	-	- 12	-		Bombay	18	12
Sappan	-	-	Crestpinia sappan -	-	-	Calcutta	75	120
Tarmerio -	-	-		-	-	Bombay and Calcutta	140	414
Yellow berries	-	-	Rhamnus infectorius -	-		Levant	118	115
** **	-	-		-	-			
Young fustio	-	-	Rhus cotinus	-	-	Zante	976	356

The series of HULL Istronts includes samples of alkanet root and madder, the yearly average imports being about 60 cuts, of the former, and 18,500 cuts. of the latter.

latter, mercus and highly-instructive callection of dysstaffin is exhibited by Mr. W. Brence, of Sevandsom (e. 7, pp. 201*), consisting of the different substances remployed as dyst, mordants, fee, in dycing; forming altogether a through the construction of the co

when the second printing, manage investigations of the second printing and printing are, as regards or different processes of management and a second printing are as the second printing as a second printing and a second printing as a second

Frieing, on the other band, comists in staining the surface of a piece of chich in parts, without our more surface of a piece of chich in parts, without our more surface of a piece of chich partial satings, and to obtain deed chicases of chicking partial satings, and to obtain deed chicases of coloring matter,—or of a proper metallic solution or coloring matter,—or of a proper metallic solution or coloring, matter,—or of a proper metallic solution or coloring, and passes of which the coloring matter is to kind, smultly either gam or starch, in order to prevent kind, smultly either gam or starch, in order to prevent partial coloring to the coloring matter,—or or or proper order on the closh, and impressed in proper order on the closh, and impressed in proper order on the closh (i.e. the saledeed only and is afterwards, according to of atoms, (which merely softens the muching and fine to coloring matter to the order without reveiling (i), or

matter that becomes fixed only on those parts on which the mordant has been printed, and after this the mucilago is readily washed away.

But allowed, the operations of design and pointing are

Is resultly "Water-on segmentations of dyving and printing are than, to some extent, different, yet the dysestaffs or colouring matters used are entirely the same, and are applied to produce the same results; so that, in fact, the art of coton-printing, setting apart pattern designing, may be regarded as a neuer modification of the art of the processes of fixing cotonring matters, it is found that there are many substances capable of affording very

beautiful, useful, and lasting colours, which have not, of themselves alone, a sufficient affinity for the fibre; but which, nevertheless, may be easily combined with it through the agency of certain other substances not in themselves colouring matters, but having an affinity both for the substance of the fabric and also for the colouring matters, hy which means the colouring matters are effectually united with the fibre. These substances (for the most part metallic solutions), are termed "mordania," and besides their peculiar action in changing the hues of the colouring matters are the means by which some of the most lasting, and therefore most useful, dyes are attained. The bases of the mordants chiefly used are the oxides of iron, tin, copper, and alumina, in combination with sulphuric, muriatic, nitric, acetic, and other acids. From the great diversity of substances used in the art of dyeing, including metals and metallic compounds, woods, flowers, roots, barks, leaves, fruits, insects, &c., all of which respectively require essentially different treatment, there is necessarily considerable variety in the methods and processes employed; and this variety is still further increased by the different nature of the substances dyed such as wool, silk, leather, cotton, flax, and wood.

In the substances of the greatest importance—wool

In the substances of the greatest importance—wool, sitk, and cotton—experience shows that the colouring matter which suits the nature of one does not, necessarily, suit that of another; and indeed, for the most part, the process of dyeing those three substances is so distinct as to have caused the dyera to be generally divided into woollen, silk, and cotton dyers. It is found that, as regards the use of the strong mineral acids, which are employed both to brighten, and-assisted by beat-to fix some colouring matters, an important difference exists between wool, or silk, and cotton. Animal substances between wool, of sits, and cotton. Animus successors will bear, uninjured, a much greater proportion of scid, and of the two, wool being the coarser fibre, is less easily injured than sits; but both will bear, with advantage, a proportion of scid which would corrode and destroy the fibre of cotton. It is necessary, therefore, to be very cantious in the use of acids on cotton goods; and the dyeing of a mixed fabric constitutes one of the nicest parts of the art, where a mixture of animal and vegetable fibres has to be printed with perhaps six or eight brilliant colours at the same time.

In illustration of these processes, Mr. Burch shows a In Hustration of these processes, orr. Justin accomplete collection, w supra, of the various chemical agents employed by the dyer, including acids, alkaline, and alkaline salts; metallic salts, used both as mordants and in the formation of metallic colours, and a very namerous series of vegetable and animal dye-staffs. The mode of block-printing, and the manner in which several colours are successfully applied, are also well illustrated. The more important of these substances may be briefly

19

serated as follows :- Sulphuric acid, or oil of vitriol.
 Muriatic or hydrochloric acid.
 Nitrie acid, or aquafortis.
 Nitro-muriatic acid. Actio or pyroligneous acid.
 Ctrio acid.
 Tartarie acid. 8. Oxalic acid. 9. Iron sulphate, or green vitriol, ,, acetate, or iron liquor. ,, nitrate chloride, or murlate. 12 Tin chloride, or muriate. Alumina. 16. Alum. Alumina, acetate. Copper sulphate, or blue vitriol. 18.

nitrate Lead, nitrate. Zine sulphate, or sugar of lead. 25.

Potassa carbonate, or pearlash.
,, bltartrate, or cream of tartar.
Potash binozalate, or salt of sorrel. 96 ferroprussiate. chromate. **

biehromate. Soda, carbonate. Ammonia muriate, or sal ammoniac. 33. Lime, quick.

,, chloride, or bleaching powder. All these substances are used by the dyer, either in preparing the fibre to receive colouring matter, or as mordanta to enable it to combine with the colour, in the direct formation of coloured compounds; to heighten animal or vegetable colours; or as "resists," or "dis-charges," either serving to prevent certain parts of the fabric, to which they have been applied, from receiving any colour in the vat, or to discharge or remove it in

sees when the whole has been dyed one uniform colour. For this important series a Prize Medal was awarded. The dye-stuffs exhibited are as follows:-

COLOURING MATTERS OR DYE-STUFFS. Logwood: — obtained from Campeachy in Sonth America, the wood of the Hamatorylon compechicaum: it is enhibited, 1st, in the block; 2nd, in the chips as cut . rog root — entired tree tampesty in South quantity of tunine. It is subblished as gathered. After the subblished as in the shelike, the is the block paid, the theips as cert in the subblished, the is the block paid. The temperature of the temperature of the temperature of the subblished as a square activate of the benefit in the draw paid, the coloring matter per-benefit is the street paid to the paid of the paid to the paid of the paid to the

brown. Specimens are shown of these various colours dyed on cotton, silk, and wool.

2. Peachwood, or Nicaragua wood:—from Lima, South

2. Peacewood, or Nicaragua wood:—Iron Linas, contin America; the wood of a Casalpinia, eshibited in the block, chips, aqueous extract, and the colouring matter precipitated black with iron, red with tin, red with alum, and brown with copper. Specimens of dyeing on silk,

wool, and cotton. 3. Sappanwood, from Siam ;-the wood of the Casal-

o. ceppanwood, from stam;—the wood of the Casal-pinia appan, exhibited in the block, cbips, squeous ex-ract, and precipitated dark brown with iron, red with tin and with alum, brown with copper; with dyed samples. 4. Fastic, from Cuba :- the wood of the Rhus cotinus enhibited in the block, chips, aqueous entruct, and the colouring matter precipitated olive-brown with iron. yellow with tin, and yellow with alum; with dved

samples. Ebony, the wood of the Diospyros ebenum;—exhibited in the block, chips, aqueous extract, and the colouring matter precipitated—olive-brown with iron, yellow with tin and with alum ;- with dyed samples

6. Harwood, from the west coast of Africa:-the wood of the Baphia sitida (1); exhibited in the block, chins. aqueous extract, and the colouring matter precipitated, dark brown with iron, red with zinc; red with alam;

brown with copper; - with dyed samples.

7. Camwood, from Sierra Leone; -- the wood of the Baphia nitida, shown in the block, chips, squeous ex-tract, and the colouring matter precipitated, - black with iron, red with tin, red with alum; - with dyed

8. Indigo, from the East Indies ;- a well-known blue colonring matter obtained from the leaves of the Indigofera tisctoria. The process of dyeing with indigo consists in deoxidizing it, or depriving it of a portion of its oxygen, when it assumes a green hne, becomes soluble in water, and then readily enters the peres of the cloth immersed in the indigo vat. When the cloth is properly saturated, it is exposed to the action of the air, and the indigo speedily reabsorbs on year, and again assumes its original colour and its stability; or, if united with a yellow colouring matter, the result is—a green. It is exhibited in the lump, in powder, in its green deoxidized state dissolved in water; and also in a state of pulp, or minute subdivision, effected by treating it with strong sulphuric acid. In the last case it is not a "fast" dye, but by the

first mode of treatment, it is one of the most permanent colours. Samples of indigo dyes are shown.

9. Wond;—from France and the north of Europe, a colonring matter analogous to indigo, but of a daller hae, obtained from the leaves of the Initis tisctoria; it is now but little used. Exhibited in the lump.

10, Quereitron Bark, from South America;-the bark of the Oserous tinctoria; it is exhibited in the crusted or ground state, in the aqueous extract, and the colouring matter precipitated—olive-brown with iron, and yellow with clum :- dved samples are shown.

11. Alder bark ;- the bark of the common alder of Great Britain. Aloss gletisose, shown as chips, as aqueous extract, and the colouring matter precipitated,—grey with iron, and pale amber with alum.

12. Catechu, from the East Indies; -- an extract of the ood of the Acacia cateche, containing much tannin; it is shown in Immp, and its colouring or tannin matter precipitated,—black with iron, brown with copper. 13. Valonia, from Turkey and Asia Minor; - the cap

13. Valonia, from Turkey and Axia Minor;—the cap or shell of the acorn of the Quercus argileps; It is ex-bibited as gathered. Also the aqueous extract and the colouring matter as precipitated,—black with iron, 14. Nut-galla, from Turkey;—an eacrescence growing on the Quercus injectoria, which contains a very large quantity of tunnin. It is exhibited as gathered. Also

obtained with alum. Madder is the colouring matter used in the Turkey red dye, so celebrated for brilliancy

and permanency 16. Sumach, from Sicily ;- is a small plant, the Rhos coriaria. The sumsch is exhibited as ground for the dyer's use; also its black precipitate with iron,-vellow

with tin, - yellow with alum.

17. Weld; - grown in Great Britain and the north of Europe: is a small plant, the Resolu Intesia, a specimen of which is exhibited. It is used as a yellow dye, or as n component of green. Its aqueous extract and yellow

precipitate with nlum are shown. Persian berries, from the Levant;-the berries of the Rhamas infectories, which afford a yellow dye. They

are exhibited as gathered. Also the squeous extract and the colouring matter precipitated, - yellow with alum and with tip. 19. Turmerie, from the East Indies; -- the root of the

Corcount longs. It is exhibited as a root, and in the ground state as used by dyers. It affords of itself, without a mordant, a vellow dye, which is brilliant, but unfortunately not very permanent, samples of which are 21. Orchil: - (Roccella tinctorio), from the Canary

21. Orenit - (necessary transferred) from the first seasons in the rocks by the sea-shore. The plant is of a pule-stone colour, but yields a magnificent purple matter, which fixes in wool and silk without a mordant. It is reddeced by scids, and rendered blue by alkalies, thus affording a great variety of tints. Its aqueous purple solution is shown, with samples of dye on silks and wool.

22. Annatto, from Sonth America ;- an orange coling matter obtained from the seed of the Bira orelians, The colouring matter is brought to this country in maenveloped in rushes. It is soluble in alkalies, by which means it is fixed in the cloth. The annatto is exhibited The annatto is exhibited

as a mass, with samples of its dyes.

23. Safflower; — from Egypt, the Levant, Southern Asia, &c...; the dried petals of the Corthonous tinctorio, from which is obtained a very beautiful colouring matter, that attaches itself without a mordant, and is extensively used in silk and cottoo for a variety of shades of pink, rose, crimson, scarlet, &c., but which, unfortunately, does not possess the power of resisting the action of soap. The safflower as imported is exhibited; also the alkaline extract precipitated a fine rose-tolour by an acid, with dyed samples on cotton and silk. This colouring matter is not suitable for wool.

24. Cochineal, from Mexico; is a small insect, a variety of Coccas, which lives upon different species of the Cactus opuntia or nopal. It affords a fine red colouring matter, which is extensively used on silk and wool, par-ticularly the latter, the whole range of the best red dyes on wool being due to the colonring matter of this insect. The two varieties exhibited are known in commerce as the "black grain" and "silver grain;" terms which the "black grain" and "silver grain;" terms which arose from the fact that, when first imported, this insect was considered to be a seed or grain, and its dyes were spoken of as "grain" colours. The aqueous and amnoniacal extracts of the colouring matter are shown, also the colouring matter precipitated with tin and with alum. It forms very fine and permanent dyes in reds, crimsoos scarlets, &c., samples of which are shown on wool and silk. It is not applicable as a dye for cotton.

25. Lac-dye, from India;—the colouring matter of

a substance formed on the hranches of various trees by the puncture of a small insect, similar to cochineal, the Corus lacer. The resinous matter, being separated, forms the "sheline" of commerce, and the colouring matter, the lac dye, is thus obtained. It is used as a red dye on wool, but its colour is inferior to that from chineal. The dye is exhibited, with dyed samples. Having thus briefly conmerated the substances exhibited, it may be observed that the dye samples show merely those colours which result, entirely and directly, from the substances in connexion with which they are from the substances in connection with which they are placed; and do not, in fact, truly represent the art of dyeing, which frequestly depends on a nice mixing of tints, and is affected by the combination of several,—

artistic excellence. But in combination with these dyzing materials, and illustrating the subject as a whule exhibited samples of skein-dyeing by three London dyers -by Mr. CRABOT on wool, by Mr. REYNOLDS on silk, and Mr. Buscu nn cottoo: these may be taken as a fair sample of the uses to which the dvers of London put the variety of drugs and substances we have enumerated. In dycing the skein previously to the threads being woven, Mr. Itureh, who shows all his productions in this com-hination, exhibits also a series of dyes in "fast colours" on Lisle thread, which are used for the cotton glove mannfacture, in which the ordinary dyes are sadi fugitive; also a series of dyed lace cotton, dressed by a peculiar process to resemble the hard-thrown marabout silk, which is extensively used in the manufacture of velvet, gauze ribbons, and other fabrics in which a firmpess of texture is desirable.

Some excellent illustrations of the native vegetable dyes of Scotland are shown in Messrs. Lawson's valuable collection (Class III., 105, p. 206). These are now nearly all superseded by cheaper and more brilliant dyes of tropical conotries.

A very good series of samples of superior orchil, cud-bear, and other preparations of liehens, is exhibited by Messrs. Sattu & Son (69, p. 200*), accompanied by specimens showing the colours dved with them. The Jury deemed these dyes of superior excellence, and accordingly awarded a Prize Medal for them,

A highly-complete and instructive series of lichen pre-parations is exhibited by Woop & Exprond (Class II. 47, p. 192), including the chief varieties of lichens known merce, the colouring matters prepared from them, the different peculiar colouring and other principles con-tained in them, or obtained from them by chemical procoses, and illustrations of the practical uses of lichen dyes to silk, feathers, wool, teather, marble, wood, &c. The chief lichens employed in the manufacture of orchit and cudbear are the following: -

Commercial Name.		Plant.	Whence Imported,		
LVC		Ramalina furfirmosa - Rocella fuciformis {	Angola. Mauritius and Madagascar. Lima. Valparaiso. Cape de Verda Jelands. Canary Islands, Sweden,		

Of these nine lichens, the first grows as a parasite apon trees; all the remainder upon rocks: the first is the richest in colouring matter. The samples of cudbear and orehii shown are numerous, and well illustrate the gradual development of the colour: the whole collection is highly creditable, and the Jury, therefore, awarded a Prize Medal for it.

Specimens of sufflower, and good illustrations of its use in dyeing silk, are shown by Loxo & REVNOLDS (75, p. 205*): these were deemed deserving of Honourable

Ventior Good specimens of several dye-stuffs are exhibited by J. MARSHALL, of Leeds (Class II., 68, pp. 194, 195), including cudbear and orchil, tarmeric, and an interesting series of lac-dyc: these also were deemed worthy of

Honourable Mention. A sample of chicory woad is exhibited by SAUNDERS and GATCHELL, of Dublin (71, p. 200*). It is stated that this substance, which can be used as a blue dye in the place of real woad, muy be profitably grown and sold at about 8l. per ton, the price of real word varying from 201. to 301. per ton.

A large and highly-valuable collection of dye-stuffs is ployed by the natives io different parts of the East Iodies p. 880). This important series forms part of the collection of raw produce for which the Jury recommended the award of a Council Medal. In addition, they awarded a Prize Medal to their Highnesses the RAJANS of KOTAN and of Curcu (p. 880), for the various specimens of dyestuffs which they have contributed to the East Indian

1. Amongst the more important of the well-known Indian dyes, one of the principal is, of course, indigo, and of this a number of excellent specimens are contributed. The best are those shown by Mosses. MACNAIR, of Babookally, Messra Arrumon, of Cuddapah, and of Babookany, Medern, Arburtinkor, of Cucaspan, sinc the proprietors of the Johnsan Facron (p. 889); for each of these the Jury awarded a Prize Medal. Very good samples of indigo are also contributed by the Razans of Koyan and Cercu, from Kotah and Brooch; and also from Sindh and Madrae (p. 889). A complete and highly-interesting model of an indigo factory, showing all the different processes through which the dye passes in the process of manufacture, is likewise ex-

2. Specimens of the Pala or Palar indigo, prepared in some parts of India from the Wrightia (Arrism) tinctoria. a plant which flourishes io dry and barren lands, are cot tributed by Mr. G. T. Fischer, of Salem (p. 880). It is said that this indigo is occasionally mixed with the ordinary indigo of commerce. The Jury awarded a Prize

Medal for these specimens.

Medal for these specimens.

3. Fair samples of safflower or Kussoumbs, Corthonous fineteria (p. 880), are contributed by the Rajani of Kotani, from Kotahi by W. S. HUDSON, from Assam; from Dacca; from Bohilkund; from the Celebes; and from the neighbourhood of Calentia. There is probably no dye more easily injured by careless collection than safflower: the great superiority of the Chinese over the ordinary East Indian safflower is chiefly due to the greater care with which the Chinese collect it

Circumn longs (p. 880), is sent from 4. Tormeric, Nepal by his Highoess the MAHARAJAH; from Asse from the Raipootana states; from Rehilkund; from Caleutta; from Beerhhoom; from Cuddapah; from Bombay; from Madras; and from Java.

 Sappan-wood, Casalpinia sappan (p. 880), contri-buted from Bengal; from the Tenasserim provinces; and by Tax Kin Seng from Siam, and from the Philippine

. Municet, Munjuth, or Indiao madder, Rubia munjistha (p. 880). This is a valuable dye-stuff, and hitherto not so well appreciated as it deserves, for some of the colours dyed with it are quite as permanent as those dyed with madder, and even more brilliant; its use is, however, gradually increasing, and it is unquestionably well worthy the attention of dyers. Good samples are exhibited by Captain Survit, from Assam (p. 880). For these the Jury awarded a Prize Medal. Specimens of Muniest are also contributed from Nepal

hy his Highuess the Mananasan; from Aden; and from

Chay-root, Oldenhadia umbellata, a red dye similar 7. Chay-rook. Chrominatin inthoritata, a red aye similar to Munject, and used to a great extent in the southern parts of Hindostan by the native dyers. This dye is not held in very good estimation to Europe: it seems, however, to deserve a better reputation than it at present possesses. Attention to this dye-stuff was drawn in 179e by a special minute of the Board of Trade, recommending its importation; but Dr. Bancroft, who made some experiments with a sample of damaged chay-root, considered it inferior to madder, and hence discouraged its further importation. Specimens are contributed by Captaio OGILVEE, from Masulipatam and from Palamcottah (p. 880). Samples of the Bulu or Mangkudn wood, and root, much used throughout the Indiao Archipelago, are shown from Malacca, Java, and the Celebes.

8. Annotto. The seeds of the Bira orellana, from which this colouring matter is prepared, are contributed

from Assam, and from the vicinity of Calentia.

9. Morinda bark. The bark and root of various species of Morinda are used in different parts of the East Indies, and are equipped as a very valuable red dve. Specimens

of the Muddi or Al, Morioda citrifolm, are exhibited by the Rajah of Kotan from the Rajpootana states; and Ach, or Morinda tinctoria, are contributed from Patna. The colours dyed with the Morinda are, for the most part, oot hrilliant; but the colouring matter is far more permanent than many other red colours are, and with improved management would probably rival that of madder; it would, therefore, perhaps, be a useful dye-stuff; it appears well worthy the attention of dyers.

10. Liehens. A considerable number of different liehens are shown from various localities; some of these contain a good deal of colouring matter, and might, therefore, be advantageously employed in the manufacture of orchil, cudbear, and other preparations used by dyers. Among the specimens exhibited may be mentioned those from Robilkund; from Moorsbedabad; from Darjeeling; and other parts of the Himalayas; from the Tenasserim provinces; and from Sindh

11. Mangrove bark. Kahoung, Rhizophera manale:used to dye a chocolate colour, from Arrakan. This was one of the colours introduced by Dr. Bancroft, and for the exclusive use of which he obtained an Act of Parlia-

12. Pulas, Tisso, or Madooga flowers :— Buten frondom, used for dyeing red, from Taooa, from the district of Berrbhoom; from Cuttack; and by Captaio Outlyte from the Nisam's country (p. 881).

13. Hursinghar flowers :— Nyctuathes arbor-tristis, oned

as a yellow dye, from the RAJAH of KOTAH, in the ates of Rajpootana; and from Cuttack (p. 879).

14. Ukulbere or ushurgh;—Datisca connabina, a bark

used for dyeing yellow: it contains a bitter priociple re-sembling that of quassia, from Labore. 15. Marking out; — Somecarpus macardism, from Assam, from Calcutta, and from Robilkund.

16. Capilla Ringhill, Rerso, Patany; -- prepared from the dried fruit of the Rottlera tinctoria, and used by the natives to dye orange: the colouring matter is apparently of a resinous nature, or at least is accompanied by a large quantity of resin; it is a brilliant and tolcrably permanent dye; contributed from Assam and from Cuttack.

17. Gaju gum; - used as a yellow dye, from the 18. Gamboge, (Hebradendron nambonides). Several excellent specimens are contributed from different local excellent specimens are contributed from timerent occur-ties. A good sample from Siam is exhibited by G. G. Nicol; and another is shown by Messrs. Ilamons, in their collection of Archipelago produce (2, p. 998).

Other specimens of gamboge (Garcisin tisctoria) are contributed from the peninsula of India, hy several exhibitors, especially hy Dr. CLEGHORN from the forests of Mysore; for this the Jury awarded a Prize Medal to 19. Myrobolans;-the fruit of various species of Ter-

misalia, containing a considerable quantity of astringent matter, and therefore used io tanoing as well as in dye-ing; from Moorshedabad, Calcutta, Rohilkund, Cuttack, irrapoore, Assam, and the Bajpootana states.

20. Querens infectoria, galls, from Calcotta and Chota Nagpore

21. Abutilos strictum? from Calcutta and from Assam. 22. Myrica sapida, bark, from Rohilkund. 23. Hrightin antidysenterien t from Putna.

24. Harndah berries (Terminalia sp. t), from the hill racts of Orissa Rerro, a purple dye, from Arrakan.
 Thit-nan-weng, a chocolate dye, from Arrakan.

27. Sagah bark, from Singapore. 28 . Ting-ojet, bark and wood, nsed as a dark purple dye, from Arrakan. 29. Thit-tet, wood and bark osed to dye red, from

30. Mooshe, from the Raipootana states, 31. Mucha, from the Rajpootana states

32. Kayee Kndrang, a yellow dye sent by SETD ONAR from Malucca.

The-dan, a red dye, from Arrakan.
 Borul, from the Rajpootana states.

35. Bunchong Balu wood, from the Celebrs. 36. Muchkee, from the Raipootana states.

 Samak bark, from Singapore.
 Lopisip bark, from the Celebes. 39. Benkita-barrung, produces a dark purple dye, from Borneo.

40. Kayu Oobab, a red dye, from Labuan.

41. Kayu Samuck, from Labuan 42. Saracundraputtah (Cassia fistula), from Palam-

cottab 43. Pattangha bark, sent from the Nizam's country by Capt. OGILVIE.

44. Cherenjee bark, from the Nizam's country, seut by Capt. OGILVIE. 45. Avaraputtai (Cassia auriculata), from Palam-

enttal-Of many of these dyes, little or nothing more than the name is known, and the Jury, baving no evidence as to their use, are, therefore, wholly unable to express any opinion as to their probable utility io this country. They consider the series, however, as highly valuable and important. Several of the dve-stuffs are evidently rich in

colour; most of them may be easily had in large quantities, and at comparatively low prices; they are, consequently, well worthy of the attention of practical dvers. Specimens of gamboge, turneric, myrobolans, and a yellow resinous substance resembling gamboge, called

Gajn gum, are contributed from Ceylon. A sample of behen, or orchilla weed, from the Cape of Good Hope, is exhibited by C. WATERMEYER (51, p.

A specimen of cam wood, from the conflue ivers Niger and Tchadda, is shown by Dr. Mc WILLIAM FIVER AUCT and Tenniolis, is shown by Dr. M. WILLIAM, (3.4, pp. 535, 594); and some rends insign from Abbrokuta, is contributed by Dr. BEZELLAY (12, p. 954). In the collection from British Gainans, there is but one dye or coloning material, namely, the "Lana dye," exhibited by H. A. Kow (3.5 n. p. 809). This substance is obtained from the fruit of the Lana tree (*Grajas Janesiusa, Linuxon), a tree very boundant throughout the

colony, particularly on the banks of the river Berbice; the colour dyed with it is a good bloish black. The colours dyed with the fruit of this tree are remarkably permanent, a fact which has very long been known, though bardly any attempt appears to have been made to introduce it to the notice of European dyers. The Jury deemed this specimen worthy of Honourable Mention,

deemed tas specimen worthy or fromourance sciention.

Samples of fastic (Huss cetians): logowood (Heustray-lon compechianson); and turmeric, are included in the
Trinidad collection of raw produce.

A promising specimen of lichen, or orchilla weed from
the Falkland Islands (Roccella factjormis), is exhibited by

G. T. WHITTINGTON (p. 987).

The various dark-coloured resins of Australia have already been alluded to; the colouring matters of the different species of Xauthorhou, though not remarkably brilliant, are well worthy of notice. Very fine specimens of some of these reside are exhibited by the Colonization

Assumance Corronation. (See page 76).
Good samples of the Xanthorbera resins are shown from Flinders' Island, by J. Milligan (81, p. 994).
A remarkable colouring material, called blood juice, the odnee of a Norfolk Island tree, and said to be used for

dyeing calico, and as an indelible marking ink, is con-tributed by Sir W. Denison (290, p. 997). The Jury tributed by Sir W. Dentson (290, p. 997). The Ju deemed this substance worthy of Honourable Mention. Specimens of Hinan (Elascarpus hisaus), a bark used in New Zealand for dysing black (5, p. 1001), are ex-hibited by McVar; these will be again referred to as a tanning material. The flax and other substances shown in illustration of the use of this bark by the natives, in dyeing black, are remarkable for the depth and brilliancy

of the dye. Lichen, or orchilla weed, from New Zealand, is contributed by J. A. SRITH (14, p. 1001): this sample appears to contain a good deal of colouring matter, and was,

therefore, deemed worthy of Honourable Mention.

A very fine sample of Alkanet root (Anches disctoria) is shown in the Austrian collections.

Specimens of Hungwa, or saffron; turmeric; and a red colour from China, are exhibited by HER MAJEST COXEUL at Shanghae (p. 1418); samples of whi-mei, a green dye; and of the fruit of the Gardenia radicans. nsed to dye yellow, are also shown.

In the Egyptian collection are specimens of indigo, saffron, and sunuch.

The specimeos of French madder, though not numerous, are of considerable interest and importance. A small series of samples of madder, and of garmeine, as obtained from madder for the use of the dyer, are exhibited by

the Changes of Connecce at Avignon* (1049, p. 1229). The Jury awarded a Prize Medal for these specimens. A good specimen of garancine is also shown by LAZARE and Lacrotz, of Avignon (905, p. 1223). This affords a and LACROIX, or Avignon (903, p. 1223). This affords a highly-interesting example of the practical application of science to the improvement of a natural product. The exhibitors, finding their madder inferior to that grown in

other localities, were led to institute a chemical examination of the soil; It was found to be deficient ju lime, an element of all these soils in which the best madder is grown; the land was accordingly well mampred with lime, and the result was a marked improvement in the quality of the madder. The Jury awarded a Prize Medal for this specimen. Some excellent samples of orchil are exhibited by C.

MOTTET (932, p. 1224). awarded a Prize Medal. For these, also, the Jury

Madder, of very superior quality, is likewise shown in the Algerian Department of the French collection; in particular, the specimens of G. DE MONTHUNT, of St. Joseph, Oran (38, p. 1201), who also shows a fair sample of saffron, were deemed worthy of commendation, and

or sattron, were deemes worthy or cosminendation, and the Jury accordingly awarded Prize Medal for them. The snaples of medder, exhibited by J. Prolin, of Constantice (43, p. 1261), and of Druzz in S. Y. Marn, of Orbol, Omn (23, p. 1361), were likewise considered very good, and each worthy of Honoarnable Mention. As the specimen of saffron, contributed by Dr. Lurzow (AB, p. 1261), or Born, Constantine, was deemed worthy

of Hononrable Mention.

A good sample of "wond," the blac colouring matt repared from the Isatis tinctoria, and which is probably entical in nature with indigo, is shown by Gressler, of Trichtelborn, near Erfart (Zollv. 4698, p. 1089). was deemed worthy of Honourable Mention.

Madder root, from Athens, is contributed by A. Mal-ANDRINUS (3, p. 1400), and from Eubers, by G. PHILLIPros (4, p. 1401).

The colouring matter of safflower, prepared in a con-centrated form for the use of dyers, is exhibited by C.

JAEGER (Prussis 469, p. 1078).

Extract of madder, said to be prepared by a new and cheap process, is shown by A. Scharkeners, of Neustre-

litz (3, p. 1134) A remarkable vellow resinous substance, somewhat resembling gamboge, and called pipitzahuac, but of which no description is given, is contributed from Mexico.

In the Portuguese collection, several specimens of dyeing materials are shown. The most important are a set of licbens, or orchilla weeds, namely, wood orchilla, from Angola, St. Thomas, and Mazambique; and rock orebilla from Angola, Vinnando Minho, Cape Verde Islands, and from Madeira (505 to 508 n). These were deemed worthy of favourable notice.

Wood orehilla from the Cape rock, and rock orehilla wood ofenital from the Lape roes, and rock orbitals from the Berlingues Islands, of good quality, are shown by F. R. BATALHA (509 and 509A). Some good samples of sumach are exhibited by M. B. FERREIRA, junior (510, p. 1315). These were deemed severally worthy of Honouralké Mention.

Two good samples of Russian modder are shown from the Government of Derment. This important root is already cultivated to a considerable extent in Russia, but not nearly in sufficient quantity to meet the demand; so not nearly in sumcient quantity to meet the demand; so that large quantities are imported from Holland, and elsewhere, every year. The specimens shown, which are of good quality, are exhibited by Krain Racinia Ocil, of Cubi (87, p. 1359), and by Baraiker Abakel. (85, p. 1359). These were each deemed worthy of Ho-nourable Mention.

^{*} Awarded also by Jury of Class Il.

Besides these, the Russian collection includes safflower, from Telaff, in Titlis, exhibited by POPUS KYAYLLOFF (90, p. 1869), affron, from Baki, in Shemakha, exhibited by SERGUS AYVAZOFF (91); yellow berries (Rhamar isjectorius), from Cabi, in Derbent (92); sumuch, from Nookha, in Shemakha (93); and the wood of the Statics coriaria, from the Government of Stavropol.

A considerable number of specimens of dveing materials from Spain are exhibited; the best are, the madder; wond or pastel blue (Isatis tinctoria); sufflower or alazer (Curthamus tisctorius); wild sumach; and weld or "gualda" (Resedu Intesia); shown by the AGRICUL-TURAL BOARD of SARAGOSSA (148, p. 1337-38). For these

TURAL BOARD of SARAGOSSA [148, p. 1337-38]. For these the Jury awarded a Prise Medal. (See page 71). Superior samples of madder are bkewise contributed by the Province of Murcis (86, p. 1334); D. ——, of Valladolid (142, p. 1337), and A. MATISSAN, of Segovia (144, p. 1337). These were severally deemed worthy

of Honourable Mention. Other specimens of madder are shown by the Province

of Cadiz, which exhibits the wild or indigenous madder or Castar, which exhibits the wild or indigenous madder from San Lacar (138, p. 1337), by D. ——, of the Canary Islands (141, p. 139c.), by D. ——, of Hoelva, by D. Marxasar, of Segovin, from Cuellar (140, p. 139c.), by R. SEMOVILLA, of Segovin, from Cuellar (143, p. 139), and by D. ——, of Zamora (91, p. 1334). Extract of madder, for dyers, is also contributed by J. Mascos, of Valladelid (17, p. 1334).

D. — of the Canary Islands (141, p. 1337, by D. (86, p. 16 ferona (179, p. 1333), by D. — of Marcia (86, p. 1337), by J. Martiser, of Seville (145, p. 1334), and by D. — of Zanora (31, p. 1334). Two specimens of saffron are shown; namely, by Dona C. Canasta, of Ciudad Real (138, p. 1337), and by D.

A good sample of Alkanet root (Aschuse tiactoria) is contributed by D. ——, of Murcia (86, p. 1334), and

a fair sample of sumach, from Torrelobaton, is shown by D. _____, of Valladolid (146, 1337). Three specimens of dye-woods are shown in the collection of Caba woods, exhibited by the BOTARIC SOCIETY

In the collection from Tunis are shown three sa of indigo; one of saffron; dried pomegranates, said to be used for dyeing yellow; and a specimen of a dye-stuff

named Gämr A very valuable and numerous series of dye-stuffs is exhibited in the Turkish collection, including some of those well known in commerce, and also a few new ones. Samples are shown of-

ı.	Madder	-	-	-	Smyrns.
2.	**	_	-	-	Ghiordes.
a.		_	-	-	Amassiah.
4.		-	-	_	Broosa.
č.	10	_	-	-	Monastir.
6.		Ξ	-	-	Bergan.
7.	,,	-	_		Bakir.
8.		_	-	_	Tripoll.
9,	29	Ξ	_		Bulak Hissor.
o.	99	Ξ	-	_	Konish.
ĩ.	fo	Ξ	_	-	Kukagaseh.
0	99	=		_	Cavadilk.
*	Kellow !			THE COURSE	Angora.
4,		~~.		_	Sinu.
3.				-	Janina.
6.	TV			=	Tokat.
7.	19			-	Kaissarich.
8.				-	Wallachia.
9.	211			-	Koniab.
9. 0,	19			-	Sila A. Minor.
ĩ.	0.00 3			-	Amassiah.
	Safflowe	r	-	Ξ	
2.	29		Ξ	=	Sparts.
13.					Smyrna.
4.			-	-	Constantinople.

26.	Saffron	_	-	-	Philipopoli.
27.	**	-	-	-	Tripoli.
28,	-	-	-	-	Saffranboli.
	Tabach	-	-	-	Koniah,
30.	Sirpik	-	-	-	Nish.
	Amterie		-	-	Tripoll.
32.	Alkanet	•	-	-	Bouldour.
33.	**	-	-	-	Constantinople.
34.	Kins	-	-	-	Mecca.

Besides these, a considerable number of samples of ills, valonia, sumach, and other similar substances, used both in dyeing, and also in tanning, are exhibited. (See page 93.) The substance called Tabach, from Konish, spears to be the dried petals of a flower; it is a rich violet colour, and merits forther examination. Sirpik is said to be used in dyeing yellow.

A good series of samples of madder, both in the form of root, and also reduced to a powder, for the use of dyers, is exhibited by the TECHNOLOGICAL INSTITUTE of Tuscasy (47, p. 1294), and forms part of the collection for which the Jury awarded them a Prize Medal, (See page 71.)

SECTION IV .- TANNING MATERIALS.

Notwithstanding the number of different substances which have from time to time been introduced for the use of tanners, it is, nevertheless, pretty generally ac knowledged that there is nothing superior, or even equal to, good oak bark, and that all attempts to hurry the proeess beyond a certain point by the use of concentrated solutions of tan, &c., are for the most part failures, as solutions of tan, &c., are for the most part failures, as the manufacture of good leather, to a great extent, de-pends on the process being conducted in a slow and gra-dusl, but--at the same tune--thorough and complete manner. Oak bark is, however, by no means the only astringent bark well astited to the use of the tanner, and in various parts of the world other similar substances are used with very great success. All these tanning materials, though they may not be considered, by the English tanner, as equal to the best oak bark, are nevertheless of value to him; they may be employed in conjunction with onk bark, or even as a substitute in times of scarcity, or when the price of bark is high: in fact, the very existcuce of such substances tends to keep down and equalise the price of bark, and prevent it from undergoing those great fluctuations in value which would necessarily occur were it the only tanning material available to our manufacture

The quantity of the chief tunning materials imported in 1849, and the countries from which they were obtained, is shown in the following table:---

				Taneing Bark, &c.	Тегга Јариціса.	Sumsch.	Valonia.
				Cuts.	Cuts.	Cirte.	C+te.
Belgium	-	-	-	141,392	-	140	-
Holland	-	-	-	114,180	-	-	-
East Indian	E	nple	e -	-	169,140	-	-
Naples and I	Sici	lv	-	1.166	-	218,380	-
Turkey -	-	-	-		-	-	296,000
America	-	-	-	42.318	Ξ	-	-
Australian 7	Ter	ritor	ries	-		29,840	15,890
Morocco	-	-		27,619	Ξ	- 1	-
Norway	-	-	-	12,784	-	-	-
Spain -	_	-	-	9,594	-	440	-
Tuscany	-	-	-	9,931	=	20	4,320
Australia	-	-	-	4,563	-	-	-
Syria -	-	-	-	-	-	-	4,290
Greece -	_	-	-	-	-		10,480
Miscellaneon	0.0	-	-	5,033	=	2,980	2,520
Tot	tal	-	-	368,582	169,140	251,800	333,420

A valuable and instructive series of the various tan ning materials, imported into England, or used by tan-ners, is exhibited by Craris Baoringa and Co. (126, p. 204); the following Table shows the names of these anhetances:-

92	TANNING MA	TERIALS IN EA	ST INDIAN COLL	ECTION
1 to 6. Oak bark — 7 and 8. — 9 and 10. Larch bar 11. Mimosa bark — 13. Cerk tren bark — 13. Cerk tren bark — 14. Lendock — 15. Sameh — 18 and 19. Valonia 21. — 22. Divid Divid — 22. Divid Divid — 23. — 24. — 25. Myrobolana — 25. Myrobolana — 25.	k Plons larix = " Acacia sp. = Acacia Arabica Quarcus suber Abics Canadanala Rhus ceriaria	Flanders, geotlend, New South Wales Bengal, Larvete, Kabat, United States, Sielty, Fryman Trieste, Morea in Maracaibo, Hio de la Unite la	26 and 27. Terra Jappenics — J 29. Cutch, black — The Jury awarded instructive series. A considerable numbrown by Messes, like the species of the profession exhibit shown in conjunction of Honourable Mentile An instructive and stances are also shown ponrs; these are as fi	wher of ta vinctons ling gener led are su n with the ling the p he Jury d st. l highly r in the col
	Commercial Name.	Plant.	Whence Imported,	1848
	Cork-tres bark -	Quercus sp Quercus suber - Cusaliniois coriaris	Rabat	Tone. 1

26 and 27. Terra Ja-1	Naucion Gambir -	Singopore.
28, Cutch	Acacio ratecho, &c.	Pegu.
29. Untch, black -	,, ,, -	Calcutta.
- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		

tructive series. A considerable number of tanning materials are also wen by Messrs, Havingtons and Sons, as illustrations the process of tauning generally (Class XVI., p. 518), e specimens exhibited are small, but valuable, as being

we in conjunction with the prepared leather, and refore as illustrating the practical application of the eral substances; the Jury deemed this series worthy Ionourable Mention An instructive and highly useful series of these subnces are also shown in the collection of LIVERPOOL IM-

Commercial Name.	Plant.	Whence Imported.	1818	1849
Oak bark Cork-tree bark - Divl divi Alearobilla - Valooia Myrobolens - Ferra Japoolea -	Quercus sp	Holland; Belgium Rabat Mararaibo Rio de la Hacha - Savanilla Valparaiso Smyrna Camstem East Indies East Indies	Tone. 2:6	Tone, 514 160 400 851
umach, frayer	Areca catecbu - Rbus coriaria	Calcutta Singapore Cayloa Palermo Marsellles Triesta	903 Ra 93	742 re. 93

Specimens of oak bark, gambier, myrobolans, samach, and valonia are included in the collection of HULL Inroars; the yearly importation of these substances into the port of Hull is about 2,500 tons. A fine sample of pure Palermo aumach is exhibited by

J. KITCHIN (126A, p. 205*), as ground for the use of tanners and dvers Besides the tanning materials already imported, a con-

siderable number of new or little known astringent sub-stances are shown in the East Indian collection, some of which appear well to merit the attention of practical men. Amongst those exhibited are the following:-1. Terra japonica, kut or cutch, and catecha, the wellknown extracts of the Acacia catecha, and certain allied plants, from Rutnagherry, Calicot, Moorsbedahad, Patna,

panns, from nathagnerry, cancor, moorsuddingd, Patna, Calentta, Rohilkand, &c. Gambier, the extract of the Nauclea gambir, from Singapore.

2. Acacia or Babool bark, the bark of Acacia arabica,

and A. cuteche, &c., from Madras, Scinde, Shahjehanpore, Robitkond, and Assam 3. Mangrove bark, the bark of the Rhizopora Mangle, from Arracan, Malabar, and Singapore

4. Turwar or cassis bark; Avaraputtai, Tangada jigota (Cassia auriculata), from Vizagapatam; and Sara-condraputtai, Cuasia fistula, from Madura and Tinnevelly 5. Saul-tree bark, Sherea robusta, from the Saul

forests 6. Pomegranate rind, Punica granatum; Darunka

pucke, Dadima jegota, from Kemaon and Vizagapatam; Dalumka kbola, from the vicinity of Calentta. 7. Jumoon bark, Engenia jombolana, from Cuttack, and the Chota Nagpore division.

Samak bark, from Singapore.
 Peal bark, from Cuttack.

10. Dhak gond, pulas, of butea kino, the red astringent exudation of the Butea frondess, from Rajpootana, Cut-tack, Vizagapatam, and Meerut. 11. Vangay or gum kino, Pterocarpus dalbergoides, from Malabar.

12. Kino, or astringent extract of the Buchawanis latifolia (?, from the district of Chota Nagpore, 13. Majoophul, or gall nuts, Fiens infectoria, &c., from

Chota Nagpore and Robilkund divisions 14. Sumrut ool Usc, or tamarisk gall, Tamerix indica,

14. Someti on Use, or management of from Bombay and Lahore,
15. Divi divi, Casalphina coriaria, recently introduced from South America, contributed by Dr. Falconer, from

the Botanical Garden at Calcutta. 16. Teree, Casalpinia sp., contributed by A. Sconce, from Chittagong. 17. Myrobolans, the dried fruit of various species of

Terminalia, extensively used both in dyeing and for tunning; Terminalia belevice, Baheera bhura (or hurrah), from Mirzapore, Robitkuod, and Calcutta; Terseisalia chebula, from Robitkund and Patna. Terminalia citrian, from Patna, Moorshedabad, Cuttack, and contributed also from Assam by Captain SMITH (p. 881). Terminalia elata, (?) Marada, from Mirzapore. Terminalia angusti-

folia, humtokee, from Calcutta 18. Emblic myrobolans, aomla berries, Phyllasthus emblica, from Rajpootana. 19. Mochrus, Bombax molabaricum and B. heptaphyl-

lum, from Meeru 20. Gaub, the fruit of Diospyros glutinosa, from Cal-

From the Cape of Good Hope M. THALWITZER scode samples of taoning bark (3 and 27, p. 949, 950), apparently the bark of a Minoso. Deserving of Honomrable Mention. Some good samples of hemlock bark, illustrating its use as a tanning material, are exhibited by J. ALLON, of Montreal (100, p. 195). These the Jury deemed inte-resting, and deserving of Honourable Mention.

Specimens of the bank of the hog-plum tree, Spendian which is commonly used in British Gniona for tanning, are shown by T. B. Duogin (36, p. 980). A sample of Courida bark, Actorsoia aitida, a tree very common on the castern coast of Demerara, likewise used in tanning, is exhibited by D. SHIER (58, p. 980).

Mimosa bark, bark of the black wattle tree, Acario mollivina, and mimosa extract, the inspissated decoction of the bark, are contributed by T. Button, of Launceston (22, 23, p. 993). These also were decaded worthy of Honourable Mention. A specimen of the same bark is likewise exhibited by - REES (314, p. 998), as prepared for the use of tauners, by chopping into small fragments. Kino from the blue-gum, Escalyptus globulus, the stringy bark, and other Escalypti indigenous to Australia, are contributed by J. Milligan and H. Hull (288, p. 997), and by the Colonization Assurance Conforation.

Several good specimens of New Zealand maning barks are exhibited by J. M.Vav (5, p. 1001). They are ac-companied by hides tunned with the different barks, which are labelled Towai, Tanekuha, and Hinau, the latter being also used in dyeing black. The Jury considered these samples as deserving Honourable Mention. Samples of New Zealand tanning barks are also shown

by Tao Nul, a New Zealand Chief (Gillman, 44, p. 198*). ny 140 AU, a New Zealand Uniet (1-imm), 44, p. 1987). Some good specimens of oak bark from Bruges are exhibited by Sraumar and Bary of that eity 197, p. 154). These the Jury deemed worthy of Honourable Mention. Specimens of oak bark, in the state used by tanners, are shown by the Boans of Austicutivate of the Grando

DUCKY of HESSE DARMSTADT (13, p. 1126, 1127) Good samples of Portuguese sumach are exhibited by MANOEL BAPTISTA MONTEIRO, from Beira-guarda, Algaroc, &c. (510, 511, 512, 513, p. 1313). Bark or rind of the wild pomerranate. Punica crana-

ten, and of the wood and leaves of the samach tree, are contributed from the Government of Shemarha, districts of Shoosha and Mookha, in the Russian empire (88 and 93, p. 1369).

In the collection of raw produce exhibited by the AGRICULTURAL BOARD of SARAGOSSA (148, pp. 1337, 1338) AGRICULTURAL DOUBLE OF COMMENTS A good sample of su-is a good specimen of wild sumset; a good sample of su-seet is likewise contributed from Torrelolaton, by

D of Valladolid (146, p. 1337). Specimens of tanning materials are exhibited by Eu-HAGE ALY ELMAJBOOK, in the collection from (137, p. 1416). able Meution. These were deemed worthy of Honour-

Excellent samples of several important tunning mate-rials (p. 1386), well known in commerce, are shown in the Turkish collection; these include-1. Oak galls - - - Kutava.

2.		-	-	-	Smyrns.
3.		-	-	-	Damoscus.
4.	**	-	-	-	Adain
5.	**	-	-	-	Koniah.
6.	**	-		-	Constantinople.
7.	**	-	-	-	Aidin.
8.	17	-	-	-	Mounstir.
9.	**	-	_	-	
10.		-	-	_	Djibba.
11.	Valonia	_	-	-	Constantinople.
12.	**	-	-	-	Smyrna
13.		-	-	_	
14.	12	-	-	-	Bigha.
15,	11	-	-	-	Adatia.
16.	**	-	-	-	
17.	20	-	-	-	Ushak.
18.			-	-	Sparta.
19.		-	-	-	Broosa.
20.		-	-	-	Adaoa.
21.		-	-	-	Dardanelles.
22.	"	-	_	_	Janina.
23.	17	-	-	-	Kutaya.
24.		-	-	_	Koniah.
25,	Sumach	-	-	-	Kalesariab.
26.	**	-	-	-	Constantinople.
27.			-	-	Konjab.
28.		-	-	-	Damascus.
29.	"	_	-	_	Adana.
30,			-	-	Moulah.
31.		-	-	-	Wallachia.
32.	**	-	-	-	Moldavia.

SECTION V .- FIBROUS SUBSTANCES.

the whole series of raw produce, including as it does the nists admitting the existence of a large number of dismaterials for several of our most important manufactures tinet species of the genus Gossypium, whilst others con-

-cotton, flax, hemp, and the numerous vegetable fibres employed in conjunction with, or as substitutes for, those employed in conjunction with or an authority in substances. For convenience of arrangement, the subject is divided in the following pages into three distinct heads: the first, including the different varieties of cotton; the second, flax and hemp; and the third, consist-ing of the various other vegetable fibres.

The total quantity of cotton, at present annually imported into Great Britain is very nearly 800,000,000 pounds; the proportion in which it is imported from different countries is shown in the following Table, which represents the imports of 1849:-

Per cent	Dist.								
83.9	631,501,050	-	-	-	-	_			United
9.3	70,833,515	-	-	-	-	-	-		East ly
41	30,735,133	-	-	-	-	-	-	-	Brazil
2.2	17,035,528	-1	-	-	-	-	-		Egypt
0.1	944,307	_	dies	a to	Wes	and	ens	Gul	British
-	292,578	-	-	-	-	-	-	-	mha
-	258,650	-	-	-	-	_	abi	rans	New G
-	245,032	-	-	-	-	-	-	-	llavti
-	199,527	-	-	-	-	orie	errit		Austria
-	115, 197	-	-	-	-	-	-		Farkey
-	106, 135	-	-	-	-	-	-	ela	Venezi
-	82.011	-	-	-	-	-	_	_	Peru
-	11,536	-!	-	-	-	-	-		Russin
-	7,889	-	-	-	nies	Colo	mo:	Mrie	South :
-	89,524	-	-	-	-	-	105	nues	Mascell
	89,324	-	-	-		-	ous.	nuec	мисен

Total lbs. - - 755,469,012 100-

A very useful collection of cottons of different countries, arranged so as to show the peculiarities of each fibre, is shown by Dr. Royle (107, p. 203*). An extensive series of the cottons imported into Liverpool is likewise exhibited in the LIVERPOOL collection of imports (pp. 811, 812); these are accompanied by memoranda of the selling prices of each variety in the Liverpool market in October 1850, which, though very useful and instructive, it must be remembered do not express the true overage value of the different cottons at all times, but merely their price at that particular period. It is evident that accidental circumstances may, at any time, cause a rise or depression in value of a particular cotton, as well as give rise to fluctuations in the price of cotton generally.

		Oct. 1850.
East Indian cotton -	Bengal	5]d.
Do	Madras	-
Do " -	Surat (Bombay) -	5d. to 6}d.
Do. (Bourbon)	Medres	7hd.
Smyrna cottou	Smyrns	74d.
Port Natal		94
Venezuela	Venezueia	244
	Alexandria	78d. to 11d.
	Meranham	8ld, to 9ld.
		Rid. to 94d.
		wher to after
		Rid.
Do. "	Ceara	8fd.
Do		8id.
West Indian cotton	Jamaica	10d.
Do. " -	Laguayra	79d.
Do		10d.
Do. " =	Carthagens	51d.
United States	Bowed	71d. to
Do	Mobile	7 d. to 8 d.
Do	Mobile (Mammoth)	10d.
Do	New Orleans -	
Do	Sen Island	
	Sea Island (picked)	
Do. " -	Sea Island (pocked)	24, 6d.

A good deal of uncertainty appears to prevail respect-ing the botanical distinctions to be noted between the This division is, perhaps, one of the most important of various cotton plants of different countries; some botasider them as chiefly varieties of a much smaller number of separate species. According to Dr. Royle, who has most recently investigated the subject, the different variees of cotton may be classed under four distinct species of Gosspium, in the following manner:-

 Gossuprism indicum or herbaceum; the cotton plant of India, China, Arahia, Persia, Asia Minor, and some parts of Africa. 2. Gossypium arboreum; a true cotton, indigenous to

India

3. Gossypium barbadense; the Mexican or West Indian sotton, of which the Sea Island, New Orleans, and Upland Georgian cottons are varieties. It was long since introduced into the Island of Bourbon, and thence into India; hence it acquired the name of Bonrhon cotton. Gossypium peruvianum, or acuminatum; which yields the Pernambneo, Peruvian, Maranham, and Brazilian cotton, especially distinguished by its black seeds, which

adhere firmly together: this variety, also, has long since been introduced into India.

The important discovery, by MERCER, of the influence of caustic alkali in modifying the fibre of cotton, has been already alloded to. He has shown that, by steeping cotton in a cold solution of caustic soda, the fibre loses its flattened ribbon-like form, and assumes a more or less cylindrical shape. This change gives rise to three re-markable effects: the fibre becomes smaller, it gains in strength, and at the same time it acquires an increased affinity for colouring matter. After a minute and careful examination of these effects, the Jury, being convinced of the high practical value of the process, determined to recommend the award of the Council Medal to Mr. Мкиски (38, pp. 555, 556, see p. 69).

The collection of raw cotton exhibited by the Hon. EAST INDIA COMPANY (pp. 882, 883), is, as might be ex-pected, large and highly interesting. It consists of a series of samples of the indigenous cottons of various parts of the Indian empire, and samples of the cottons raised in the various Government experimental farms during the last thirty years, illustrating the effects produced, and the improvements effected, by the numerons attempts which have been made during that period to improve the cotton cultivation of India.

In considering the native cultivation of cotton in Iodia, it must be remembered that, besides the exports to Enrope, very large quantities have every year been mised for home consumption by the native manufacturers, and for exportation to other castern countries,—especially China;—the latter alone having, till within the last few years, generally exceeded the entire annual quantity ex-ported to Europe. Thus, during the ten years preceding 1833 the quantity of raw cotton exported from India to England was about 250,000,000 of pounds; whilst in the same period the quantity exported from Iudia to China, &c., was about 540,000,000 pounds. On comparing together the average total quantity of cotton imported into Great Britain in the years 1830, 1840, and 1850, from the United States and from India, it will be found that whilst the former, during those three periods, has in-creased in about the ratio of 500,000 bales, 950,000 bales, and 1,200,000 bales, the latter has increased in the ratio of 67,000 hales, 163,000 bajes, and 300,000 bajes : showing, therefore, that, large as the annual increased importation of American cotton into England has been, the increased consumption of East Indian cotton has, in proportion, augmented even more rapidly.

The chief varieties of native India cotton, named ac cording to the districts where they are produced, are

1. Surst.	7. Berar.	13 Ladom.
2. Broach.	8 Coimbatore	14. Agra.
3. Dharwar.	9. Compta.	15. Guserat.
4. Tinoevally.	Io. Nagpore.	16. Cutch.
5. Cuddapah.	11. Belgaum.	17. Copean.
6. Nellore.	12. Dacos.	18. Saugur.
Of all these cotton	s it may be genera	lly observed, th

though in some cases the fibre is beautifully fine, it is invariably short, generally badly cleaned, and too often injored, hy careless collection, bad packing, and faulty inland transit. It must be borne in mind, that these

short staple cottons of India cannot be compared with the long staple cottons of the New World; they are, in fact, quite different fibres—they must be treated in a different manner, and their uses are perfectly dissimilar. The question of how far long staple cottons can be ad-In equestion of now far long staple cottons can be ad-awatageously cultivated in India is perfectly distinct from that of improving the production of short staple varieties. The real practical question to be considered is, not whe-ther the East Indian cottons can be made to compete with the long staple American cotton, but whether, hy care and attention, by judicious cultivation,-improved me chanical contrivances, -and the application of skill and perseverance, it may not be possible so to improve the common East Indian cotton as to give to it those characters and properties which will render it of more value to the manufacturer, by enabling him to use it even more largely, and with greater profit, than he is able to do at

On examining the samples of the native indigenous cottons of India, the chief causes of their inferiority are No care or skill in the cultivation, of course, will render the fibre of short staple cotton like that of the long staple variety; but, in many cases, the fault is not the shortness of the fibre, it is, that the cotton has been ruined after it has grown and ripened: either by bad management the staple is broken, or, by exposure to the weather, and by the addition of dirt and impurity of all sorts, its value is most materially diminished. difficulty rests not so much with the cotton as with the cultivator, and with the middleman : the indolent habits, and the dislike of the former to trouble of any sort, stand more in the way of improvement than anything else; whilst the want of proper encouragement to the native to persevere, and, in some cases, the opposition of the Brahmin, combine to prevent any real progress. In those cases where care and attention have been paid, the native cottons sent over are excellent; and there is no doubt that their value will slowly and steadily increase in the English market, if the cotton be sent to market

clean, and in the state in which it is gathered From the samples of experimental cotton, illustrative of the various uttemnts which have been made to intro-

duce the cultivation of American cottons into India, it is obvious that though the introduction of Sea Island-and the other long staple American-cottons may, for the most part, be said to have failed, yet the cultivation and improvement of the New Orleans cotton in India (which, though not the finest, is certainly the most valuable cotton in the world; have been attended with very consi-derable success. The experimental cottons grown from New Orleans seed at the Government farms, from 1830 down to the present time, prove, most satisfactorily, that any quantity of good, sound, useful cotton may be im-ported from India; and that it only needs time and per-severance to give it a high place in the estimation of our mannfacturers. Among the best specimens may be no-ticed the samples taken from the produce of the Government farms at Coimbatore, imported by the "Beresford and "Colonist," and the samples of Sca Island and New Orleans cotton from the experimental farms in Mysore The specimens of cotton grown under the directions of Dr. Wight (p. 882), who has done so much to improve and extend the cultivation of cotton in Iudia, are so good, that the Jury awarded to him a Prize Medai. The cotton grown at Cuddoor hy F. D. MEPPEN is so remarkable for the goodness of its staple, its cleanness, and the careful manner in which it has been handled, that the

Jury deemed it worthy of Honograble Menting Avery promising sample of cotton, grown from Per-nambuco seed, on Mr. Hextio's estate at Sanwak, in Bornco, in exhibited. The staple is pretty long, though a little conrae and uneven; still, it is very clean, has a good colour, and there is no doubt it would find a ready market at a fair price. The Jury awarded a Prize Medal for this cotton.

Among the good samples of well-cultivated native cottons, those of Mr. G. T. Fischer (p. 882), of Salem, may be mentioned. The Jury deemed these samples worthy of Honograble Mention.

A good sample of Pernambueo cotton is exhibited from

Tenasserim; the staple is fair, but a little unequal: it is

l'ennasermi; the stapte le fair, but a little unequair it is a good, useful cotton, and bas a healthy colour. The cotton from New Orleans seed, cultivated at Be-gauna, is somewhat degenerated; it is, however, very well cleaned, in good condition, and is a good, useful cottom. Some of the samples of American cotton from Dharwar are likewise worthy of commendation. Besides these, other good samples of cotton are contri-

hnted by private individuals; special notice must be taken of the Barmese cotton contributed by Dr. Mosrox, of Moulmein (p. 882); the samples of cutton from Bageen, near the Chumbul River, exhibited by his Highness the Maharajah Jyasee Rao Scindia, of Gwalior (p. 882); the cotton contributed by his Highness the RAJAH of KOTAH, from the Rajpootana States (p. 882); and the cotton from Cnteh, contributed by his Highness the Rao

of Curcu (p. 882).

Mention may here be made of the very beautiful fibre of the "simool," or silk-cotton tree, Bembax heptaphyllast, which, owing to the shortness and want of strength of the fibre, combined with its peculiar elasticity, is incapable of being span like ordinary cotton. It is occasionally, in India, more especially in Assum, spnn into a y loose and large thread, which is then woven into cloth with a warp of some other fibre, and forms a soft, warm, and very light fabric. The silk-cotton, being a very tender fibre, cannot be used with advantage as a stuffing material alone; but it is highly probable that it might be very advantageously used in combination with other substances, not merely for purposes of upholstery, but even in the manufacture of mixed fabrics, and for various other uses in the arts. It was suggested by Dr. Percival, in 1787, and by Beckmann, in 1793, that this fibre might be advantageously employed as a substitute for beavers' fur, in hat-making; and Le Breton states that its importation into some countries was forbidden. for fear that it should be used to adulterate beavers' hair. Practical obstacles were, however, found to interfere with this application, and it appears that they have only re-

Specimens of native, Bourbon, and Sca Island cotton, grown at Batticaloa and Jaffna, in Ceylon, are exhibited. 1448) An interesting series of samples of cotton from Malta are exhibited by G. Puls (p. 944), of Moutebello, including Nankeen cotton, Sen Island cotton, and mastoidon cotton:

the latter is a fine cotton; it has a very fair staple, both strong and silky.

Very promising specimens of cotton from Port Natal are exhibited by T. Bazuzt (30 s, p. 950), and C. Maxuzi, of Cape Town (11, p. 950). In both cases the staple is good, and it is evidently a fine and valuable cotton, but budly handled. To each of these exhibitors the Jury awarded a Prize Medal.

Samples of cotton from the West Coast of Africo are shown by Warwick Weston (1, p. 925). The stuple though short, is fine, and if well handled this would pre-The staple, bably be a useful cotton: it was deemed worthy of Hononrable Meution.

A specimen of wild cotton, collected from the banks of the Niger, is contributed by Capt. H. D. TROTTER (5, p. 953).

Three samples from Barbadoes, exhibited by A. READE (972), consisting of Persian or greenseed, common Demerara, and vine or Pernambneo cotton, are interesting; the latter very superior: they were deemed worthy of Honourable Mention.

A series of excellent cottons is contributed by different exhibitors from British Guiana. Amongst these may be mentioned fine, strong, and good-coloured Sca. Island cotton from Batavia Plantation, on the river Mahaica, Demerara; — D. Blatn (71 & 72, p. 981); for these the Jury awarded a Prize Medal.

Excellent Sea Island and other cotton is also shown Excellent Sea Island and other cotton is also shown by J. F. Bee (74, 76, p. 981) from Woodlands Plantation, on the river Mahaica; the staple strong and very good: for these also Honourable Mention was awarded.

Some very good samples of New Orleans and Pernambuco cotton, &c., are contributed by P. Hughes (74 A & B, p. 981), from Anna Regins Plantation, Essequibo: for these samples Honourable Mention was awarded.

An excellent specimen of uncleaned short staple cotton from the Klein Poudcroyen Plantation, river Demerara, is exhibited by A. D. Van der Gon Nettener (73, p. 981): this was deemed worthy of a Prize Medal.

A good sample of New Orleans cotton grown at Blacknow, Jamaica, by W. Finlatson (163, p. 987), was decided

worthy of Houourable Mention, wortay of mosourame mention. A remarkably fine specimen of Sea Island cotton is shown in the Prinidad collection. The seeds were imported from Jamaica; the produce is excellent, has a beautiful silky lastre, and is strong; it was considered worthy of Honourable Mention.

Some long, and strong, but rather coarse cotton is shown by the AGRICULTURAL SOCIETY OF ST. HELENA (2,

p. 955); it is in a tolerably elean condition.
Samples of cotton from Maitland, in New South Wales.

are contributed by Messrs. Dungzon (11, p. 989).

The collection of loog staple cottons from the United States is, as has already been mentioned, remarkably fine. The samples leave nothing to be desired, either as to examination of all the bales, the Jory being desirous of expressing their high appreciation of the degree of per-fection to which the entitivation of this important staple has been brought in the United States, decided on recommending the award of the Council Medal to the Govern-ment of the United States (p. 1431), io testimony of the great and successful efforts made by the cotton planters of that country (see p. 69); whilst at the same time they determined to award a Prize Medal to each of the eleven following exhibitors, without attempting to draw any distinctions :-

S. BOND, of Memphis (37, pp. 1434, 1435). W. Hampton, of Charleston, S. Carolina (172 n, p. 1448)

G. L. Holmes, of Memphis, Tenemee (316, p. 1454). Lonis Prolific. J. V. Jones, of Charleston, S. Carolina (172, p. 1448). J. R. JONES, of Charleston, S. Carolina (172A, p. 1448), D. Las, of Memphis, Tenessee (530, p. 1456).

W. W. M'CLEOD, of Charleston, S. Carolina (172g, p. J. B. MERRIWEATHER, of Montgomery, Alabama (164, p.

320n, p. 1454).
An instructive collection of small samples of cotton is contributed by TRUESDALE, JACONS and Co., of New York (494, p. 1465); this, and also the collection of ELI RAYNER. of Tenessee, were deemed worthy of Honourable Mention.
A fine sample of long staple Peruvian cotton, of a good

and useful character, is exhibited. Specimens of uncleaned Chinese cotton, "Meenhwa, and the same cleaned, "Hwac," are contributed by H. M CONSUL at SHANGHAE (1, p. 1418); the cotton has a good colour, and a fine silky instre, but it is so short that it could only be used for wadding, or to mix with other

cottons; it is very well eleaned, Several good samples of cotton are shown in the Egyptian collection; of these the Mako cotton, first qual exhibited by ABBAS PASHA (106, p. 1409); the Sen Island cotton, grown by T. W. Lankine (134, p. 1409), were deemed worthy of Honourable Meution.

Some interesting and promising samples of cotton are

contributed from Algeria, demonstrating to a remarkable manner the progress being made in that colony; among these, in particular, may be specified the capital Louisiana cotton from M. Chuffart, of Birmandress (17, p. 1260); the Jumel cotton from DUPRÉ de ST. MAUR of ORBAL, Oran (23, p. 1261); the elean, long, and useful Jumel cotton of 1850, from Monts of EL Bian (39, p. 1261); and the strong, fine, and well-eleaned cotton from C. Pelissien of Kaddous (42, p. 1261): for each of these four, the Jury awarded a Prize Medal.

The collection of cottons contributed by A. Handy, manager of the Hamma Nursery near Algiers (28, p. 1261), is also remarkably good; including Georgia, Louisiana, Jumel, New York, Macedouia, and Nankeen cotton of 1849 and 1850; for this the Jury awarded a Prize Medal.

Medal.

Other fair samples of cotton are contributed by F.
Garna of Philippeville, Constantine (26); Halocan of
Drariah (27, p. 1261); and M. Benes (6, p. 1259); these
were deemed worthy of Honourable Mention.

Good cotton entitivated near Lisbon is contributed by A. Sa. Noutreian, 4389, p. 1313; this was deemed worthy of Hocourable Mention. (359) and (340) are good Brazilian cottons from Algarve; they have a long and strong fibre, but are a little coarse and wild.

In the Russian collection there are two samples of cotton: Bourbon cotton, exhibited by Panyer, Nato Dispayanza, from Imeritia (95, p. 1869); and native cotton from the district of Staroor, government of Erivan, cultivated by Annocaza-Manan Guai (94, p. 1899). These were both considered worthy of Honourable Mention.

eultivated by Andourza-Manan Gels (94, p. 1369). These were both considered worthy of Honourable Mention. A fine sample of cotton is shown by M. Hurrell (1428), from the Society Islands, which was deemed worthy of Honourable Mention.

Raw cotton, the produce of the province of Seville, 1 nised from Sea Island seed on irrigated lands, is exhibited by J. B. VILLARS of Seville (162, p. 1339); it has n fine, long, and strong staple, of a very useful character, and was therefore doesned worthy of Honourishic Mention.

A valuable and increming series of samples of estimations in the Trians Chazarry or for produce from these orders are the Trians Chazarry or for produce from these orders is destroyed as a stage, and that preclaim these colous is destroyed as a stage of the triangle of any order of the triangle of the triangle of the triangle of any order of the triangle of the

1. Adana.	7. Pamascus	13 Salonica.
2. Aldin.	8. Danlanelies.	14. Smyrna.
3. Baindir.	9. Drama.	15. Soubougia,
4. Baluk-Hissar	10, Denizlou	16. Thersic,
5. Birtha.	11. Koniab.	Saida.
6. Cassaba.	12. Magnesia.	

PLAN AND HEMP.

The quantity of flax imported into Great Britain has, for a considerable number of years, been gradually increasing. Twenty years ago the annual importation was about 48,000 tons; ten years since it had increased to about 63,000 tons; and not the present time it is about 63,000 tons; and not the present time it is about 60,000 tons; and the present time it is about 60,000 tons; and the present time it is about 60,000 tons; and the present time in the present time in the present time in the present time in the present time is the present time in the present time in the present time in the present time is the present time in the present time in the present time in the present time is the present time in the present time in the present time in the present time is the present time in the present time in the present time in the present time in the present time is the present time in the present tim

		1840	1844	1440
Russia	_	69	7	74
Prussia	-	11	10	10
Holland -	-	9	8	6.5
Belgium -	-	6.5	7	4.
France	-	3.5	3.5	1.5
Other countrie	15 -	1	1.5	4.5

Dering the last few years, great efforts have been under to extend and improve the manufactors of this valuable flew in various parts of the world. The increase under the last heads in the preceding tube, for 1849, is closely due to the impratision of flax from Egypt. It must be remembered that, in addition to the above-neutroned quantity of flax annually imported, the manufacturers of England have cuttivated in various parts of the Entitle capture, choicing in Ireland. This proportion has also emoletally in Ireland. This proportion has also emoletally in Ireland. This proportion has also emoletally in Ireland.

improvement in the quality of the flux itself has also been produced; a change in great inseasor to be traced to the preserveing and most prolecutrity efforts of the Plax in Ireland. The value of flux depress, in part, and the client and soil in which it is cultivated; and in part, also, on the note in which the five is prepared, on the clients and soil in which it is cultivated; and in part, also, on the note in which the five is prepared, on the contrast and vigilant attention which is paid to it it through the virsues stages of the operation. According to its quality, its value varies from about 4th, to 18th, per 10th.

Another circumstance which has given a considerable presents to the cultivation of flax, and is likely to produce, ere long, even yet more marked effects, is the introduction of the late R, B, Schenck's new process of steening.

Formerly the separation of the fibre from the woody untter of the stem was effected by the process of " re of which there were three modifications-dewretting, pond-retting, and river-retting. The stem of the plant consists, essentially, of twn parts :- a wooden centre or core, the sloce or boon, - and the external fibrous portion, which, when separated from the farmer, con-stitutes the flux. These two are cemented together by a glutinous matter, not soluble in water alone, and wh must be got rid of by some means before the pure fibre can be separated from the woody shove. The old mode consisted, merely, in exposing the flax stems to air and muisture under circumstances favourable to fermentation or incipiest purrefaction, so that the gininous matter being destroyed, the fibre could then be easily separated from the shove. Whether this species of fermentation is effected by exposing the flax for some weeks to the action of the dew and rain, spread over meadowswhether it is effected by steeping it in ponds or pits of stagnant water—or, lastly, by sinking it in large wooden frames in the current of a deep and slow-flawing river; there are serious practical difficulties, which have long directed the attention of ingenious men to the possibility of discovering a new and less objectionable mode of pre-During the slow retting of the flax a large paring fax. During the slow retting of the flax a large quantity of certain putrid vapours is given off; the water, and the very air itself, are possoned; and this, alone, is no trifling objection to the process. So serious an objection, indeed, have these patrid exhalations been found to the use of water-retting, that in some districts of Belgium, in Hainault and Namur especially, it is forbidden by law, as being dangerous to "public safety and the health of the inhabitants." In Flanders, however, no such laws are in force, and it is there commonly believed that dew-retted flax is, of necessity, mengre and dry. Many different modifications and peculiar modes of retting are followed in the various flax districts of Belginm, Holland, and France; and in different localities dissimilar modes of retting have long been in use, often involving very considerable variations in principle. at Courtrai, the flax crop is dried in the field and stored for some months in barns, before it undergoes the process of retting in the river Lys. In the district of Waes, it is retted immediately after being gathered, the green stems being at once thrown into pits of stagnant water, As, however, the whole operation, in every kind of waterretting, depends on the amount of fermentation pro duced (which must be enough to insure the decomposition of the glutinous matter, but not enough to cause any injury to the fibre), the process is necessarily slow. tedions, and very nucertain, especially towards the close of the operation, because then, the flax must be most carefully watched, in order to put a stop to the fermen-tation as soon as the desired effect is produced. A slight change of temperature, or a few hours' exposure, when the fermentation in complete, may produce the most disastrious effects, the fibre being in fact ruined. Dewretting is of course even slower than water-retting; depending, as it necessarily does, on the nature of the season, and being greatly returded by long-continued dry weather. In the very dry antumn of 1810, it was found impossible to prepare flax by this method, and recnurse was abliged to be had to other methods of retting.

During the last half-century various attempts have salt of sorrel was used for the some purpose; nod in 1775, been made to effect the separation of the fibrous from the woody portion of the flax stem by chemical and memeans. In several cases the resolts at first appeared to be very promising, but to every instance it was soon found that there were insuperable practical objections, which more than counterbulanced the advantages. Among chemical agents, solutions of sulphuric acid, caustic potash, caustic soda, quicklime, and soft soap, were all, in turn, tried and discarded; and among mechanical processes the ingenious contrivances of Mr. James Lee and Messes. Hill and Bundy shared the same fate. Mr. Lee, having found a means of separating the fibre of flax without water-retting, and the discovery being considered one of very great importance, obtained a patent for his mechanical process in 1812, with the singular protection of a special Act of Parliament, by virtue of which he was exempted from specifying the particulars of his process during the first seven years of the duration of his patent. In 1817, and therefore before the publication of his specification, Messrs. Hill and Bundy took out their patent for machinery for hreaking and preparing raw flax and bemp. The rival claims of these two inventors were investigated in 1817 by a committee of the House of Commons; but whatever may have been the comparative merit of the two processes, in the course of a very few years both were relinquished and forgotten. Since that time various other ingenious mechanical arrangements have been devised, but hitherto they have had very little success.

Schenck's process, for which he obtained a patent in 1846, is undoubtedly a very important impowement; it consists merely in steeping the flax stems in warm water, heated artificially to the temperature best suited to fermentation. By this simple means, the operation is rendered rapid and certain, all uncertainty from fluctuations in the temperature and weather is avoided, and the whole process is entirely under the command of the manufacturer. The temperature best soited for this purpose is about 80°, or from 80° to nearly 90°; above this point the process proceeds too rapidly, and the fibre is almost sure to be more or less injured. The time required is from about 70 to 90 hours.

From the faets and evidence brought forward by various independent exhibitors, it appears satisfactorily proved that the warm-water steeping increases the percentage of fibre obtained from the flax stem over that obtained by the old modes of retting by nearly one-fifth; and that, whilst the fineness and spinning qualities of the fibre are increased, the strength is in no way weakened or diminished, unless the process be permitted to proceed too far, an effect which need never happen, from the complete control over it which the manufacturer has throughout. Although there is no doubt as to the practical value of the use of warm water in flax-retting, yet the introduction of Schenck's process is far from removing all the difficulties of the flax manufacture; much still remains to be effected, and it is hy no means improbable that, ere long, a yet more perfect process may be devised.

It is interesting to observe that the use of warm water

in the preparation of vegetable fibre is not altogether new, it having been long employed by the Malays, and by the natives of Rangpoor, in Rengal. The process adopted at Bencoolen is stated by Dr. Campbell to conslat in steeping the stems of the bemp in warm water, in which it is allowed to remain for two days and nights

The old German process called " Molkcorost," times used in preparing the finer sorts of flax, is also, to some extent, ao application of the same principle. this mode of retting, the flax was steeped for four or five days in n warm mixture of milk and water, and thus the desired degree of fermentation in the flax stems was produced. This operation must be distinguished from the more modern one, in which sour milk was used in the more mouern one, in which some make was used in order to give a good colour to linen, a process introduced by the Dutch towards the middle of the last century. The linen was boiled in a weak alkaline lye, and subsequently treated with sour batternilk, for the purpose of aiding in removing the alkali, and dissolving the earthy impurities present in the fibre. Occasionally, also,

Reuss states, that sulphuric and murintic acids might be used for the same purpose; but that being too costly, they had not as yet come into general use. Of course, all processes in which boiling or even hot water is used are quite different in their mode of action from those in When boiling which only warm water is employed. water is used, it is with a view of dissolving and removing the uscless untters which enerust the fibrous part of the plant; whilst, on the other hand, warm water is used to soften them, and to aid in their putrefaction or decomposition, through the ageocy of fermentation 1787, much interest was excited in Ireland by the publication of a plan for improving the retting of flax by the action of hot water; in this scheme, it was proposed to scald the flax-stems in boiling water to soften them, and to remove a portion of the extraneous vegetable matters which they contain; and it was conceived that after this treatment the subsequent retting of the flux would be more rapid, certain, and manageable; so that time woold be saved, the noisome process of pond-retting be obviated and the result be to yield a stronger and whiter fibre. The minute and careful experiments of Hermbstaedt, on the chemical principles involved in the retting of flax (made about the beginning of the present century), threw much light on the whole subject, and to some extent in-dicated the influence of temperature on the success of the operation.

The entire collection shown by the "Royal Society for Improving and Promoting the Growth of Flax in Irelaud" (106, p. 203*) is so highly valuable, and so clearly illustrates the great advances which have already been made in these matters, and the important service which this society has already rendered to the country, that the Jury determined to mark their high appreciation of the Society's labours by the recommending the Conneil Medal. (See p. 69.) Among the individual specimens of particular merit may be mentioned the flax exhibited by Wattra, of Antrim, Prezros, of Belfast, and Adams, of Ballyderitt, near Coleraine (48, p. 198*): to each of these three the Jary awarded a Prize Medal.

A very useful and complete series of the principal commercial varieties of flax, hemp, and similar fibrous materials, commonly net with in the English market, is contributed by Messrs. Hurchitson (40, p. 197*). The samples, which are all good, are as fullows :--

Flaz. French fian Flemish do. English de Dutch de. Egyptiao do. New Zenland do. Friceland do. Archaogel de, Нетр. Petersburg best ber Egyptlan hemp Petersburg half-clean hemp. India brown do. India scum de.

American do.

Manilla do.

Italian do.

For this collection the Jury awarded a Prize Medal. A numerous series of specimens are contributed by P.
CLAISHEM (105, p. 202*, 203*), in illustration of his patent process of making flax cotton. This process (patented August 1850) consists essentially in boiling the cut and crushed stems of the flax, hemp, or other plant, in a dilute solution of caustic soda, containing about one two-thousandth part of alkali. The fibrons matter is then removed, and plunged into a bath of dilute sulphuric acid, containing one five-handredth part of seid, in which it is boiled for about an hour. It is next transferred into a solution containing about ten per cent, of carbonate of sodn; and lastly, when it has remained in the latter for an hour, it is planged into a weak solution of sulpharie acid, consisting of one part of scid to two hundred or five hundred parts of water; in this it is left for about half The effect of an hour, and the process is completed. an hour, and the process is completed. The these several processes is "to divide and split up " the fibre io a most remarkable manner, so as completely to alter its character. Flax thus treated is converted into a substance very nearly resembling cotton. It is probable that flax cotton can be advantageously used in the manufacture of mixed fabries, as it appears capable of being span with wool, silk, and other fibres. It may, therefore, perbaps hereafter lead to several new and important practical applications. For this ingenious process the Jury awarded a Prize Medal.

The idea of modifying the fibre of flax and hemp, so as to convert it into a kind of cotton is by no means new. as to convert it into a kied of cotton is by no means new. In 1747, Lillikireazes and Palmquist described a mode of converting flax into "cotton" by boiling it for some time in a solution of caussite potash, and subsequently washing it with sonp. In 1775, considerable quantities of refuse flax and hemp were converted into "flax-cotton" by Lady Moirn, with the aid of T. B. Bailey, of Hope, near Manchester. The full details of the process employed do not appear to have been published; but from Lady Moira's letters in the "Transactions of the Society of Arts for 1775," it appears that the fibre was boiled in an alkaline lye, or a solution of kelp con-taining carbonate of sods, and subsequently scoured. The result of this was, that "the fibres seem to be set at liberty from each other," after which it may be "carded on cotton cards." It appears that at this simulations "carded on cotton cards." It appears that at this time
"flax cotton" was made and sold at threepence a pound; and Lady Moira states that she believes that it takes colours better than flax. It is curious to observe the fate of Lady Moira's scheme: she says, "I have no reason to be vain of the samples I have sent you, they merely show that the material of flax cotton, in able hands, will bear manufacturing, though it is my ill fornames, will bear inautificturing, though it is my it it-time to have it discredited by the artisans who work for me. I had in Dublin, with great difficulty, a gown wore for myself, and three waisteens; but had not the person who employed a weaver for me particularly wished to oblige me, I could not have got it accomwhere to beinge me, a count not cave got it accords
plished; and the getting spun of an ounce of this cotton
in Diblin I found impracticable; and the absurd alarm
that it might iojure the trade of foreign cotton had
gained ground, and the spinners, for what reason I cannot comprehend, declared themselves such bitter enemies not comprehend, declared themselves such bitter enemies to my scheme, that they would not spin for me. Such is my fate, that what between party in the metropolis and indolesce in this place (Ballynahyuch), I am not capable of doing my scheme justice. That it should ever injure the trade of foreign eutton is impossible. Though long accustomed to behold shore and stockings looked upon in this part of the world by the generality as quite unnecessary, yet I cannot think but some apparel is re-quisite: and as the price of wool is so high, and the poverty of the prople so great, I did wish to introduce amongst them that invention which I saw might be greatly improved, and turn the refuse of flax into comfortable clothing, and by a process so easy that every industrious wife and child might prepare it." Lady Moira states, that the flax-cotton gowns which she had had made, and which were worn by the members of her own family, were exceedingly durable; and the specimens of these fabries, as well as of the flax-cotton prepared by her, which are still preserved in the Museum of the Society of Arts, &c., are bigbly remarkable for their beanty.

Subsequently to this, several attempts were make in Emergency to cover the line in the first confidence of the Community of t

introduction of flaccotton, for Flockmans, who peaks in the man of in manufacture uses Processed, since that has been of in manufacture uses Processed, since that has been described by the same flushes and the same flushes and the same flushes the described by the same flushes the described by the same flushes the description is not been reasonabled to the contract to coolinary center is also remarked before it in cardo, it is not probable to distinguish it from coston, either in its new state or when manufactures of the same flushes to the contract of the same flushes and the same flushes the flushes and the same flushes who can be placed attenuably resempts in hot obtains of one, placed the same flushes who can be same flushes and the same flushes are same flushes who can be same flushes and the same flushes are same flushes.

monest refuse tow, as from the lest flax.

A good sample of well-prepared flax is exhibited by
Messrs, Caron and Nelson (46, p. 198*). It is shown not
on account of superiority of fibre, but as a specime
of manipulation and treatment; it is very creditable, and
was deemed worthy of Honourable Meution.

Some good samples of flax are exhibited by G. Mazow (34, p. 1997): they are, 1st, flax grown, steeped, and scutched at Yately, North Ilaots, flax grown in South grown at Embedding and the grown at Embedding and the grown at Embeddency fl. There are likewise samples of flax scutched at Winchester County Gasd, and several specimens of tow; and the whole is illustrated by a series of models of the tools and implements used in the period of models of the tools and implements are in the grown of models of the tools and implements are discussed in the contract of the series when the contract of the series are the series of models of the tools and implements used in the series of models of the series and the series of the series are the series of the seri

Some excellent specimens of yellow flax, grown as frimmingham, in Norfolb, by Mr Wakassa, and some blue flax grown in Yorkshive, as well as some of the bibliotic and contrasted, both in the raw and partly manifectured states, by Messrs. Hivra and Araxisos, of Leeds (4, b, 189-). For gree very crediable, and fully en-Excellent Courtrail flax is also exhibited, for best quantity and faith, by Messrs. Mansanal, of Leeds (55, 1900) and faith, by Messrs. Mansanal, of Leeds (55, 1900) and faith, by Messrs. Mansanal, of Leeds (55, 1900) and faith, by Messrs. Mansanal, of Leeds (55, 1900) and faith, by Messrs. Mansanal, of Leeds (55, 1900) and faith, by Messrs. Mansanal, of Leeds (55, 1900) and faith, by Messrs. Mansanal, of Leeds (55, 1900) and faith, by Messrs. Mansanal, of Leeds (55, 1900) and faith, by Messrs. Mansanal, of Leeds (55, 1900) and faith, by Messrs. Mansanal, of Leeds (55, 1900) and faith, by Messrs. Mansanal, of Leeds (55, 1900) and faith, by Messrs. Mansanal, of Leeds (55, 1900) and faith of the leeds (55, 1900) and (55, 1900) and

Hity and finish, by Messix. Marshall, of Leeds (55, p. 199*); these also are well entitled to Honourable Mention. (See p. 101). An interesting series of samples of flux, prepared by mechanical means alone, is exhibited by M. J. J. DONLAN

(40, p. 1974, 1997).

(40, p. 1974, 1997).

(40, p. 1974, 1997).

(41) the second of t

Dinnington, are excellent.

Some good samples of hemp, accompanied by cloth
manifectured from it io the Himalayas, are shown in
the valuable collection of East Indian fibres.

Samples of Canadian flax are exhibited by M. Barriex, of St. Rise (70, p. 963), and of hemp, by F. Garcz, of Montreal (71, p. 963). In both cases the quality of the fibre is good, but its preparation is faulty and objectionable; with a little more care the value of each would be considerably insereased: they were both deemed worthy of Honourable Mention.

A good specimen of flax from Van Diemen's Land is exhibited by J. Dixon, of Skelton Castle, Isia (19, p. 99), and by F. Lirpcontm: (14, p. 995): these were both deemed worthy of Humonrable Mention.

A few small samples of flax and hemp from the United States are contributed by E. R. Dix, of Vernon, New

York (139, p. 1441). They are of fair average quality, but

Awarded a Prize Medal by Jury of Class XtV.

not remarkably fine; they were, however, deemed worthy of Honourable Mention,

Fine samples of strong and well-prepared flax are shown from the FLAX SPINNING MILLS of Schöuberg, in Moravia (95A, p. 1012), by Jacon Binsmat's (95, p. 1612), and FLAX-RETTING ESTABLISHMENT AT UIfrom the PATENT lersdorf, also in Moravia (96, p. 1012), the latter including raw flax-the same water-retted-and heckled flax. A Prize Medal was awarded to each of these three series.

The samples of Belgian flax are, as might be expected, excellent, and well sustain the high and acknowledged reputation which it has long enjoyed. Several of the specimens shown are remarkably strong, fine, and mellow. In particular, the Jury would specify the flax shown by DAYID and Dr. Bon, of Autwerp (98, p. 1154); DESMEDT and Co., of East Flanders (104, p. 1154); J. B. VAN BOGAERT, of Grimbergen, in East Flanders (107 p. 1134), who also shows some excellent hemp. P. J. Vernerex, of Grimbergen (113, p. 1154), and J. B. Van Wille, also of Grimbergen, in East Flanders (114, p. 1154), who contributes pond-retted flux of 1850. To each of

these five the Jury awarded a Prize Medal.

Fine samples of flax are also exhibited by DEGRASTE-DELFOATRAIR, of Ghelueve, West Flanders (90, p. 1154); F. LECLERCQ, of Lougehamp, Namur (88, p. 1154); F. VERCRUSSE, of Dewbyck, near Courtral; and J. C. VAN ACKERE, * of Wevelghem, in West Flanders (215, p. 1154-1158); these were deemed worthy of Honournhie Mention. Several good specimens of flax in its various stages of preparation are likewise contributed by Rokes and Co., of Lokerea (83, p. 1154); Dr. M. LAVIOLETTE, of Bruges (96, p. 1154); S. P. Van Hoev, of Hamme, in East Flanders (106, p. 1453); B. Haker, of West Flanders (115, p. 1154);

and by the FLAX COMPANY OF GHENT (230). Among the samples of Belgiau hemp, those of F. Vzn-Among the samples of beignan neuro, those or 2. Figure 7. Relater, of Grimbergen, in East Flanders (102, p. 1159); Pizanz Jrax V Jan Kirt, of Moerzeke, in East Flanders (103, p. 1154); and J. L. Gurta, of Appels, in East Flanders (105, p. 1154), were deemed the best: the Jury awarded a Prize Medal to each of these three.

In the EGYPTIAN COLLECTION of mw produce, several recimens of first and hemp are shows. The first of Facum (107, p. 1409), that from Mensuf (108, p. 1409),

and the sample of hemp (152, p. 1469), were deemed worthy of Honourable Mention. Very superior flax and hemp are contributed by some French exhibitors, especially from the Northern Departments. Among the exhibitors of flax may be specified ments. Among the exhibitors of flax may be specified L. Detwontrae, of Bourbecque, near Lills (177, p. 1182), who shows flax of the year 1849, retted in the river Lys. P. Roczez, of St. Brieux (362, p. 1171; Journaux Boxxanar, and Co., of Angers (552, p. 1205), who also show excellent hemp; and E. H. Latitazza (559, p. 1205); to each of these four, severally, the Jury awarded a Prize

Among the French exhibitors of hemp, those deserving Among the French Various of nemps, the School of special notice are Messrs. Bennand, Richork, and General, of Angers (61, p. 1174). Laine Labouer, and Max-Richards, of Angers (286, p. 1190); and Lattlese Brottiers, also of Angers (576, p. 1205); to each of the state of the Angers (576, p. 1205); to each of the state of the Angers (576, p. 1205). these three the Jury awarded Prize Medals.

In the Zollverein collection, the samples particularly deserving notice are those shown by A. RUYIN, of Rüstern, Liegnitz (34, p. 1049), specimens of flax swingled in the Belgian method, by the Baron von LETTWITE. of Simmenau, near Ippeln (42, p. 1050); and G. Me-vissen, of Dülken, near Düsseldorf (557, p. 1082); to these three the Jury awarded Prize Medals

The samples of flax contributed by E. F. ELERENDORF,* of Isselhorst, near Bielefield (470, p. 1078); Könics and REKELERA, of Dilken, nesr Disseldorf (532, p. 1081); A. BRUENGER, of Jöllenbeck, near Bielefield (539, p. 1081); 1082); and C. E. Honnio, of Brunswick (722, p. 1090); and P. OLLENDISSEN, of Urentrup, nesr Bielefield (531, p. 1081); were severally deemed worthy of Honomrable Mention. A good sample of hemp is exhibited by the Landwinter-

SCHAFTLICHER VEREIN, at Sangerhansen.

* Awarded also by Jory of Class XIV.

Some samples of well-prepared flax are also exhibited from Saxony: those exhibited by C. Sonner, of Sorner, near Mügen (1, p. 1104), J. WATTEVNE, of Lichtenburg, near Freihurg (2, p. 1104), and W. GAETZICHNANN, of Zittau (3, p. 1104), were deemed worthy of Housirable Mention.

Specimens of flax and heup prepared in a peculiar man-uer, are shown by S. L. Swaan, of the Hague (50, p. 1145). In the Portuguese collection, there are several sp of both flax and hemp. The hemp from Catharia, exhibited hy the Duke DE PALNELLA (530, Class I. and II., p. 1550), shown both in the state of dried stems and partially dressed, was deemed worthy of Honourable Meution.

Several specimens of flax and hemp from Rome are Several specimens of flax and hemp from Rome are also shown. A sample of Centees hemp, contributed by the Chamber of Conneases of the city of Cento (9, p. 1285), was deemed worthy of Honourable Mention. Hemp in also exhibited from Bologna, by the COLYMPRANCONCIN (4, p. 1285), and by MARCY MINCHITTI

BIANCONCINI (4, p. 1250), and by Marcy MINCHISTI (10, p. 1253). A large and important series of flux and hemp samples is shown in the Russian collection of raw produce, and several of them are capital specimens. The flux is in considerable variety—from fine and sillty, down to course and wiry; some of the specimens are a little unequal and irregular. Among the best many be mentioned those of ANDARATERY BROTHERS, from the government and district of Novgorod (99, p. 1069); E. Kannoviron, from the government of Jaroslaff (101, p. 1367); and those from Valk, in the district of Vissk, government of Esthonia (106, p. 1369); some of the latter, in particular, are especially fine. The Jury awarded Prize Medials for these three.

these three cellent far is also exhibited by Merunci BRARRENT (Kholen, in the government of Peruncia (96, p. 1569); from the Fark or Gostoomrax, in the government of Mediled (214, p. 1370); Chaura, Mon-Moria (1988); and the second of the contract of the S. Zakasacory, of Kholen, in the government of Phica, (108, p. 1370); and Kowai Minnonstructure, of Podjoi (110, p. 1370). The samples from these five exhibitors were deceased worth of Honourish Medician.

Good specimens of flax are also contributed by JOHN and THEODORE ARBAMATSKY, of Soletz, in the governand I REDDOME ALLAMATERY, of Solett, in the government of Pakes, [47, p. 1309; John Ardamatery, of Porkos, in the government of Pakes, [36, p. 1369); MELNEGF, of Melcakos, in the government of Vladinis, (111, p. 1370). Theodome Vanishoff, of Solett, government of Pakes (112, p. 1370); and the Verlino Estate, in the government of Jaroslass (105, p. 1369).

in the government of Jaroolaff (105, p. 1369).
Of the samples of Rossian hemp, the best are those
exhibited by Kasserkxxxxxvr, from the district of
sevel, government of Orel (100, p. 1369); Kossar Etzksassory, of Elisk, government of Jaroolaff (103, p. 1369);
and the Parsker Volkrassky, from the district of Serok,
government of Orel (108, p. 1370). For each of these
three series a Prize Medal was awarded by the Jury. Very good samples of flax and hemp are exhibited it the Spanish Department of raw produce; among the best are the fiax contributed by F. A. Vallowa, of Cacabetos, Leou (98, pp. 1334, 1335); the Province or Huesca (158, 1339); and by P. De Las Itemas, or caporal land. These were severally deemed worthy of Honor and by P. De Las Henas, of Segovin (161, p.

Good specimens of flax are also contributed by J. M Caldenox, of Grennela (152, p. 1338); J. Piyan, of Leon (159, p. 1339); fiax from Calateras, and Vega de Monasterios, by Dr. Las Heras, of Zamora (91, p. 1339); fiax from Camarram, and Poebla de Sanabria (91, p. 1334); and by DE Las HERAS, of Saragossa; flax from

able Meation

1339); 360 by De LES TERRAS, OF CHERGONS, OR ACCOUNT OF THE BOY'S DE LA STREAM, OF CHERGON, OF GRENDA (152, p. 1338); P. MARTINEZ, OF Valencia (156, p. 1339); and by COURT RIFALDS, from Valencia (163, p. 1339). For each of the Court of the nipalda, from valencia (163, p. 1339). For each of these three samples, the Jury awarded a Prize Medal.

A very excellent specimen of strang, though somewhat coarse hemp, is also shown by A. Diez De Ribera, of Grenada, (172, p. 1339); this was deemed worthy of Hononrahle Meution.

Samples of hemp are contributed likewise by the Municipal Corporation of Castellon (153, p. 1338); D. Ds.—, of Murcia (154, p. 1338); D. DE.—, of

Saragossa (155, p. 1338). Some interesting samples of water-retted flax from Angermaland, in the north of Sweden, are exhibited by Johan Johanson (21, p. 1350). The flax is of very good quality, though not well manufactured; it was owever deemed worthy of Honourable Mention, In the Turkish collection, six samples of flax and two

nf hemp are exhibited; the latter are from Djanik, and Wallschia; the former from Endemith, Djanik, Unia, Aidin, Drama, and Wallachia.

MISCELLANE ES FIBRES.

In the various collections of raw produce, a very large number of other fibrous substances, used as substitutes for cotton, flax, and hemp, are shown; some of these are new or but little known, and among them are several which, from their valuable properties, seen likely, ere long, to become important articles of trade, and not merely to form excellent substitutes for the substances already employed by unnunfacturers, but even in some cases to

lead to the development of new branches of industry An interesting series of hemp, flax, and other fibrous substances is contained in the Liverpool collection of imports, these include-

		i									1819	1850
											Tores,	Tens.
I. Dutch flax	-	Linum neitatiselmum	-	-	Holland	-	-	-	-	-	78	153
2. Egyptian ditto	-		-	-	Alexandria	-	-	-	-	- 1	-	270
3. Tow	-	111 11	-	-	Helland	-	-	-	-	- 1	3	3
4. Hemp	-	Cannable sativa	-	-	Canada -	-	-	-	-	-	- 1	-
5. , Polish Ryne -	-		-	-	Poland -	_	-	_	-	- 1	- 1	_
	-	1 11	-	-	Russia -			-	-	- 1	- 1	-
6. , Petersburg - 7. , white crown -	-	::	-	-	Marienburg	-	-	_	-	-	-	-
8. , Italian garden	_	1 11 11	_	_	Italy -	_	_	_		-1	-	_
9. Bombay	-	Hibiscus cannablnus -	_	-	Bombay	-	-	=	_	-1	199	212
16. Jute		Corchorus capsularis -	Ξ	-		Ξ	Ξ	_	-	-	8.660	12,216
11. Sunn	-	Crotolaria iuncea -	_	-	Last Marce	=		-	-	_	0,000	81
12. Ceir roue		Cocos pprifera		-	Bombay an	īc.			-		470	1,100
18, yara			-	-				ta.	-		200	370
ia. ,, yain	_		_	_	**		* *		-	- 1		
											Bales.	Bate .
14. China-grase	-	Urtica nives (?)	-	-	Canton and	Hor	ng K	ong	-	-	150	320
											Tone.	Tons.
15. Picaba	-	Attalea funifera	_		Para -				-	_	-	300
16. Manilla bemp	- 5	Musa testilis	-	Ξ	Manilla -	Ξ.	-	-	Ξ	- 51	81	193
17. Brazil Palmetto		Carnanba palm	Ξ	- 5	Pars -	-	-	-	- 5		Orcas	
18. Brasil Jute	-	Unknown	-	-		-	-	_	-	-		
19. Spanish moss	-	Tillnodsin usocoides -	-	-	Brasil -	-	-	-	-	-		,
19. Spanish moss 20. Vegetable Silk		Chorisa speciosa	-	-	Brasil -	-	-	-	-	- 1		,

Samples of flax from Holland, Belgium, France, and Russia are shown in the Hull collection of imports, and the quantity of flax imported annually is stated to be 310,000 ewts, Specimens of hemp are exhibited also from Prustin and Italy, the yearly import of which is about 55,000 cwts.; and samples of East Indian hemp, Manilla hemp, and jute; of the latter, about 1,100 cwts. are annually imported.

Amongst fibrous materials, one of the most interesting is the "China-grass," of which numerous specimens are exhibited in various departments of the Building, some of the most complete and valuable series being in the

English Gallery Although China-grass fibre is comparatively a new material in the hands of our manufacturers, yet it has been known to men of science for a very considerable time; but certain practical difficulties have hitherto prevented it from being usefully and profitably employed. China-grass fibre is obtained from Urtica sives, abundant in China and in various parts of the Indian empire, where it has long been used by the natives, who, by the simple maceration of the plants, obtain from them a strong and very useful fibre. Of the various fibres examined by Dr. Roxhurgh, at the commencement of the present century with a view to the discovery of some cheap and good with a view to the discovery of some cheap and good substitute for heum, one of the most promising was the "Callooce" hemp, "Kankhura," or the "Ramy," of the Islands and Malay penisusla. This he found to be the produce of an Urtica, to which he gave the name of U. tenezissina. The plant was introduced in 1803, from Bencoolen to Calcutta, where it was cultivated for several years in the Botanic Garden, then under the charge of Dr. Roxburgh. A considerable quantity of Callooce hemp having been imported into England in 1814, its practical value was tested by some competent authorities; and as the reports were highly favourable as to its strength and other valuable qualities, the Society for the Encouragement of Arts and Manufactures awarded a silver medal to Captain Joseph Cotton, of the East India Company, for

its introduction. The chief obstacle which interfered. however, with its use, was the difficulty which was found to exist in the preparation of the fibre from the stems of the plants; none of the processes usually adopted with flax or bemp were found to be at all suitable to them; and the rude, wasteful, and imperfect means employed by the natives in preparing the fibre for the manufacture of twine, thread, and fishing-nets, by the mere process of scraping, were wholly imapplicable on a large scale, and gave, besides, only a very interior result. When manufacture of the manufacture of the manufacture of the manufacture and the manufacture and the manufacture of the manufacture and the manufacture of the cerated or retted in water, it was found that the fibre itself was more easily destroyed than the glutinous mat-ter of the stem. It was hoped that the introduction of the machines of Mr. Lee, and of Messrs. Hill and Bundy, already referred to (see p. 97), would have obviated this difficulty; but such did not prove to be the case.

During the last farty years, various attempts have been ade to devise a good and cheap process for preparing this fibre, but hitherto without much success; and con sequently, till quite recently, the cost of the fibre was such as to preclude its being brought into the market as n as to precing the length of th obtained, in almost unlimited quantities, in various parts of India; and a process, which has lately been patented appears, to a very great extent, to have removed the practical difficulties which previously stood in the way of its employment by manufacturers; so that in a few years it is probable that the Callooce bemp will constitute an important addition to the fibrous materials employed in the arts. The process of Messrs. L. W. WRIGHT and Co., for the

paration of China-grass, &c., for which a patent was obtained in 1849, consists, essentially, in a very ingenious arrangement for boiling the stems in an alkaline solution, after they have previously been steeped for 24 hours in cold water, and for 24 hours in water of a temperature of 90°. The fibre is then thoroughly washed with pure water, and finally subjected to the action of a current of



series of specimens illustrating the preparation of this fibre, the various stages of the process, the bleaching of it, and the uses to which it may be applied, both alone and in conjunction with other fibrous naterials in the forma-tion of mixed fabrics, is shown by Messrs. WRIGHT (42, p. 197*). For these the Jury awarded a Prize Medal. Very beautiful samples of Chiua-grass fibre are like-wise shown by Messrs. Htvss and Atkinson* (45, p.

198"), already mentioned as exhibiting superior sample of flax. For these two series the Jury awarded a Prize Medal.

Equally fine specimens are exhibited by Messrs, Manshall and Co.," of Leeds (55, p. 199"), whose samples of flax have already been alluded to. For these samples also the Jary awarded a Prize Medal.

A valuable and instructive series of samples of New Zealand flux is contributed by E. W. Tsent (41, p 197*), in illustration of its manufacture and uses. It is stated that the flax is prepared from the leaves of the Phormium tenar, without muy process of steeping, and by a simple mechanical process, which the exhibitor suggests might be advantageously carried on in New Zealand itself. This series was deemed worthy of Hunnurable Mention,

Some interesting specimens, showing the native manufacture of New Zealand flax, are likewise exhibited by Tao Nvt, a New Zealand chief (44, p. 198*). The flax is prepared for weaving, by soaking it for two days in water, twisting it into hanks, and then beating it with a mallet on a stane. This series was deemed worthy of Honourable Mention

Honourable Mention.
Good specimens of eccoa-sust fibre are shown in illustration of the various purposes to which it is now extensively applied, by J. Bassaus (5c, p. 199*), and by Wilhert and Co. (Class XXVIII, 40, p. 780). In this department of raw produce, as in most others, the East Indian collection is peculiarly rich,—very learning the contraction of the produce of the contraction of

(pp. 382-384). The old investigations of Dr. Raxburgh, in se beginning of the present century, already referred to, are of much importance in counexion with this subject; and it is remarkable that though the value of some of these Indian fibres was well known to him, and that he repeatedly sent samples of them to this country, they have pever received that attention from practical men which they certainly deserved, with the exception of one or two that have long since became considerable articles of import. Of these, we may instance the jute, the fibre of the Corchorus capsularis, and C. olitorius, of which, as has just been stated, more than ten thousand tons are annually imported into Liverpool alone. The following Table shows the comparative strength of several of these East Iudian fibres, as ascertained by Dr. Roxburgh; but it must be borne in mind, that, in several instances, the fibres had evidently been very rudely and imperfectly prepared: the experiments were made in 1804.

						Breski Weigh
						He.
	Hemp (1			Cannabis sativa -	-	103
2,	Murga (anseri	ren)	Aletris nervosa -	-	120
	Aloc -		-	Agave americana? -	-	110
4.	Eioo -		-	Sagnerus Rumpbil -	-	96
5.	Donsha		-	Eschypomone cannabi	ad	89
6.	Coir -		-		-	87
7.	Hemp (1	ndian)	-		-	74
8.	Woollet	comal	-	Abroma Augusta -	-	74
9.	7		-	Baublnia	_	69
	Supp -		-	Crotolaria Juncea -	-	68
11.	Bonghl t	east -	-	Corchorus olitorius	-	68
12.	Ghu nak	tase a	-	., capsularis	-	67
1.3.	?		-	Hibiscus manihet -	-	61
14.	Flax (In	dlan) -	-	Lluum usitatissimum	-	39
7.	in amide	at how		that there experiment		and do

be regarded as giving at all accurate comparative results; they only proved that many of the fibres were very strong, and well merited further trials. In 1808, Dr. Euxburgh

* Awarded also by the Jury of Class XIV.

		Greaking Weight.
		Ho.
	Bow-string hemp - Asclepias sp	245
	Calicoce bemp - Urtica tenacissima	240
Ļ	? Corchorus capsularis -	164
ı	Suna Crotalario juncea	160
Ç	Hemp (Indian) - Cannabis sativa	158
ı	Doncha Æschynomone cannabina	138
	? Hubiscus strictus	128
Ü	Musta past cannabinus -	115
	Bunghi paat Corchorus olitorius -	
	Plantain Musa	79

nf several of which were as follows :--

It is plain that the strength of all these fibres was ascertained under very unfavourable circumstances, and there is no doubt that they would have been found even yet more valuable had they leen well and properly prepared. The principal vegetable fibres contributed from India are the following:—

a are the following:-"Callooce," "Rhea," or "China-grass," the fibre of Urtica tenacissima, and one or two other varieties of Crtica, already mentioned as well known in commerce under the name of "China-grass." Strictly speaking, it under the name of " China-grass." Striedly speaking, it is probable thut China-grass and Callooce hemp, are the produce of twu distinct species of Urtica, though the fiber of the two is very similar, and, for all practical purposes, to fact identical. China-grass, as it is most commonly called, is the preduce of the Urtica (Backseria). monly called, is the produce of the Urtica (Backseriu) asieve of Wildelmow, whist the Calloope, Kalmoi, or Ram of Sunaarm, is obtained from the Urtica (Backseria) tenescission of Rokburgh. It is from this latter plant, also, that the Rhea of Assam is procured. The plants yield the product of the plants of the capting his beautiful fibre are very abundant in many parts of the empire, and may be had in almost unlimited. quantities. In the form of hemp, and when the fibre is well prepared, it is remarkably strong, and when tho-roughly bleached, though the strength is then somewhat diminished, it acquires a most remarkably beautiful white silky lustre. Various specimens of this fibre are contri-buted from different parts of India; from Calcuta; from Assam, by Major Hannay; Banoo Dzonatu, and Banoo Lakenate (pp. 882-884), from Rungpore, in the district of Moorshedhold, &c., and from Singapore: these the Jury deemed severally worthy of Honourable Mention. Some interesting samples of the fibre of the Urica. heterophylla are contributed by Mr. Thomas (pp. 882this plant is abundant in Mysore, and especially in 884); this plan is acommon in syster, and speciment in the Neilgherries, flourishing in Alpine jurgles: unfor-tunately, it is one of the most highly venomous of all the nertle tribe. It is stated that the Todawars prepare the fibre of this plant by boiling the stems in water, after which, they readily separate it from the woody parts, and then spin it into a coarse but very strong thread. The Malays simply steep the stems in water for ten or twelve days, after which they are so much softened,

that the outer fibrous portion is easily peeled off.

2. "Yercum nar." The fibres of the Caletropis
(Asclepias) giganter, a plantwhich grows wild, abundantly, (Asciptas) graduate, a plantwinen grows wish, abundantly, in various parts of the Rengal and Madrias Presidencies, and is used by the natives in the manufacture of cord, called "Lamb-dore," or "Tonoidee coin." The filtre is of very remarkable strength: from some rocent experiments made by Dr. Wight, its tensicity, as compared with some of the other Indian fibres when made into ropes, is ns follows:---

						Weig	in.
1.	Yercum na	ur	_		Calotropis gigantea -	1be	
	Janapum	-	-	-1	Crotolaria jancea	- 40	
3.	Cutthalay	nar	-		Agave Americana		
	Cotton	-	-	-1	Gossypium herbsceum -		
	Marool	-	-	-	Sanseviera zeylanica -		
6.	Pooley mu	ngu	-	- 1	Hibiscus cannabinus -	20	0
7.	Coir -	-	-	-	Cocco nucifera	22	ŧ

Specimens of the Yercum, or fibre of Asclepias gigantea (and of the Tongoos, and of the Asclepias tentcissima), or bow-string hemp of Rajemahl, are sent from Coimbatore, and other districts in the Madras Presidency.

3. "Umbaree," or "Massice pat;" the fibre of the Palungeo, or Hibisons cannabians, a plant common all over India, and cultivated in many parts for the sake of its fibre. The process, generally adopted, seems to be that of steeping the stems in water till putrefaction be that of steeping the stems in water till patrefaction commences, when they are taken only, washed, and heaten until the fibre separates from the woody portion of the stem: this fibre is contributed from Madras.

4. "Marcol," or "Moorva," how-string hemp, obtained from the Sauseriera zeglariaca, a plant abundant in the southern parts of the continent of India, sent from

Cuttack, Coimbatore, and other distrirts in the Madras Presidency: a good specimen is exhibited by F. Lima

Good samples are contributed from Coimbatore, &c.
7. "Dhunchs," or "Danebe," obtained from obtained from the Eschysomese canasting, used by the natives of Bengal to make fishing-nets; n remarkably strong though rather harsh fibre, pretty well known in commerce. The plant is commonly cultivated in Bengal: good specimens, accompanied by cordage and rope manufactured from it, are exhibited by Messrs. Thompson of Calcutta (p. 884):

these were deemed worthy of Honourable Mention.

8. "Coir," the fibrous part of the busk of the cocon-unt, Cocos secifera, well known in commerce: good samples are sent from Calient

are sent from Calicut.

9. Nat, or also fibre, the produce of the Agaze risipora, and other allied species. A valuable and strong fibre is prepared in usasy parts of ladis, from different fibre is prepared in usasy parts of ladis, from different which are obtained from the large IIII also, and from the small also, illustrating the preparation of the fibre, exhibiting some of the uses to which it is applicable, and thowing the facility with which it may be dyed of various colsent, is contributed by Dr. Hintyras valuable recollements to the Indian collection of fibrous the contribution of the contribu valuable specimens to the Indian collection of fibrous materials. For these the Jury awarded to him a Prize Medal

 Specimens of aloe fibre are contributed from various parts of the Madras Presidency—Madras, Madura, Coim-&c., and from Singapore.

 Yucca fibre, obtained from Yucca gloriosa, is also sent from Madras, by Dr. Hunter (pp. 882-884). 12. Ejoo, or Gommuti, obtained from the Arrega saccharjera (Sagaerus Rusphii), or Gummuttee Palm, much esteemed in the Eastern Archipelago for making ropes and cables, in consequence of its extraordinary ropes and cause, in consequence of its extraordinary clasticity and carability in water; unfortunately, the value of this fibre is greatly diminished by its peculiar fragility. Very good samples of this fibre are contributed by Tan Kim Sixa, in Singapore (pp. 883-884); these were deemed worthy of Homosrable Mention.

13. Patwa, or Mawal fibre, obtained from the Bushiesis.

racewosa, a plant common throughout the lesser hills of India, contributed from Bhangulpore, in the division of

Patos.
Talli Nuns, there of the gine-apple, Brosselia mil- from writem healthire amples are exhibited from Muleus, best of the state of the hilbert from Muleus, best of the state of the hilbert from Muleus, best of the state o tain, for though from its name it might be supposed to be

sine-apple fibre, it more closely resembles that of the or Boebmerins, niready mentioned. remarkably fine that the Jury awarded a Prize Medal to Mr. WERER for it,

Mr. Weines for it. 15. Plantian fibre, and Manilla hemp, obtained from the Mina tertifis and M. paradicatica, routributed from Madras, from Dacca, and by the Rev. M. Sroas, from Chittagong (pp. 882-884). Excellent cauvas and ropes are aboven, made of this fibre, which is extensively used. in the Government establishments at Ceylon. 16. Marsdenia fibre, obtained from the

Roylii, and contributed by his Highness the Maharajam or Nepal. (pp. 882-984). 17. Pulas, fibre of the Buten frondesa, used for making munon cordage, from Beerbhoom, in the division of

Moorshedabad.

18. Parkinsonia fibre, obtained from the stems of Parkinsonia aculeuta, introduced from the West Indies, sent by Mr. Allan, from Madras (pp. 882-884); said to be well suited for the manufacture of paper. 19. Roxburghia fibre, obtained from the Rurburghia

gloriosoides. 20. Artocarpus fibre, obtained from an Artocarpus: this and the preceding fibre are contributed by Mr. Simons, from Assam (pp. 882-884).

21. Trap fibre, obtained from the bark of the trap tree,

21. Trup fibre, obtained from the bark of the trap tree, a species of Arteourpus, contributed from Singapore.
22. Trophis fibre, from the Trophis aspera.
23. Daphne bark, the fibrous bark of the Daphae cansabina, used in the manufacture of Nepal paper.
43. Daphne species these, several other fibrous substances from different parts of India are exhibited, such as the fibres of different parts of India are exhibited, such as the fibres of the Palmyra leaf, Borassas flabelliformia, from Madras, the bark of the Sisse tree, contributed by Captain Rev-No.108 (pp. 882-884), and a series of vegetable fibres from Arracan, called Theng-ban-shaw, Pathayon-shaw, Shaw-phyos, Ngan-tsoung-shaw, Shaw-me, and Es-gywot-shaw, &c., which are Honourably Mentioned.

Several of the Indian fibres, already mentioned, are also contributed from Ceylon. Good samples are shown, both as mere fibres, and also in the various states of thread, rope, and coarse cloths; of coir, aloe flax, and the fibre of the Plantain, Hibiscus, and Sanseveria.

Specimens of also fibre are contributed from the Cape of Good Hope by C. WATKAREYER, of Green Point (17, p. 951).

Aloe fibre, obtained from the Agere Americana and A. vivipara, has been also sent from Barbadoes.

From St. Vincent, samples of the "Mahant" bark in its raw state, the fibrous part in the state in which it is employed in the manufacture of fishing-nets, and samples of lapeto, used also in the manufacture of common cord and coarse lines for fishing nets, are exhibited by G. Bullock, of St. Vincent (p. 975).

Several interesting specimens of various fibres are shown in the collection from British Gniana; amongst snown in the concetton from British Ghiana; amongst, these are specimens of sik-cotton, obtained from the Bombar ceiba, from George Town, Demerara, said to be exported to the United States, and used in the manufac-ture of hats. Exhibited by E. C. Ross (76A and 76B, p. 98t).

p. 981).

Plantain fibre, Mass paradisation and M. sapientum, from Plantaino Vigilance, East Coast, Demerara, exhibited by M. DAYIDSON (Tr., p. 981); and from Plantation Kiein, Ponderoven River, Demerara, exhibited by A. D. VAN DER G. NETREINER (78. p. 982). It is calculated that about 8 ewt. per acre of this excellent fibre middle that the property of the propert might be obtained: at present very little of it is used. It is worthy of remark that, in some of the first lists of premiums offered by the Society of Arts, about 1762, special attention was drawn to the beautiful fibre of the plantain:- "Whereas the stem of the Asiatic and Ame rican fruit-bearing plantain affords three sorts of fibrous materials which resemble hemp, hard silk, and cotton, all which have been experimentally found capable of being wrought into various sorts of manufactures; and, among others, into cordage, fustians, lawn, knitting, gauze, blonde lace, and excellent candle-wicks, sandry specimens of which manufactures may be seen in the hands of the Register of the Society," &c. This advertisement was continued for several successive years, but as an candidate came forward to claim the offered reward, it was at last discoutinued.

Silk-grass fibre, the fibre of the Agave vivipara, from Plantation Vigilance, East Coast, Demerara; and Fibiri fibre, obtained from the Ita paim, Mauritia flerwosa, from the River Berbice, are exhibited by T. B. Duggen (80 and 81, p. 982'

Mohoe or Mahoe-fibre, Hibisens elatus or Thespesia populsea, from Demerara, is exhibited by J. F. Bez (82, p. 982). It is a very strong but coarse fibre, used for

Some good samples of Yucca hemp, together with a leaf of the Yucca serrulata, from which it is obtained, and rope and cordage manufactured from it, are shown by J. T. Thompson, of Nassan, Bahamas (p. 976); also specimens of the fibre of the Palmetto, and of rope made nom it. These were deemed worthy of Honourable

Mention In the Trinidad collection are some specimens of the fibre of the pine-apple and aloe; and also of the fibre of the Mahagua, or Majagua, Sterceles carribra.

Specimens of the leaf and fibre of the Dorganthes excelia are contributed from New South Wales by Sir T. L. Mitchell (p. 990), as well as some rope made of the latter. These were deemed worthy of Honourable Mention.

Some good samples of New Zealand flax, Phornium Some good samples of New Zealandh max, Promission Renar, are contributed by various exhibitors. Amongst others, by Tao Nut, a New Zealand Chief (44, p. 198*); New Zealand flax, as prepared by the natives, by Rev. J. COLLISSON (3, p. 1000); J. ROBERTSON (4, p. 1001); J. CARADUS (24, p. 1002); and by TYRKE (1 and 28, pp. 1000 and 1002); New Zealand flax, cleaned and preared by machinery, exhibited by WHYTLAW & Son (34, . 1002). Each of these exhibitors was deemed worthy

of Honourable Mention. A bale of "New Orleans moss" (Tillandsia usneoides), prepared as a substitute for horse-hair, &c., as a stuffing material for npholstery purposes, is exhibited by G. Hicks (559, p. 1469). This substance possesses considerable (559, p. 1469). This substance possesses considerable elasticity, and appears to be very well adapted for the above-mentioned purpose: it is stated that it may be had in any quantity, and at a comparatively small price. The Jury awarded a Prize Medal for this fibre, which though not altogether new in the Londo flore, which, does not be a comparative or the control of the control not appear so well known as it deserves to be.

A sample of the fibrous husks of the maize, or Indian A supper of the network masts or the make, or thanks over, also used for stuffing mattresses, is shown by F. O. KETTRRIDGE, of Mount Verron, New Hampsbire (235, p. 1452). This substance, though not so good as the "New Orleans moss," being much more brittle and less clastic, was deemed worthy of Honourable Mention. In the Austrian collections, specimens of fibrous wood divided into very thin and slender strips, and used instead

curvacu into very thin and stender strips, and used instead of straw in the manufacture of a sort of phatied work, are shown by S. Tarsitan, of Zinowald, near Toplitz, in Bohemia (657, p. 1031). A Prise Medal was awarded for this ingenious application.
A specimen of Cysourus cristatus is shown by A specimen of Cynosurus cristatus is shown by L. Vanden Abele, of Appels, West Flanders (p. 1153).

I nis also was deemed deserving of Honourable Meution.
Samples of China-grass, or nettle-fibre, Uritica (Bookmeria sieses, From China, are exhibited by C. M. COPLAND
(pp. 1421, 1422), and by Mrs. Rawsox (p. 1434).
A good fibre, prepared from the date palm (132), together with rope, strug, nets, and brushes made from the
fibres, are contributed from Republe China. bres, are contributed from Broulos, Ghizeh, and other

Places in Egypt.

A useful fibrous material, proposed as a substitute for animal hair, and slso for other purposes, obtained from the dwarf palm of Algeria, is exhibited by AVERSEG & Co., of Toulouse, in the Algerian collection (3, p. 1259). The Jury awarded a Prize Medal for the introduction of this substance.

A new fibrous material, proposed for wadding, for clothing, and for upholstery work, in stuffing mattresses, &c., is exhibited by C. G. Faniax, of Humboldsew, seer Breslan (95, p. 1054). This substance, which is called "pine wool," is prepared from the leaves or needles of

pine trees: it is soft and somewhat elastic, though the fibre is very weak, so that it would perhaps soon mat or felt together in mattresses. It has been found to be very cleanly, and peculiarly free from the attacks of insects and might probably be advantageously employed, mixed with some stronger and more elastic fibre. The Jury awarded a Prize Medal for this substance.

A good sample of aloe fibre, prepared from the Agare deericana, is exhibited by the Manquis DE Ficaliso Portugal, 535, p. 1313). This was deemed worthy of

Honourable Mention Specimens of flax, cotton, pits, or aloe fibre, and mallow fibre, are contributed from Madeira.

A fine and very beautiful fibrous material, called "Bejuco," is exhibited from the island of Lazon by the Economical Society of Mantala (234, p. 1344). This substance is very strong, and is used in the manufacture of plaited work, and a sort of clotb remarkable for its strength and softness. The Jury awarded a Prize Medal for it.

Specimens of several of the textile fibres of Cuba are contributed by RAMON DR LA SAGRA (pp. 1338, 1339), including the Daguilla or fibrous inner bark of the Lagetta lintearia, together with cord made of it; cord and mats made of pain fibres; Magagna, the fibre of the Parities clatum, and the fibre of the Hibiscus cannabius. were deemed worthy of Hononrable Mention. Samples of a valuable grass, the Macrockloa tenaciasims

Samples of a valuable grass, the Marrocated tenerations, much used for the manufacture of cord, &c., and which might probably be advantageously employed by papermakers, are exhibited by D. YILLARS, of Husca (158, p. 1539). This was deemed worthy of Honourable p. 1339). Mention.

Plantain fibre, prepared from the stem of the plantain, Mass superstam, is exhibited by A. Vinas, of Pnerto Rico (160, p. 1339); and Pita, the fibre of the wild aloe, foure Americana, is shown by P. DE LAS HERAS, of Murcia (161, p. 1339).

SECTION VI.- CELLULAR SUBSTANCES.

Comparatively few substances demanding the attention of the Jury are exhibited in this division: they may, in fact, be included under three heads,—namely, cork, rice

fact, hi included under three boats.— namely, cost, rice upper, and namedo or Gurman tudor.

Gurman tudor. Gurman tudor.

small: the most important series is a small collection where by T. Fact (13, p. 2007) in literation of his most important series is a small collection where the control of the control

the polac of the Archipelago, used for making floats for fishing-nets, are shown in the East Indian collection. Good samples of French cork, both in the rough state

and when cut by De Bossimon's patent machinery, are exhibited by Durnar & Co." (492, p. 1201). Some fine specimens of Algerine cork are likewise shown in the French Department in the collection exhibited by the COMMISSION of WOODS and FORESTS (47, Alger., p. 1262).
These were deemed worthy of Honourable Mention.
One specimen of good Portnguese cork is contributed

Very good samples of cork are shown in the Spanish collection by J. GUINART,* of Seville (188, p. 1341), and by the Province of GERONA.* These were each deemed worthy of Honourable Mentinn

worthy of Hosonanie Stemm.
Samples of "shois," the cellular pith-like stems of the Aichjassusses aspera (Helysarus logearium) from the vicinity of Calcutta, are shown in the East Indian collection. This remerkable substance, which closely resembles in appearance the well-known "rice paper," well

^{*} Awarded a Prize Medal by Jury of t'less XXVIII.

merits attention, and promises to be available for several purposes in the arts. The specimens of shola are accompaosed by various illustrations of the uses to which it is applied in India, including life-buoys, boxes, bottle-cases, and hats. From its loosely-cellular structure it is a very had conductor of heat, and this, together with its great lightness, admirably fits it for the manufacture of hats. Shola is also used advantageously for purposes of ornament, and very beautiful models of temples and other eastern buildings are exhibited, which possess all the appearance of ivory, hat with even more softness and delicacy of surface. These specimens were deemed worthy of Honourable Mention.

Rice paper, made from the pith of Aralio papyrifero, from China, is likewise shown, Two good series of specimens of prepared amadou, or German tinder, the leathery base of a fungus (Boletus igniorius), are eshibited, namely, in the Austrian colsystems of estimates, namely, in the Australia col-lection, by Bacharch (45a, p. 1009), and in the Zollverein Department by F. A. Becker Sapp & Co., of Fredeburg (471, p. 1078). These were each deemed worthy of Honorrable Montion

SECTION VII.-TIMBER AND ORNAMENTAL WOODS. The collection of timber and other woods, taken as a whole, is remarkably complete and interesting; and though in many instances it is abviously impossible for the Jury to enter into the consideration of individual woods, or to do more than enumerate the varieties of the specimens shown, and even difficult in all cases to do int,-yet they considered it desirable to prepare as comthat,—yet they consiste of the various single collections plete a list as possible of the various single collections plete a list as possible of the various single operations are consistent of the various countries. The Jury would expecially draw statistion to the very interesting and valuable collections of East Indian woods (p. 885); the complete and well-arranged collection of W. W. SAINDERS (Class IV., p. 190°); the series of fine specimens shown by Messer, Fartwilson; series of fine specimens shown by Mesira, Faintierov; the very instructive and excellent specimens eshibled by Mesira, Lawson (135, pp. 205*, 200*), and by the Frincia Mixipte or Wan (p. 1625) in the Algerian collection of raw produce. Highly valuable, also, are the series of Canadian, Australian, and other colonial woods; and the namerous collection of the woods of Cuba, &c. &c. The total annual importation of timber into Great

million of cubic feet, entered under the several designations of timber or unsawn wood, deals and planks or sawn wood, tesk, staves, and lathwood.

The following Table shows the countries from which wood was chiefly imported in the year 1849:-

			Timber.	Deals.	Tesk.	Staves.	Lothwood
Russia -	_	_	41.419	173, 586	-	325	15.53
Sweden	**	-	28,679	79.843	-	150	1.11
Norway	-	-	28,930	50,805	-	95	10
Prussia	-	_	117, 470	35,006	-	19, 213	6.16
Hense To	WDS	-	2,441	68	Ē	1,012	140
Tuscany	-	-	2,299	: 9	-	-	-
Panal Ter	ri:or	es	2,106	3	-	l –	- 4
Western		n -	1	-	9,596	-	-
British In	din	-	1	9	17,459	56	-
Australia	-	_	977	540	1	4	-
British 5		}	578,748	468,572	9	45,614	14,81
British G	ulant	·-	4	19	4	103	-
United St	ates	_	13,832	830	-	13,300	-
Miscellan	come	-	1,002	491	633	36	5

Total Leads - 817, 909 809, 783 27, 702 ,79, 917 37, 800 Of the chief woods employed in ship-building, seven

we been acknowledged as first-rate by the authorities at Lloyd's: and to this number must now be added an eighth, namely, iron-bark, which has, in fact, only been admitted as a first-class wood since the period of opening the Exhibition in May, 1851. These eight woods are-

1. English oak 5. East Indian teak. 2. American live-oak. 3. African oak. 6. Green-heart. 7. Morra. 4 Morang saul 8. Iron-bark The collection of woods from all parts of the world,

exhibited by W. W. Saunness (9), is particularly valuable from its extent and arrangement, the woods being all from its extent and arrangement, the woods being all well labelled and classified according to their geographical distribution. The value of this collection is greatly en-hanced by the density and weight per cubic foot of each wood being given. The Jury awarded a Prise Medal for this series, the value of which is considerably increased Britain is nearly two million loads, or one hundred by the following classified catalogue:-

NAME.	Place of Growth.	Weight Colic Ft.	Specific Univity		REMARKS.		
Abele. Ser Populus. Abies es celsa (spruce fir)	Oxfordshire -	1bs. es. 27 2	-434	31	Used for scaffold poles, ladders, commor carpetry, &c.		
Acaela. Ser Robiola.	Mortlake	47 6	-758	75			
Acacia (?)	Oxfordshire -		-593	84	Used for ornamental work when knotted; it makes the best charcoal; and turns well.		
., .,	Epping	37 13	*605	562	Specimen from the lower part of the main stem of a young tree,		
Acer pseudo-platanus (syea- more).	Wandsworth -	34 11	-555	598	Used in dry carpentry; turns well; and takes a fine polish.		
Esculus hippocastanum (horse chestoot).	,,	24 2	1386	895	Used for inlaying toys, turnery, and dry carpentry.		
11 11 11	Epping	29 15		540	From the stem of a young and vigorous tree		
Alder. See Alpus.	Osfordshire -	24 15	-439	25			
Alous glutinosa (alder)	,,	23 8	-376	45	Used for common turnery work, &c. and lasts long under water, or buried in the ground.		
Apple. Ser Pyrus.	Epping	26 2	-418	543	Specimen taken near the ground.		
Arbutus unedo (Arbutus) -		44 12	-716	50	Hard, close-grained, and occasionally used by turners.		
., .,	Lakes of Kil-	45 6	-726	373	· · · · · · · · · · · · · · · · · · ·		

WOODS, NATIVE OF OR GROWN IN BRITAIN-continued,

NAME.	Place of Growth,	Cabe F	Specific	in Cara- legue.	REMARKS.
Aspen. See Populus. Barberry. See Berberris. Berch, common. See Fagus.		Ibe. es			
Berberris vulgaris (Barberry) - Betuls alba (common bircb) -	Epping	37 11 34 14	1603	83 557	Used chiefly for dyeing, Inferior in quality, but much used in ti north of England and Scotland for stav
Bignonia radiesus Birch, common. See Betula. Blackthorn. See Pruous.	Mortlake	19 8	307	650	for harring-barrels,
(arpinus Betulus (hornbeam) -	Epplog	40 E		560	Very tough, and makes axcellent cogs f wireds; forms a good charcoal; and much valued for fuel.
Castanea vesca (sweet chestnut)		38 (798	
Castanea vesca (sweet chestnut)	Epplog	27 6	*438	558	Specimen from the main stem, near to ground.
,, ,, (chestuat)	Cornwall	36 7	-583	796	Used in ship-building, and is much in repu for posts and rails, bop poles, ac.
Catalpa syringsofolla	Mortlake	26 4	1420	295	Said to be very durable, and capable of a fit polish.
Cedar of Lebanon. See Cedrus. Cedrus Libani (Cedar of Leba- non).		38 13		660	Used for furniture, and sometimes for orn mental jointry work.
	Kew Gardens -	34 .2		76	
Cernsus vulgaria (May Duke	Wandswerth -	36 ls	657	44	Chrrry-wood is much used for common fu
eherry).		33 5	- 531	86	niture. Excellent for common furniture, and must in repute; works easily, and takes a fi-
	Warning .	42 1	. 1673	500	polish.
Cherry, See Cernsus. Chestnut, horse. See Asculus. sweet. See Castanea. Cork-tree. See Quercus	Epping	42	.613	800	
Corylus Avellana (common nut)		36 (85	The young wood is used for fishing-roc walking-sticks, &c., &c.
,, (hasel)	Epping	36 8		552	
rab. See Pyrus.	Oxfordshire - Epping	35 13 37 4	·573 ·596	94 534	
Crategus oxyacantha (white- thorn).	Epping	45 14	-734	336	Hard, firm, and susceptible of a fine polish
Copressus sempervirens Cytisus Laburoum (commoo la- buroum).	Mortlake Oxfordshire -	34 10 45 1	-554 -729	657 20	Fine-grained and fragrant: very durable. Hard and durable, and much used by turns and joiners.
Damson, See Pruons. Ekler, common. See Sambucus.	Wandsworth.				
Eim. See Ulmes. Enonymus europeus (lance- wood),		34 (-544	97	Wood used for skewers, and is hard and fin grained.
Euonymus?	Wandsworth -	32 6 27 6		21 559	Specimen from the lower branch of a larr
agas syrram a (common ocects)					tree.
" " "	Oxfordshire -	41 5	-658	26	Murb used for common farniture, for handl of tools, wooden vessels, &c. &c., and who kept dry, is durable.
Filbert. See Corylus. Fir, Scotch. See Pinus.	Epping.	39 14	*638	559	avp. dry, is district.
,, spruce. See Ables. Fraxinus excelsior (common ash). Furze, See Ulex.	Oxfordshire -	36 11	-587	24	Very tough and elastic; is much used by a conclumater and wheelwright, and a making oars.
lazel. See Corylus. Iledara Haliz (Ivy)	Oxfordshire -	29 16 37 12	·474 ·604	134	
Holly'. See Ilex. Hornbeam. See Carpinus. Horse-chestnut. See Æseulus.					
llex aquifolium (holly)		41 9	-665	48	The best white wood for Tunbridge-wa- work; turns well, and takes a vary fir pollsh.
lvy. See Hedera. Juglans regia (common walnut)	Sussex	41 6	-664	663	Wood of a large branch.
rugians regia (common wainut)	,,	36 1	-577	664	Specimen taken from the main stem; use for ornamental forniture; much in repu for gunstocks; works rasily.

WOODS, NATIVE OF OR GROWN IN BRITAIN-continued.

NAME.	Place of Growth.	Weight per Cubic Ft.	Specific Gravity	No. in Cata- logue.	REMARKS.
Jugians regia (common walnut)	Sussex	1bs. oz. 36 7 20 5	-583	898 662	From a very old tree. Used for ornamental furniture.
Laburnum. See Cytisus. Lancewood. See Euonymus. Larch. See Larix.					
Larix europea (larch)	Oxfordshire -	35 0	-560	78	Used in house earpentry, and for ship building; is durable, strong and tough.
(Scotch larch) = Laurel. See Prunus. Lilac. See Syringa.	Scotland	29 4	-468	787	Used in ship-building.
Lime. See Titia, Liriodendron tulipifera (tulip tree). Locust. See Robinia.)	27 2	*434	298	Apparently of fittle value; attains to a largelise.
Magnelia glauca Magnelia grandiflora	Putney	31 7 37 5	·503 ·597	296 302	The tree in the United States grows with clear stem of 50 to 80 feet bigh.
Maple. See Acer campestre. Morus nigra (common mulberry)	Mortlake	41 5	•661	654	Sometimes used for furniture, and by turners but is of little durability.
Mountain ash, See Pyrus. Mulberry, See Morus, Negundo fraxinifolium	Wandsworth -	33 15	*543	659	Rather fine-grained, but of little value.
Nnt. See Corytus. Oak (See Quercus)	Marden, Kent-	50 8	-808	730	Dug out of a deep cutting of the South-East
Pear. See Pyrns. Pine. See Pinus.					ern Railway.
Pinus Pices (silver fir)		23 2	-370	46	Used for house carpentry, masts of small vessels, &c.
Pinus sylvestris (pine)	Wandsworth - Oxfordshire -	28 7 24 5	·455 ·389	607 36	Much used for rafters, girders, and house
Piane. Ser Platanus.	.,	19 5	-309	43	Much used for house carpentry.
Piatanus orientalis (plane) -	Wandsworth -	39 12	-636	96	An inferior wood, but much used in th
,, ,, -	"	33 7	. 535	601	This wood shows a pretty mottled figure when cut with the ray.
Piatanus sp. (Scotch plane) - Pium. See Prunus. Pomegranate. See Punica. Populus alba (Abela)	Scotland	35 9 37 6	-569 -598	797	
Populus alba (Abela) (white poplar) -	Wandsworth -	27 11 25 9	·443 ·409	49 661	A light soft wood, of tittle value.
Populus dilatata (Lombardy popiar).		21 13	*349	596	Soft and spongy; rapidly decaying unless kept dry.
Populus tremula (aspen)	Epping	31 2	498	556	From the lower part of the main stem; use by turners, and for dry carpentry.
Populus sp. (Scotch poplar) - Prunus armeniaca (apricot) -	Scotland Mortiske	34 6 46 13	·550 ·749	778 309	Hard and fine-grained.
Prunus domestica (damson) -	Wandsworth -	45 8	1728	22	Hard and fine-grained, but not very durable used for turning, &c.
Prunus Laurocerasus (laurei) -	Oxfordshire -	44 8 46 14	·712	93 55	Hard and compact, taking a good polish.
Prunus spinosa (black thorn)	Epping Oxfordshire -	42 5 43 1t	·677 ·639	545 93	Specimen from an old plant. Hard, capable of a fine polish, but apt to aplit.
Punica granatum Pyrus aucuparia (mountain ash)	Mortisko Yorkshire	39 4 38 6	*628 *614	653 293	Hard and close-grained. Fine-grained, hard, and takes a good polish used in turnery, and for musical instru- ments.
Pyrus communis (Bergamot pear).	Epping Bermondsey -	39 8 38 9	·632	535 19	Strong, compact, and close-grained; use for turning bandles to tools, &c., an takes a good binek dye.
,, (pear) = ,, (garden pear)	Oxfordshire - Epping	38 10 40 1	·618 ·641	90 549	Specimen from the upper part of the mai
,, (swan's egg pear) ,, ,, (wild pear)	Wandsworth - Epping	34 9 39 4	*553 *628	604 544	Specimen from a young tree cut near th
	,,	38 2	·6t0	551	ground, Specimen from the upper part of the mal
Pyrus malus (appie)	Oxfordshire -	36 0	-576	77	stem,
,, (garden apple) -	Epping	39 7 45 5	·63t	548 82	Specimen from the upper part of the stem
	Yorkshire -	45 6	.726	297	Specimen from a tree about twenty years old Hard, close-grained, and strong.
Pyrus Sorhus (service tree) -	Epping	46 11	-747	554	Hard, fine-grained, and compact; much i repute by millwrights for cogs, frietic rollers, &c.

WOODS, NATIVE OF OR GROWN IN BRITAIN-continued,

NAME.	Place of Growth.	Weight per Cubic Pt.	Specific Gravity	No. in Cata- logue.	HEWARKS.
		Ibs. 01.			
Pyrus torminalis Querous ilex (evergreen oak) -	Isle of Wight - Wandsworth -	42 7 47 5	-757	372 599	Strong and fine-grained; used for turners. Wood very shaky when aged; is durable and strong, and makes an excellent charcoal,
11 11 11		47 4	*756	88	
Quercus pedunculata (English oak).	Sussex	39 0	624	104	This oak is much esteemed for ship-building; the strongest and most durable of British words
,, (pollard oak)	Wandsworth -	44 10	-714	504	From an old pollard tree.
,, (common oak)	Epping	40 14 40 11	*654 *651	542 553	Part of a large lower branch. Part of a large branch.
Quercus sessiliflora (Welsh oak).		87 11	-603	262	A good wood for ship-building; said to be inferior to the common cak.
Querous suber (cork tree)	Botanic Garden, Chelsea.	51 10	*826	503	Heavy and durable, but very apt to split.
Querous sp. (American oak) - (bastard oak) -	Wandsworth -	42 9 33 6	*531	608	Hard and compact.
	Tackley, Oxon Oxfordshire -	43 13	.701	29	Close-grained, and apparently a good wood.
Rhamous alaturaus	Mortlaka	48 6	.774	652	Hard and close-graiced.
Rhamms catharticus	Epping Forest	34 11	-555	539	
Rhamnus frangula	Epping	25 8	.408	541	
Robinia pseud-acacla (common acacla, locust).		44 1	*705	650	Specimen from the upper part of the main stem; much used for treenails in ship- building, and in the United States is much in repute for posts and rails.
11 11 11	Wandsworth -	40 II	·651	703	
Salix alba (white willow)	Mortlake Surrey	24 14	1398	658	Used for toys, and by the millwright; h
Salix caprea (palm saltow) -	Oxfordshire -	24 8	*332	799	tough, clastic, and durable. Tough and elastic; is much used for handles
Sallx fragills (crack willow) -	,,	32 0	•392	28	to tools, and makee good hurdles. Light, pliant, and tough; is said to be very durable.
Salix ? (back sallow)	,,	33 8	·512 ·586 ·474	79 80 896	Tough and clastic; well adapted for turning
Sallow. See Salix.			.010	096	
Sambucus nigra (common elder)	Epping	34 0 37 11	·544 ·603	27 561	
Scotch fir. See Pinus. Service tree. See Pyrus. Silver fir. See Pinus. Spruce fir. See Abies. Sycamore. See Acor.					
Syringa valgaris (lilac)	Wandsworth -	48 15	.783	606	Very hard and compact.
	Surrey	48 12	• 781	655	
Taxus baccata (yew)		41 9	*665	54	Used for making bows, chains, handles, &c. the wood is exceedingly durable, very tough, elastic, and fine-grained.
	West Grinstead	50 12	-812	801	
Thuja orientalis	Mortiake	34 14	.558	308	F-16
Tilia curopera (common lime) -	Wandsworth -	27 8	.435	597	Used for cutting-blocks, carving, sounding boards and toys.
Tilia sp. (Scotch lime) Tulip tree. See Liriodendron.	Scotland	30 5	*485	773	Used for turning and carving.
Ulex europsea (furze)	Ilfracombe -	52 8	-840	314	Heavy, hard, and close-grained; in the north of Devonshire the stem reaches 6 inche in diameter sometimes.
Ulmus campestris (English olm)		30 \$	-	-	Used in ship-building for undor-water plank ing, and a variety of other purposes, being very durable when kept wet or buried in the earth.
11 11 11		26 5	1489	317	
11 11 11	2.2	-	*421	105	
		41 5		779	
,, (common elm)	Oxfordshire -	34 13	. 557	537	Part of one of the lower branches of a youn
11 11 11	Epping	39 7	-631	537	vigorous tree.
Ulmus montana (wych olm) -	West Grinstead Oxfordshire -	31 15 35 1-		802	From an old pollard tree, Thought to be better than common elm, and
	Panin.	36 5	-581	538	ls used in carpentry, stdp-building, &c.
Vine. See Vitis. Vitis vinifera (vine)	Epping Wandsworth -	42 1			

WOODS OF EUROPE.

NAME.	Place of Growth.		Vetght prv ubie Pt	Spectfe Searity	No. ia Cun- logue.	REMARKS.
Abies excelsa (Dantzie deal) -		11. 2				
		: 2	4 10	1394	114	Specimen of wood of good quality.
: : :		. 2		1450	116	opecimen of wood of good quarry.
,, (spruce fir)	N. of Europe	- î	7 10	282	272	Used for common carpentry work,
(sprace)		- 2	5 13	-413	321	
Arbutus Unodo (Kouramia, Coumarn).	Albania	- 5	2 0	-832	3	Hard and close-grained; used by turners.
Bay. Ne Laurus. Berch. Se Fraxinus. Betula alba (Norway birch) —	Norway -	- 3	3 0	-508	345	An inferior wood; occasionally used in
Birch, Ser Betula. Box, Ser Buxus.						ship-building.
Buxus sempervirens (box)	Gallicia -	- 6	0 15	.975	670	Used by turners, &c.
,, ',, ',,'= =		5		-874	34	Much used by turners, and for a number of useful purposes.
Castanea vesca (chestnut)	Portugai - ·	- 4		-653	667	Considered a good wood when not too old.
Castano del Pais Chestnut, See Castanea. Chrysoxylon. See Rhus. Citron, See Citrus.	,, -	. 2	8 11	*459	669	Used in ship-building.
Citrus aurantium (orange tree)	Albania	- 4	0 7	-647	15	Fine-grained; used by turuers, and fo
				1		ornamental work.
Citrus medica (citron)	Greece	- 3	1 0	*496	291	Fine-grained.
Citrus limonum (lemon tree) - Conmaro, See Arbatus,	Albania - ·	- 4	7 9	-761	16	Hard, compact, and close-grained, with much the same character as the orange.
Cupressus sempervirens (Ori- ental cypreus). Daphne. See Laurus.	Greece -	- 3	6 5	*581	284	A very durable wood.
Deal, Dantzie. See Abies, Prussian. See Pinus.						
Etia. Ser Salls, Ficus Carica (tig tree)	Albania -	- 3	4 8	-552	14	Wood shrinks much in drying; is of little value.
Fig tree. Ser Fiens.		- 3		-691	290	
Fraxinus ? (beech)	11 = 1		9 0	-641	12	Probably an elm,
Carro		- 3		+622	6	
Juelans revia (Nogal dei Pais)	Pertugal -	- 3	5 4	*564	671	Used in ship-building. Used for furniture.
Kouramia. See Arbutus.	France -	- 3	7 13	*605	899	Used for lurniture,
	Albania -	- 3	3 8	-536	9	
Laurus noblije (Bav daphne Gr.)	11 -	- 3	6 0	+576	7	
	Greece -	- 2	S 13	*461	287	
Lemon tree. See Citrus.		- 3	6 15	- 591	985	
Melios. See Ornus. Nogal del Pais. See Juglans.	,, -	- 3	6 15	- 591	283	
Oak, See Quercus. Olea europæa (wild olive) = ==	Albania -	- 3	2 14	*847	2	Close-grained, and occasionally beautifuli veined; much used for ornamental work.
Orange tree. See Citrus. Oriental cypress, See Cupressus,						
Oriental cypress, See Cupressus, Ornus europea (Melios)		_ 4	7 1	-753		The manns tree; wood compact,
Philike, or feliki	;; =	4		*768	289	and minimum size, wood compact.
	11 -	- 5	2 10	-842	1	Heavy and compact.
Pina lei Pals	Portugai -	- 2		*461	673	Used for common carpentry work.
Pino		- 3	S 9	· 537 · 463	672	A strong and durable wood,
Pinus Larieio? (sweet pine) - Pinus sylvestris (Dantale fir) -			15 ID	-516	271	i sed in carpentry work,
Pinus sylvestris (Pantaic tir) - (Riga fir)		3	7 10	.916	270	
(Prussian deal)	"	4	3 6	-674	269	Used for decks of ships, and for earpentr
Pinus ?	Cadiz -	- 3		-622	759	A beavy, hard pine.
Quercus Cerris (Adriatic oak) Quercus pedunculata (Baltic oak).	Trieste - Prussia -	3	7 12	·604	263 260	A strong and useful wood for ship-building Extensively used in ship-building.
Quercus sessilifiora (Fast coun-		- 5		-641	331	II II
Quercus ——? (Prunari Pour- nari). Quercus sp., Adriatic oak? —	Albania - ·	1.		1865	728	ileavy, but much given to split. Used in ship-building.
Rhue cotinus (Chrysoxylon,	Albania -	3		-608	13	Produces a yellow dyc.
young fustic).						
young fustic). Biechl Roble del Pais	Portugal -	- 5		1:024	668	Much used for charcool in Albania, Used for ship-building.

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	WOODS OF EUROPE—continued.										
	WOO	D8	-				ued.				
NAME.	Place of Growt		Wei Pe Cubs	ght e Ft.	Specific Univity	No. in Cara- logue.	REMARKS.				
Salix ? (Sklythra)	Albania -	_	lbs. 27	8	-410	10	Probably a willow,				
Skiun Sklythra, See Salix,	,,, -	=	48	10	.778	288	*				
Spruce fir. See Ables. Svedaml	Greece -	-	46	6	-742	286					
Young fustie. See Rbus. Zinzifin			47	7	-759	301					
						-					
		"	OOI	DS C	F ASI						
Acacia ? (Popecah)	Tavoy -	-	23	3	.371	851	A large tree; wood used in house-building &c.				
., .,	,, -	-	23	3	.371	803	A very large tree; wood used for posts, bows and rollers, and for cutton gins.				
Egle marmelos (Bellee) Ambovus, Ser Pterospermom.	Ceylon -	-	49	1	•784	583					
Anacardiom Intifolium (Bheis) Andruchne spetals	Gualpara - ludia	Ξ	37 33	14	*592	807 725	Used for making chests and couches.				
Augelly wood. See Artocarpus. Annahibeng. See Fagura.											
Artocarpus Chaplasha Artocarpus birsuta (Angelly	India	=	34 36	12	1556	681 473	Used in ship-building.				
wood). Artocarpus integrifolia (Jack-	Travancere	ű	35	10	-570	377					
wood). Artocarpus ——? (Pynyathe,	Tavoy -				_	832					
Tanabeng).	Travaocore	_	31	6	+5cct	429					
Auragny		-	32	11	-523	691					
Avarrboa Carambola Bah-nali-thoa	India		39	11	-635	378 839	Used in boat and bouse-building.				
Bellee. See Ægia marmelos. Betula Bhojpattra	Nepal -		35	5	-565	1035	Wood moderately hard, compact,				
Bhela, See Anacardium.			42	. 8	1690	1031	A large tree.				
Bignonia chelocoides Bigoonia ? (Tathee)	Tavoy -		49	8	-792	816	A very large tree, A large tree, used in house building.				
(Thuggainee) - Black ebony. Se Diospyrus. Booroota. Se Swietenia. Cadooca Marum -	,,, -	-	40	4	-644	837	A large tree, used in house building.				
Cadooca Marum	Travancere Martaban -	-	38 43	3	*611 *688	1072	Used for masts and spars, and for pestles t				
Calophyllum? (Thurappe, Chopee).	Travancore		28	11	-459	396	oil-presses.				
Cambogust	Travancore	-	36	o	-576	877					
Camphor wood. See Laurus.	Travancore	-	47	6	-758	403					
Cannao		-	58	7	1935 1528	402					
Caragagaloo	Tavoy -		36	0	.576	880	Used in house-building.				
Carapa — ? (Taila-oon.)	Martaban - Gualpara -		46 42	12	-736 -684	1036 810	Timber of large size; used for posts, &c. Wood hard and strong; used for the stock of matchlocks.				
Caringosha	Travancore	_	45	5	-725	386	of matchiocks.				
Carlyagah		-	33	10	+538	410					
Caroogha	,,, -	-	44	10	*714 *763	438					
Caroo Marum		Ξ	34	11	-548	401					
Carrintia		-	41	9	•661	698					
Castanea Indica Castanea tribuloides (Cotoor,	Nepal -	-	39	0	-624 -992	680 927	Used for large mortars and peatles for grice				
Chisee, Makoo Shingali).			- 42	11	-683	497	Used in ship-building.				
Catonguia	Manilla -	- 5	42	11	-683	392	c sed on suit-naments.				
Cedar Cedar of Himainya. See Juni	India	-	25	2	402	363					
Culrele Toons (Toot, Tungs		_	36	0	-576	1041	Wood very dorable, and much used for fur niture.				
Poma, Joen).	India	_	32	9	-521	708	mane.				
Chambagum	- Travancore	-	37	11	1603	383					
Change See Laurus.	- ,, -	-	20	7	327	426					
Chikagambhari, See Premma.	Nepal -	-	23	0	*368	931	Used for posts and rafters.				
nusi), Chisee. See Castanes. Choomulioo. See Diospyrus. Choomuloo. See Xanthophyl											

WOODS OF ASIA-continued,

NAME.	Place of Growth.	Weight per Cubic Fr.	Specific Gravity	No. na Cara- logue,	REMARKS.
		lbs, es.			
Chopee. See Calopbyllum.			1		
Chorangaree	Travancore -	29 11 60 14	1974	443 67	Used for dysing, and sometimes by the turner.
Coombool	Travancore -	31 14	-510	407	c sea for dyning, and sometimes by the turner.
Cotoor, See Castanea.	-				
Coturnba	Ceylon	23 5	-373	587	Occasionally used in house-building in Cey-
Cou-moo	Tayor	Į.	-	-	lon, but not esteemed. Used in boat and bouse building.
Cusroo. See Quereus.	1avoy	-	-	-	Cled to bott and bottle building.
Cynometra polyandra	India	52 10	1842	685	
	Martaban	48 7	.775	822	A small tree.
Dalbergia lanceolaria (Neddoen, Nedun, Nander-wood).	Ceylon	45 7	-727	588	Used and valued for house-building in Cey-
Daibergia iatifolia (East India	India	66 B	1:064	986	1041.
ebony).	Tours				
	Ceylon	38 3	-615	579	
Dheyri. See Taxus. Diospyrus melannxylon (black		61 2	-978	40	Variable to the second of the second
ebouy).		61 3	.849	40	Used for turnery work, and for inlaying.
Diospyrus racemosa	India	34 11	-555	687	
Diospyrus ? (Ryampcha,	Martaban	50 3	*803	1071	Used in bouse-hullding.
Choemulioo).	_				
Dipterocarpus ——? (Kunnean- phew).	Tavoy	25 3	.403	871	Grows to a great size; used for beams and planks.
Domba	Ceyion	33 3	-531	585	Used for the entriggers of canoes.
	St. Helena -	71 9	1-145	716	Contact and consignation of Contact.
Helena ebony),					
East India ebony. See Dai-					
bergia. East india resewood	lodia		- 1	995	
East India teak, See Tectons,			- 1		
Ehretia izevis	Botanie Garden,	-	-	1634	
Ekebergia ? (Jiyakohi)	Calcutta.	39 1	1625	958	
Eleocarpus serratus? (Weraloo)	Gualpara Cevion	33 8	1536	596	
Eriobotrya japonica (Loaquat) Eugenia malacoensis (Jamboo)	India	46 11	1747	724	
Eugenia malacoensis (Jamboo)	Ceylon	30 4	• 484	577	
Exceptaria? -" "		30 14	*494	577	
Fagrea fragrans (Annah-beng)	Tavny Martaban	52 8	-840	1037	Timber large, compact, very hard.
Ficus (Thubboo)	Tavoy	21 0	-335	819	Used in house carpentry.
findeboo	Ceylnn	21 3	.239	580	Used for making charcoal for guapowdar.
Galioopah	Travancore -	53 0 45 8	*848	513	
Garcinia ? (Puilowa) =	Tavoy	45 8 45 8	728	865	A large tree, used for posts. A strong durable wood.
Ghese, Ser Quercus,		40 0	120	600	A strong durable wood.
Gmallus arbores	India	32 3	*515	709	
Go-na''	Ceylon	32 6	-518	718	
Gordonia? (Kaza)	Martaban	24 8 37 10	1392	582 1027	Large timber, used for ordinary building
Olithonias (Maza) = = = =	Martagan	3/ 10	.002	102.	purposes.
Guarua	India	41 14	-670	710	71
Guava. See Peldium.					W 1 11 11 11 11 11 11 11 11 11 11 11 11
Gundrucy	.,	34 15	-559	697	Wood with a peculiar odour, resembling that of anisced.
Herstiera ? (Soondree) -	,,	57 15	1927	493	Used in ship-building.
		49 15	• 799	473	
Hibiscus macrophylius	Tavoy	27 13	1445	806	A middle-sized tree, used for common build-
		28 0	-448	825	ing purposes.
Hibiacus?"	**	28 0	. 448	804	Used for common building purposes; tha
	,,	-	- 1		bark is made into cordage,
Hapea florihunda (Tantbeya) -		27 11	*443	808	A very large tree.
Hopea odorsta (Tengaun, Thaen-	Martaban	38 U	*608	954	Canoes are made of this tree, which produces
gong).	Tenasserim	40 12	-652	863	a valuable resin. Used in boat-building, grows to a large size,
., ., .,	Coast.	40 12	-632		and is abundant.
Hune	Burnos	-	- 1	876	
Indian saul. Ser Shores.				342	
Indian wood Iron-wood, See Metrosideros.		45 6	1796	342	
Jack-wood, See Artocarpus.				- 1	
				- 1	
Jeen. See Cedreia.					
Jeenia	India	36 11	-587	713	
Juglans pterococca		39 14	-638	695	
Juniperus exceisa (Cedar of	;; = =	34 7	-551	1039	An excellent light wood.
Himalaya). Kaantha					
Nantua	Tavoy	- 1	-	856	Small but valuable timber.

WOODS OF ASIA-continued.

	WOOD	S OF A	SIA-e	ontinues	t.
NAME.	Place of Growth.	Weight per Cabic Ft.	Specific Gravity	No. in Cata- logue.	REMARKS,
Kain-tha-phogee, See Sym-		tha. es.	1		
plocos. See sym-					
Kaunzo-kurro – – – –	Tavoy	13 0	-688	812	Used in bost-building.
Kayzal. See Laurus.				1	
Kaza. See Careya. See Gordonia					
Kenhusun		_	-	837	
Kenunan. See Xylocarpus.					
Kraza-Perrona	.,	-	-	947	Used in house-building.
Keetha. See Syndermis.					
Keoun-lae. See Rottlera. Kombo, See Careya.					
Kuddoot-alain		53 3	-851	840	Grows to a great size; used in house-hailding.
Kuddoot-nee		34 0	1554	829	An inferior wood; used in boat-huilding.
	**	34 3	- 5-47	864	
Knenmounee. See Lagerstro-					
Kullowa, See Laurus, Kunceuce, See Sterculia, Kunna, See Pierardia, Kunnena-phew, See Diptero- carpus, Kunneen-keunkee, See Bigno-					
nia. Knnneen-kennla. See Sym-					
plocos. Kurrowa, See Laurus.					
Kuzzoo, Ser Pierardia.			1		
Lageretro-mis regine	Isdis	46 8	.744	700	
Lagerstromis ? (Kuen-	Tavoy	37 9	.601	839	
mounce, Peema). Laurus camphora? (Camphor- wood).	China	35 14	-574	897	A wood emitting an agreeable aromatic
. 11 . 31 . 11			-691	809	Word to house comments
Laurus — ? (Kaysai) Laurus — ? (Kullowa, Kur-	Tavoy	43 3 30 0	· 691 • 480	809	Used in house carpentry, Produces the sassafras bark and camphor-
rowa).	.,		.400	240	wood of Martaban.
	.,	30 0	*480	818	
Laurus ? (Lumpatch,	Nepal	34 0	*544	955	Used in carpenter's work, and for beams.
Chasepoo). Laurus — ? (Panatha)	Tavoy	43 0	-688	881	Used in house carpentry.
Laurus — ? (Sassafras) = =	India	32 12	-524	712	tota in nouse carpentry.
Laurus — ? (Sassafras) Laurus — ? (Thuggoo)	Tayoy	-	-	951	Used for ours and rudders,
		i			
Loquat. See Eriobotrya.			1		
Lumpatch. Ser Laurus. Maikay. See Murraya.	(
Maingga. See Cynometra.			n		
Makoo-shingali, See Castanea.		1	1	1	
Manga chapul	Manilla	41 15	·671	500 390	Used in ship-building.
Maroothes	Travancore -	37 7 36 lo	· 586	901	Used in making house farniture.
Maunthaen or Sasserras	India	51 12	-828	956	Used for timber of junks.
May-rang	Tavoy	48 9	• 777	1043	Said to be very durable; used for the posts
					of houses on the banks of rivers."
Megeongee	India	38 9 46 1	·617	945	A vary large tree, used in house-building.
Melia Azadirachta Metrosideros vera (iron-wood) -	India	53 0	*848	494	Used for anchors by the Chinese.
Mimosa odoratissima	India	45 6	.726	711	Cled for adedots by the Citations.
Mimosa polystachya	Botanle Garden,	32 0	-512	1032	
	Calcutta.	1			
Mimusops Elengi	Tavoy	46 0 51 3	*736	924	A slow-growing tree. Used in ship-huilding.
Moluvé or Moloba Moonga Vallah	Manilia Travancore -	38 5	*613	411	Card III ambanning
Mootoocorandy		38 13	-621	440	
Morinda citrifolia	Botanic Garden	28 10	*458	913	The root yields a red dye.
	Calcutta.				
Moruag Saul. See Shores	Travancore -	38 15	-623	394	
Murraya ? (Maikay)	Travamente -	60 13	-973	847	A strong tough wood. Said to be compact and hard.
	Nepal	21 11	-347	911	Said to be compact and hard.
Nander wood. Ser Dalbergia. Nar, or sacred wood	Ceyiou	55 0	-880	584	Used by the natives for building temples
	1		1		and royal palaces; an excellent wood.
Neddoon, See Dalbergia. Nedun, See Dalbergia.	1				
Necrovalum	Travancore -	24 5	+389	423	
Nellee	Ceylon	34 8	.552	589	
Nelty, or Nelly	Travancore -	42 5 39 14	·677 ·638	692	
Nerium tinctorium	India	39 14	- 638	692	

Darie Dari		WOOD	DS OF A	131.1 0	ORTHRE	it.
No. Possible	NAME.	Place of Grewth,	Weight per Cubic Pt	Specific Gravity	in Cate.	REMARKS,
Chicks Weight Chicks C	V - D			.011	070	
Charles (Placem)	Odina Worller			1656		
Pade		Tayoy	29 io	.474	813	
The present 1		India	30 8	*488	630	
Part	Pah-doubh		60 0	*960	969	
Date	Palah Ser Sapotes.	Terreness	14 0	1990	Acres 1	
Pales	Palai			-381		Used in the construction of canoca.
Pacendar	Palm		57 9	-921	705	
Transace 41 1-718 308	Palmist	,,	62 7	.929	52	The wood of one of the palms used for cabi
Tronger 27 14 - 446 Franches 2 15 - 446 Franch	Panatha See Laurus	Travaneore -	44 14	-718	388	net and marqueteric worg,
Norther person	Peema. See Lagerstro-mia.		99 0	-519	997	Affords good grooked timber
Transmission Tran	Pen-lay-neen = = = = =	Tayor	-	- 1	944	The same and the s
Fremanks		Travoncore -	27 14	• 446	418	
Firman-legal	Phaoun, Sec Osyris,	_				
Firewards (Kasun, Kazun)			-	-		
Plane demands	Pierendia ? (Knona Korto) -		37 19	1604		
Figure 1	Pinus dammara			-627	869	
Transcript	Pinus longifolia	Nepal	-	-		Excellent timbec.
Townsore 27	Pinus Webbiana		21 0	1336	905	
20 10 400 400		2'	90 0	1170	. 170	
				-463		
Note	Pounah		40 13	- 653		
Publicher — (Chilaquable Chair) — 30 6 950 457			50 15	-815	399	
Present Pricing Chilagamb Casipera 43 0.93 355 A strong colour like that endired by find manifest Casipera 45 0.93 1.94 1.95						
Takensore 1	Premms hircins (Chikagamb-				878	A strong odour like that emitted by the musk-rat, is given out by this wood; used for musical instruments
Richardson	Pterocarpus santalinus (Rea	Travancore - India				to marca portanega.
Tubber Sector Contents S	Pterocarpus? (Thoun-kheea) - Pterospermum Indicum (Am-	East Indian				Much used for ornsmental work.
Charger Carbon	Pullows, See Garcínia, Purrah-wah, See ditto, Puzzeen-swa, See Ternstromia,	istands,				
Control Cont	Quercus Amberstinus (Tirbbae, Ryakle).					Used for coarse furniture,
Section Sect	Quereus fenestrata			1752		
Section Sect						
Regal wood Tubest 5 to 6 450 17 A very feesingth wood; large tree; wood used in buildings has show; 15 to 10 15 to 1	Quereus semecarpifolia (Ghese,			-352	836	Wood light, from a large tree.
Tavey	Regal wood					A very beautiful wood; much prized, and used by persons of high rank only.
Salar Helena bong, & Done	Rotticra? (Keoun-lae)					A large tree; wood used for rudders, &c.
Sanderjern Chilton Savy - 2s 6 444 250	Saint Helena ebony. See Dom-					
	Sendorjeum ? (Thittoo)	Tavoy			820 702	Used for furniture.
Scylalis longan - India - 4 8 712 69	Saphew, See Xanthophyllum,	Tavoy	41 0	-656	811	A very large tree; wood used in building.
cytalia		Testi-		.710	240	
- 730 6 - 630 715	cytana longan			-960	696	
hores robusta (Indian aani) 52 10 *842 339 A strong and darable wood; in great re for ship-building. (Morung saul) - Nepal - 43 14 *702 123 Macb used in India for various pure - 45 14 *724 123 Macb used in India for various pure	cytalia /		39 6	-630	715	
- 45 14 '734 122 Much used in India for various pure	hores robusta (Indian sani) -		52 10	.812	339	A strong and durable wood; in great repute for ship-building.
	11 -		45 14	.734	1:22	Much used in India for various purposes, where strength and durability are required.
omneratia? (Thanumm) - Tavoy - 42 0 '672 814 A small tree.	condre. See Heretlera.					A small tree.

_	WOO	DS OF A	SIA-	rontinue	ed.
NAME.	Place of Orowth.	Weight per Cubic Ft.	Specific	No. in Care logue	REMARKS.
Sterculla? (Kuncence) Swletenia chloroxylon (Satin	Tavey Ceylon	11s. or.	·816	854 578	Tree of very large dimensions. Used for furniture, &c.
wood, Booroota). Swistenia febrifuga	India	54 14	-378	701	
Symplocos floribunda	Nepal	34 7	-551	917	A large tree.
Symplocos? (Kain-tha-phogee) Symplocos? (Kunneen-keunkee,	Tavoy		1548	838	Affords good erocked timber. Used for beams, posts, &c.
Kunneen-keunin). Syndesma tavoyana (Keetha) -				855	
	,,	1 -	-	800	Used in house-building.
Tanka. See Teotona. Taila-oon. See Carapa, Tanabang. See Artocarpus. Tantheya		44 0	-704	858	
,, See Hopea. Tathee. See Bignonia. Taxus virgata (Dheyri, Lolsi) -	Nepal	44 0	-704	993	
	Nepai	-	-	993	Grows to a large size; timber strong and good.
Teak. See Tectona. Tectona grandla (Teak, Taaks, Tekka).	Ceylon	47 3	-755	581	One of the best of the Ceylon woods.
17 17	Travancore -	42 8	*680	376	A strong and durable wood; much values for ship-building.
,, (East Indian teak)	Maiabar coast -	37 14	-606	121	The best kind of teak,
" "	Moulmen	31 9	·505	119	This quality of teak is not so good as the
Tekka, Sec Tectona.					Malabar.
Tengaun. See Hopea. Terminalia catappa	Botanic Garden,	30 0	-490	1,074	A noble ornamental tree; wood very good.
Terminalia ebebnia	India	42 10	-682	682	
Terminalia citrina (Thuphauga)	Tayoy	50 2	1962	683 823	Very heavy and compact.
Ternstromia ? (Puzzeen-	,,	36 7	-783	830	A rather large tree; used for posts and
Tetranthera nitida	India	34 4	-548	899	ratters.
Teutha	Tavoy	54 0	+864	811	
Thallaroo	Travancore -	44 0	1704	431	
Thambuvoo	Tavoy	55 6	.886	581 888	An inferior light wood.
Thau-baun-than-lay Thaumma. See Sonneratia. Thittoo. See Sandoricum.	· · · ·	-	-	849	A strong durable wood, but does not saw kindly.
					Find by house helbling
Thoun-mynga Thuhboo, See Fleus. Thuggainee, See Bignonla.	.,	49 0	•768	884	Used in house-building.
Thuggoo. See Laurus. Thunhanen. See Terminalia.					
Thurappe. See Calophyilum.		17 7	-279	860	A strong and durable light wood.
l'bymboo, Than-bann-po	;;	17 3	.275	825	Strong durable light wood, used in bont- building.
Tirbbae, Ser Quercus. Toon, See Cedreia.					
Town-pine	:: 2 2	28 13	-461	943	Used in boat-building, and much esteemed.
	,, -				
Tungnusi, See Chinchone.	,,	-	-	949	Affords good crooked timber, used for boat- huilding.
Vallathorasbel	Travancore -	22 1	-853	415	-
Vanava	Manilia	42 11 40 10	·650	496	Used in ship-building.
Vateria lancerefolia	India	53 15	1863	694	
Vavoolagoo	Travancore -	29 4	*468 *456	397 433	
Velty, or Vetty:	;; = =	40 11	.657	416	
Venga	.,	47 1 15 8	*753 *248	3%0 435	
	11 2 2	11 3	-179	434	
Vyashanthak	;; = =	41 0	-656	439	
Weraloo, See Eleocarpus. White dammar lout ? (Saphew,	India Martahan	33 10	-538	948	
Choo-munn). Xylocarpus——? (Keannan) =	Tavoy	46 9	-745	868	Used for furniture and in house-building.

	NAME.				Piace of Growth.		ight er ie Ft.	Specific Gently	No. in Cata- logue.	REMARKS.
Zisyphus —	2 /2-			-1		thu,	es.	-571	879	
?	- · (xe	ernee	"_	=	India	3)	-11	.571	72	A very light soft wood, forming a good sub
				- 1				1		stitute for cork to the entomologist.
?		-	-	-1	India		0	7:36	374	
	: :	Ξ	-	-	Travancore -	27 44	14	·446 ·710	421	
?		_	-	21	Arracao	33	9	1037	492	
?		-	-	-1	India	43	.5	.613	656	
?		-	-	-1		45	- 4	.724	6.3	
?	: :	-	-	-	# 5 5 5	50	5	1:121	703	
		-	-			38	12	- 620	709	
		-	-	=1	:: = = =	32	9	+521	707	
?		-	-	-1		45	11	.731	717	
?	: :	Ξ	-	-1		48	9	1:013	719	
	: :	=	-		2 2 2 2	63	14	622	723 726	
		-	=	21		37	5	-597	727	
?		-	_	-1	Tavoy	٠.		-	946	Used in house-building.
?		-	-	-	India	41	0	-656	870	
			-		W	war	e 0	FAFR	ic.	
Africae oak		-	-	-	Sierra Leone -	51	7	-813	124	Specimen of the best quality,
**		-	-	-	., -	50	7	-807	125	An excellent wood for slilp-building, an extensively imported for this purpose.
**		_	_	_		50	0	-800	126	Variety sometimes called "Silver oak."
		_			Sierra Leone -	52	9	-841	258	variety sometimes contes crives out.
		-	-	-	West Coast of	43	11	.633	259	
		_	_	_	Africa .	50	9	-800	575	
Africao tenk		-	-	-		54	5	.863	369	Much used and esteemed for ship-building another term for African oak.
Baphia nitida	n (Bar)	_	_	_		36	2	+583	66	Used for dyeing and turning
,,	(Cam)	- (-	_		31	13	.577	65	Used for dyeing and for turnery work.
Bar. See Ba	(Cam	wood	1)	-	Lico Hills -		-	-	283	Used for dyeing.
Bar. See Bay	phia.			- 1		1		1		
Cam wood.	See Bay	Miss.		_	Madagascar -	53	1	-812	206	
Fernando Po	wood	-	-	=1	Fernando Po -	30	i	*481	127	Used in ship-building.
		-	-	-	,, -	45	11	-734	128	11
Oldfieldia Af	ricana.	See .	Afric	ao						
Red Sanger v	wood	-	_	-		61	0	-976	100	Heavy and compact,
	-	-	_		The second	on	***		MEDI	
					WOODS	OF		KIH A	UB 3 IK.	(A,
Abies alba (v	white sp	тисе) -	-!		23	13	-381	113	
Ables cana	deosis	(ben	alock	١,	Upper Canada -	23	0	1368	204	Used for common earpentry,
spruce).				J	United State	23	0	-368	647	
	. (ormi-	eck)	= 1	United States - Upper Canada -	36	14	-590	593	
			r. nel	b.	United States -	24	.0	-384	631	
Acer eriocary	to (box	elde		- 1						
Acer eriocary Acer Negund leaved may	io (box ple),	elde								
Acer eriocary Acer Negund leaved may	io (box ple), o (red m	elde (aple)			,, -	38	5	.613	620	
Acer eriocary Acer Negund leaved may	io (box ple), o (red m	elde (aple)		- 4e)	;; =	38	6	-614	619	
Acer eriocary Acer Negund leaved may Acer rubrum Acer succhan	io (box ple), i (red m rinum (s	elde inple) ingar	map	- 1	: =	38	6	·614	619 618	First to assessment to see the second second
Acer eriocary Acer Negund leaved may Acer rubrum Acer succhar	do (box ple), i (red m inum (s (bird'	elde inple) iugar is eye	map	le)		38 39 40	6 15	·614 ·630 ·655	619 618 594	Used in ornamental work by carpenters an iolners.
Acer eriocary Acer Negund leaved man Acer rubrum Acer succhar	do (box ple), i (red m inum (s (bird'	elde inple) ingar is eye	map	ie)	: =	38 39 40	6 15 10	·614 ·630 ·635 ·586	619 618 594 193	joiners. Used in common carpentry work.
Acer eriocary Acer Negund leaved may Acer rubrum Acer succhar	do (box ple), i (red m inum (s (bird'	elde inple) ingar is eye	map	ie)	: =	38 39 40	6 15	·614 ·630 ·655	619 618 594	joiners. Used in common carpentry work. Used for ornamental work; a peculiar growt
Acer eriocary Acer Negund leaved may Acer rubrum Acer succhar	do (box ple), o (red m inum (s (bird' (curl) var.	elde naple) nugar n eye y may (bird	map map ple)	de)	Upper Canada -	38 39 40 36 36	6 15 10 0	-614 -630 -635 -586 -576	619 618 594 193 330	joiners. Used in common carpentry work.
Acer eriocary Acer Negund leaved map Acer rubrum Acer sacchar	do (box ple), o (red m inum (s (bird' (curly var.	elde naple) nugar n eye y may (bird	map map ple)	de)	: =	38 39 40	6 15 10	·614 ·630 ·635 ·586	619 618 594 193	joiners. Used in common carpentry work. Used for ornamental work; a peculiar growt
A cer eriocary Acer Negund leaved map Acer rubrum Acer sacchar maple). Acer — ? (Ash. See Fr	do (box ple), o (red m inum (s (bird' (curl) var. (hard m raxinus.	elde inple) ingar is eye y maj (bird aple)	map map ple)	de)	Upper Canada -	38 39 40 36 36	6 15 10 0	-614 -630 -635 -586 -576	619 618 594 193 330	joiners. Used in common carpentry work. Used for ornamental work; a peculiar growt
A cer eriocary Acer Negund leaved map Acer rubrum Acer sacchar maple). Acer — ? (Ash. See Fr	do (box ple), o (red m inum (s (bird' (curl) var. (hard m raxinus.	elde inple) ingar is eye y maj (bird aple)	map map ple)	de)	Upper Canada -	38 39 40 36 36	6 15 10 0	-614 -630 -635 -586 -576	619 618 594 193 330	joiners. Used in common carpentry work. Used for ornamental work; a peculiar growt
Acer eriocary Acer Negund leaved may Acer rubrum Acer sacchar maple). Acer? (Acer? (Acer? (Balsam. See Bass wood.	do (box ple), a (red m inum (s (bird' (curl) var. (hard m r Picea. Ser Till Fagus.	elde inple) ingar is eye y ma (bird aple)	map map ple)	de)	Upper Canada -	38 39 40 36 36 39	6 6 15 10 0 10	-614 -639 -633 -586 -576 -634	619 618 594 193 330 595	joiners. Used in common earpentry work. Used for ornamental work; a peculiar growt of the tree.
Acer eriocary Acer Negund leaved may Acer rubrum Acer sacchar maple). Acer? (Acer? (Acer? (Balsam. See Bass wood.	do (box ple), a (red m inum (s (bird' (curl) var. (hard m r Picea. Ser Till Fagus.	elde inple) ingar is eye y ma (bird aple)	map map ple)	de)	Upper Canada -	38 39 40 36 36	6 15 10 0	-614 -630 -635 -586 -576	619 618 594 193 330	joiners. Used in common carpentry work. Used for ornamental work; a peculiar growt of the tree. Much used for ship-building in Canada an
Acer eriocary Acer Negund leaved maj Acer tubrum Acer sacchar maple) Acer — ? (Ash. See Fr Balsom. See Bass wood. Beecb. See !Betula nigra	do (box ple), o (red m inum (s (bird' (curl) var. (hard m raxinus. r Pices. Ser Tili Fagus. (black	elde inple) ingar is eye y maj (bird aple) ia.	map map ple)	de)	Upper Canada -	38 39 40 36 36 39	6 6 15 10 0 10	-614 -630 -655 -586 -575 -634	619 618 594 193 330 595	joiners. Used in commoo carpentry work. Used for ornamental work; a peculiar growt of the tree. Much used for ship-building in Canada ao Nova Scotla, but oot a durable wood.
Acer eriocary Acer Negund leaved may Acer ubrum Acer subrum Acer succhar "" maple," Ash. See Fr Balsom. See Bans wood. Beecb. See i Betula nigra Betula nigra	do (box ple), o (red m inum (s (bird' (curl) var. (hard m exinus. e Pices. Ser Till Fagus. (biack	elde inple) ingar is eye y maj (bird aple) ia.	map map ple)	de)	Upper Canada -	38 39 40 36 36 39	6 6 15 10 0 10	-614 -639 -633 -586 -576 -634	619 618 594 193 330 595	joiners. Used in common carpentry work. Used for ornamental work; a peculiar growt of the tree. Much used for ship-building in Canada an
Acer ericeary Acer Negund leaved map leaved map Acer rubrum Acer succhar """ maple)." Acer = ? (Ash. See Fr Balsom. See Bans wood. Beecb. See I Berula nigra Betula — ? Birch. See E	do (box ple), o (red m inum (s (bird' (curl) var. (hard m axinus. e Picea. See Tili Fagus. (black (birch' Betula.	elde inple) ingar is eye y may (bird aple) ia. birch	map map ple)	de)	Upper Canada -	38 39 40 36 36 39	6 6 15 10 0 10	-614 -630 -655 -586 -575 -634	619 618 594 193 330 595	Fied in commoo carpentry work. Used for ornamental work; a peculiar growt of the tree. Much used for ship-building in Canada ao Nova Scotla, but oot a durable wood.
Acer ericeary Acer Negund leaved may Acer rubrum Acer suchase maple). Acer ? Anh. See Fr Balsam. See Fr Balsam. See Betula nigra Betula ? Birch. See I Black gum. Box elder. See I Box elder.	do (box ple), o (red m inum (s (bird' (curl) var. (hard m axinus. r Picea. Ser Till Fagus. (biack (birch Betula. Ser Ny Ser Ave	elde inple) ingar is eye y may (bird aple) ia. birch	map map ple) s ey	de)	Upper Canada -	38 39 40 36 36 39	6 6 15 10 0 10	-614 -630 -655 -586 -575 -634	619 618 594 193 330 595	joiners. Used in common carpentry work. Used for ornamental work; a peculiar growt of the tree. Much used for ship-building in Canada ao. Nova Scotla, but oot a durable wood.
Acer eriocary Acer Negund leaved may Acer ubrum Acer subrum Acer succhar "" maple," Ash. See Fr Balsom. See Bans wood. Beecb. See i Betula nigra Betula nigra	do (box ple), a (red m inum (s (bird' (curl) var.) (hard m raxinus. See Till Fagus. (black betula. See Ny See Ace See June 1960.	elde inple) ingar is eye y may (bird aple) in- birch	map map ple) s ey	de)	Upper Canada -	38 39 40 36 36 39 35 30	6 6 15 10 0 10	-614 -630 -655 -586 -575 -634	619 618 594 193 330 595	joiners. Used in commoo carpentry work. Used for ornamental work; a peculiar growt of the tree. Much used for ship-building in Canada ao Nova Scotla, but oot a durable wood.

WOODS OF SOUTH AMERICA

	WOODS OF	NOR	t.H	AMEI	aca-	continued,
NAME,	Place of Greath,	Cub	ight ic Pr.	Specific Graves	in Cata- logue.	REMARKS.
Burton wood. See Platanus.		Bin	928.			
Button wood. Ner Platanus. Carva amara? (hickory) = -	United States					
(arya porcina (pignut hickory)	United States	49	8	•792	613	The wood is stronger and better than that of
Carya sulcata (shell-bark hick-		43	- 2	*690	614	any other kind of blekery.
ory).	,, -					
('arya ? (hickory) = - ('astanea vesca (chestant) =		47 25	8	1760	328	
Cedar, See Larix.	United States -	23	4	- 9119	616	
Penell. See Juniperus.						
Celtis crassifolia (hack-berry) -	. ,, -	3%	6	.614	641	Tough and clastic.
Cerusus virginiana (wild cherry)) ,, -	32	3	.515	623	W 1
Cercia canadensis (red bud, Judas tree).		33	7	.232	640	Wood close-grained and compact.
Cherry wood. See Prunsa.				i		
Chestnut, See Castanea.						
Cornus florida (dogwood)		47	.4	-756	633	Hard, close-grained, and strong.
Cupressus distlcha (cypress) = Cypress. See Cupressus.		23	13	.363	648	Graws to an immense size.
Diospyrus virginiana (persimon)		44	- 6	.710	645	Bard and close-grained.
Dogwood, See Curnus.		**		,,,,	043	Fine Branning
Elm. See l'Imus.						
Fagus americana (white beech)		42	2	-674	623	Used in dry carpentry.
Fagus ferruginea (beech) = -	Upper Canada -	-36	9	1585	192	Used in dry carpentry; the wood has a mor
Fraxious americana (American		35	10	-570	325	Tough and clastic, and much used.
molt).						Toogh and Charte, and much of the
,, (white asb)	Upper Canada -	30	14	-494	202	
as 42 sec. 12 sec. 12		33	5	.232	202	N 1 1 1 10 10 11 11 11 11
Gleditschia triacanthus (honey locust).	United States -	40	6	.616	635	Very hard, and splits with great facility
Gum tree, See Nyssa.						
Gymnocladus canadensis (roffee		40	7	-647	634	Hard, compact, strong, and tough.
tree). Hack-berry. See Celtis.	.,					
Hazel. See Ulmur. Bemlock, See Ables. Blekory. See Carya. Blekory. See Juglams. Hickory. See Juglams. Longy locust. See Gleditschia. Iron wood. See Ostrya.						
Judea tree, Sec Cercis.		48	2		591	
Jugians alba (hickory) Jugians cineres (butter unt) -	Upper Canada -		8	· 770	191	
,, ,, ,, =	:: =	20	4	1356	191	
		26	8	*424	205	
22		:30	7	- 487	205	
Jugians piers (black walnut) -	United States -	30	15	·485 ·463	627 625	Specimen from a young tree. Wood strong, tough, and not liable to split.
Jugians nigra (black walnut) -	Upper Canada -	98	11	459	198	wood serving, rough, and not many to spate
Juniperus bermudiana (red or	Bermuda	34	15	1559	101	Used in ship-building and for making pencils
pencil cedar).						
Juniperus virginiana (red cedar)	United States -	26	to	-426		
					613	Used for making penells, but not so good a
formatt and and		on.				Used for making penells, but not so good a the Juniperus Bermudiana, for this purpose
Jarly americana (backmatack)	1 : :	25	9	-409	331	Used for making penells, but not so good a the Juniperus Bermudians, for this purpose A light and durable wood.
Larix americana (backmatack)	::	25 37 36	9			A light and durable wood. Much used and esteemed in British Norti
Larix americana (backmatack)	::	37 36	9	-409 -601 -578	334 330 349	A light and durable wood. Much used and esteemed in British North America for ship-building.
(Tamarack) -	Upper Canada -	37 36 23	9 2 15	-409 -601 -578	334 330 349 200	A light and durable wood.
(Tamarack) -	: :	37 36 23 18	9 2 15 6	-409 -601 -578 -383 -294	334 330 349 200 201	A light and durable wood. Much used and esteemed in British North America for ship-building.
(Tamarack) - Larix ? (Cedar) Larix ? (Cedar)	Upper Canada -	37 36 23 18 19	15 6 10	-409 -601 -578 -383 -294 -314	334 330 349 200 201 201	A light and durable wood. Much used and esteemed in British North America for ship-building.
(Tamarack) - Larix ? (Cedar) Larix ? (Cedar) Lirisdeminus tulipifera (yellow poular).	Upper Canada -	37 36 23 18	9 2 15 6	-409 -601 -578 -383 -294	334 330 349 200 201	A light and durable wood. Much used and esteemed in British North America for ship-building.
Larix (Cedar) - Larix (Cedar) - Liriodendium tulipifera (yellow poular)	Upper Canada -	37 36 23 18 19	15 6 10	-409 -601 -578 -383 -294 -314	334 330 349 200 201 201	A light and durable wood. Much used and esteemed in British North America for ship-building.
(Tamarack)	Upper Canada -	37 36 23 18 19	15 6 10	-409 -601 -578 -383 -294 -314	334 330 349 200 201 201	A light and durable wood. Much used and esteemed in British North America for ship-building.
(Tamarack)	United States	37 36 23 18 19 24	9 2 15 6 10 3	-409 -601 -578 -383 -294 -314 -387	334 330 349 200 201 201 632	A light and durable wood. Much used and esteemed in British North America for ship-building.
	Upper Canada -	37 36 23 18 19	15 6 10	-409 -601 -578 -383 -294 -314	334 330 349 200 201 201	A light and durable wood. Much used and esteemed in British North America for ship-building.
(Tamanck)	Upper Canada	37 36 23 18 19 24	9 2 15 6 10 3	-409 -601 -578 -383 -294 -314 -387	334 330 349 200 201 201 632	A light and durable wood. Much used and esteemed in British Nort America for ship-building.
	Upper Canada	37 36 23 18 19 24	15 6 10 3	-409 -601 -578 -383 -294 -314 -387	334 330 349 200 201 201 632	A light and durable wood. Much used and esteemed in British Nort America for ship-building.
Larix —? (Cedar) — —— Larix —? (Cedar) — —— Larix —? (Cedar) — —— Liriodentiun tutipifera (yellow poplar). Locust. Se Robinia. Mapta. Se Acer. Merus rubra (red mulberry) — Mulberry. Se Morus. Nyea. multidura (tour gum, Oak, Se Quercus.	Upper Canada	37 36 23 18 19 24 25 40	15 6 10 3	-409 -601 -578 -383 -294 -314 -387 -561	334 330 349 200 201 201 632 642 638	A light and durable wood. Much used and esteemed in British North America for ship-building.
(Tamarack) - Larix ? ((Tedar) - Larix ? ((Yedar) - Liricolentium tuitifiers (yellow popiar). Live oak. Sw Quoreus. Locust. Sw Kohrina. Mapta. Sw Acer. Morus rubar (red mulberry) - Mülberry. Sw Morus. Nyrus muldifium (sour gam, Oak. Sw Quereus. Oaks Sw Quereus. Oaks Sw Quereus.	Upper Canada	37 36 23 18 19 24	15 6 10 3	-409 -601 -578 -383 -294 -314 -387	334 330 349 200 201 201 632	A light and durable wood. Much used and esteemed in British North America for ship-building.
(Tamarack) - Larix —? (Cedar) — Liric-dendi un tuijuffera (yellow poolar). Live cak. So-Quereus. Live cak. So-Quereus. Locaus. So-Robinia. Morus rubra (red mulberry) — Mulberry. So-Horius. Nyesa multifura (uour gun, black gun). tak. So-Quereus. tak. So-Quereus. Vak. So-Putrus. Vak. So-Putrus. Vak. So-Putrus. Vak. So-Putrus. Vak. So-Quereus. Vak. So-Quereus.	Upper Canada	37 36 23 18 19 24 25 40	15 6 10 3	-409 -601 -578 -383 -294 -314 -387 -561	334 330 349 200 201 201 632 642 638	A light and durable wood. Much used and esteemed in British North America for ship-building.
Larix —? (Cedar) — Larix —? (Cedar) — Larix —? (Cedar) — Liriodendium tuijnifera (yillow Live and E. Quereus. Locust. Se Rohiniah Mapta. Se Achiniah Mapta. Se Mapta Mariah (sour gum, Dakek gum). Oak. Ser Quereus. Usirya wirjainien (iron wood) — Persimon. Se Diopyrus.	Upper Canada	37 36 23 18 19 24 25 40	15 6 10 3	-400 -601 -578 -383 -294 -314 -387 -561 -646 -779	334 330 349 200 201 201 632 642 638	A light and durable wood. Mech med and externed in British Nert Americs for this building. A good wood for skip shalling purposes.
Larix " ((Tamarack) - (Crelar) -	Upper Canada - , , , ,	37 36 23 18 19 24 25 40 48	15 6 10 3 1 6	-400 -601 -578 -383 -294 -314 -387 -561 -646 -779	534 310 349 200 201 201 612 642 638 637	A light and durable wood. Moch need and extension in British North America for ship-ballating. A good wood for skip-ballating purposes. A good wood for skip-ballating purposes.
Larix ? (Cotta) Larix ? (Cotta) Larix - ? (Cotta) Larix - ? (Cotta) Liciodemion tutinifiers (yellow poplas). So Quercus. Live eak. So Quercus. Mapin. Se Acer. Meura urbar (ref mulberry) Mulberry. Se Morus. Nysa mulbilms (wour gum, Dak. Ser Quercus. Ottra virginies (from wood) Pas paw, Se Uvaria. Prope histomes (tobsom)	Upper Canada	37 36 23 18 19 24 25 40 48	15 6 10 3	-400 -601 -578 -383 -294 -314 -387 -561 -646 -779	534 330 349 200 201 201 632 642 638	Much used and externed in British North America for hist-juilling. A good wood for sldp-building purposes.

1 2

116 CLASSIFIED LIST OF WOODS OF NORTH AMERICA AND WEST INDIES. [Class IV.

WOODS OF NORTH AMERICA-continued.

NAME.	Place of Growth,		ight ee ic Ft.		No. in Ceta- logue.	REMARKS.
Pinus resinosa (American red pine).		1hs. 26	11	-427	110	Used in corporary.
(red plac) -	United States -	28	7	+455	316	A strong wood used in carpentry.
Pinus rigida (pitch pine)	South Carolina	32		-512	109	A strong and durable wood.
17 on Mr. 17		42	2	674	315	Much used in ship-building.
Pinus (Virginia pine) -	Upper Canada -	34 22	6	· 550 · 360	266 194	Used for the same purposes as common des
Platanus occidentalis (bnjton wood, sycamore). Poplar. See Populus. , yellow. See Lirioden- dron.	United States =		8	-424	624	Much used fur making bedsteads,
Populus ? (poplar)	Unper Canada	20	11	.331	196	
	o pper Canada -	19	14	*318	196	A light inferior wood.
Prunus ? cherry wood -			15	1479	195	
Quebec white oak	Canada	5/3	12	*860	780	Used in ship-building.
Quereus albs (Quebec onk) -	* 0.0	33	11	·539	781 117	Used in ship-building, but not a durable
distribution (district our)	,,	33		343	11,	wood,
	,,	45	5	-723	118	A specimen, showing wood of an inferior quality.
., .,		39	5	-629	324	Used in ship-building, but not much in repute.
,, (oak)	Upper Canada -	47	14	.766	590	pare.
,, (white cak)	l'nited States -	40	1	-641	610	
	1 pper Canada -	44	4	*708	197	Used in ship-building.
Quercus rubra (red oak)	United States -	32	.2	1514	612	
Quercus tinetoria (black oak) = Quercus virens (live oak) = -	,, =	34 56	14	1909	574	The heaviest and hardest of the oaks.
		51	nî i	827	325	the neuviest and nardest of the oaks.
Red bud. See Cereis.		31		(14)	19213	
Robinia Pseud-Acacia (locust)	** -	45	8	1728	320	Occasionally used in ship-building, but chiefly for treenalls.
77 a 21 m	., -	41	11	-667	644	T 14
Sassafras officinale (sassafras	United States -	41 37	8	*664	344 636	Used for treenails in ship-building. Specimens from a young tree.
tree). Sour gum. See Nyssa. Sprace. See Abies. Sycamore. See Pintanus. Tamarack. See Larix.	t nited states =	3,	•			
Tilia americana (bass wood) - Treenall, See Robinia.	Upper Canada -	23	0	400	203	Even in grain like common lime-wood.
Ulmus americana (elm)		36	n	-587	592	
(American rock	2" -	36	3	.579	107	Used by ship-builders.
elm).					100	N 11 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
(rock elm) -	5.5	36	15	-591	336	Used in ship-building. Much used in ship-building.
,, (swamp clm) -	= =	33	10	1538	322	Used in ship-building, and preferred to Un;
(white elm) -		34	5	-549	616	I sed by wheelwrights,
Ulmus fulva (red elm)	United States -	42	8	(68)	617	
		31	2	498	631	
Ulmus? (wych hazel, Quebec rock elm).	Canada	43	11	-546	776	Used in ship-building.
**	** 5 5	51	6	-822	775	**
i'varia triloba (pawpaw) Walnut. See Juglans.	United States -	22	7	-359	649	,,

WOODS OF THE WEST INDIES

	W	001	98 (OF '	FUE	WEST	IND	IES,
Amerimnum obenas? (Cocus) - Andira inermis? (Turkey wood)	Cuba	-	_	66 45	6	1.062	38 729	Used by inraors. A strong, durable wood,
Batuta	-	-		54	11	.875	33	Heavy and compact.
Brazilletto. See Casalpina. Broad leaf. See Terminalia. Bubroma guazuma (bastard	Jamaica	_	_	41	1	-657	744	Tough, but not durable.
eedar). Bully tree, bustard. See Bume- lia.								
	.,	-	-	52	12	*844	749	
Bamelia salicifolia (bastard buily tree).	,,	-	-	51	9	.822	754	
Bursers gummifers (tropic birch).	.,	-	-	22	15	*367	734	Used for burning lime; soft, and not darable.
Casalpinia brasiliensis (Brazil-		_	-	51	3	-819	51	Used for dyeing and for turning.

	WOODS OF	T11	E W	EST IN	DIES-	continued,
NAME.	Place of Growth.	W Cu	eight per bic Ft.	Specific Gravity	No. in Ceta- logue.	REMARKS.
Calabash. See Crescentia.		16	. 014.			
Cedar. Sec Codrela.		27	15	-447	364	From the Spanish ship "Gibraltar," built is
., bastard, See Bubroma.						
,, common	Santa Martha - Jamaica	23	11	·619	731 733	Used for common carpentry. Largely used in Jamaica, for flooring, doors &c.
Coccoloba uvifera (sca-side grape). Cocus. See Amerimaum.	,,	51	9	-825	740	Hard, tough, and durable.
Courbaril. See Hymenea.						
Crescentia cucurbitina (calabash) Dogwood, See Piscidia.	,,	35	0	. 560	743	Rather soft, but tough and durable,
Eugenia pimenta (pimento) -		60		-963	742	Hard, tough, and durable.
Fig. red	;;	30	7 9	· 487 · 409	739 756	Useless, except for fuel.
wilte, See Fleus,		2:	9	409		
,, wilte. See Fleus. Guiacum officinale (lignum vite) Hæmatoxylon campechianum (log wood).	= =	71	8	1-144	39 62	Used in machinery, and by the turner. Used for dycing, and occasionally by turners.
Hard wood	Trinidad	63		1.016	566	Used in ship-building.
Hibiscus tillaceus (blue mahoe)	Jamaica	36		-59i -584	570 747	Remarkable for toughness.
Hogplum, See Spondins, Horseffesh, or Mangrove		45	15	.735	129	Sometimes used in ship-building.
Hymenen courbaril (Courbaril)	"	60	14	-974	35	Used for ornamental furniture.
Laurus ? (timber sweet-	Jemaica	44	11	.715	750	
Lignum vite. See Gulacum, Logwood. See Hrematoxylm. Mahoe. See Illibiscus. Mahogany. See Swietenia. Mangrove. See Horsefiesh.						
Muss wood	.,	36	6	+582	751	
Orange, wild Pimento. See Engenia.	;;	53	14	.862	748	A hard and durable wood, but not a true Citrus.
Piscidla crythrina? (dogwood)	,,	54		877	735	Wood hard and durable.
Prickly yellow. See Xanthoxy-	,,	29		-472	752	
Sahieu	Cuhe	57	5	.917	674	An excellent word for beams and planking ir ships.
,,	,,	64	9	1.033	675	Used in ship-bullding, and much approved in the Government yards.
,,	,,	63	10	1.018	732	Portion of a large beam, which broke merely in falling from a truck.
Seaside Grape, See Coccoloba.						to saving from a tracks
Shad bark (Hogplum)	m alca	41 23	11	-660	753	Wood soft and valueless.
Swietenia Mahogani (Bay ma-	Honduras	26	8	1424	571	Used for furniture and for ship-building, called " Common southern."
bogany).	.,	25	13	-413	772	called "Common southern." Used in ship-huilding, called "Common southern."
.,,	.,	42	- 11	-683	770	Used in ship-building, called "Superior porthern."
	,,	31	11	-507	768	northern." Used in ship-building, called "Good north- ern."
., .,	,,	36	0	-576	769	Used in ship-building, called "Common
. (Cubs ma-	Cuba	46	11	-747	458	northern." Specimen from the exterior of the butt of
hogany).		49	10	- 794	456	a log. Specimen from the exterior of the top of a
malogany). (Honduras	Honduras	26	8	-424	466	log. Specimen from the outside of the butt of a log, quality inferior.
manogany).	.,	39		-630	468	
:: ::	;;	26		-418	467	Specimen from the interior of the butt of a log, quality inferior.
., .,	,,	35	13	-573	471	Specimen from the interior of the butt of a log, quality good.
	.,	34	11	-555	470	Specimen from the exterior of the butt of a log, quality good,
	,,	44	1	-705	469	Specimen from the interior of the top of a log.
, (Spanish mahogany)		36		· 585 · 764	460	Specimen from the exterior of the top of a log. Much used for furniture.

- 61 15 '-991 569 Very bard, firm, and close grained.

WOODS OF THE WEST INDIES-continued.

N/	ME.				Place of G	ront	h.	Cale	ight er ic Ft.	Specific tiesvity	No. in Cata- logue.	REMARKS.	
	_			-		_	-	Ibe.	. 025,				-
nrkey wood.	See	Andi	ra.	_	Trinidad	_	_	58	12	-940	665	Used in ship-building.	
innthoxylum (prickly yelle	clay	n-11	ercu	lis	11	-	-	35	2	-562	757		
ellow must -	w).	_	_	-	.,,	_		56	5	-901	745	Hard, but rather brittle.	
	-	-	-	-	11	-	-	56	2	-818	738		
?	-	_	_	-		-	-	37	11	1603	737		
	-	-	-	-		-	-	67	3	1.075	736		

	-	-		-	=	67 3	1-075	736	* /-
	-	-				0, 0	. 010	100	
	E			WOO	DS	or sou	ти А	MERI	
					_	56 8	1904	760	The hest wood of the country for standing
Acapu	-		- Para -	-	-	36 8	1904		exposure to the weather; much used in house-carpentry.
Amendoheira -	-		- Brazil	-	-	-	- 1	135	
Arandaia	-		-: **	-	-	-	-	136	
Arapacu	-			-	-	-	-	138	
Arapetiu semarelo	-	-	2.1	-	-	-		137	
Bagra	-		- **	-	-	-	-	141	
Boubixa	-		1.1	-	-	-	-	141	
Brazil. Ser Caralpir Brazilian bard-wood	3A.					58 9	-937	568	Used in ship-building.
Brazilian ook -	-		Brazil	_	_	51 4	820	785	11
Bullet-wood	-		Demer	ara	-	58 0	-928	451	"
Bupurana	=			_	-	-	-	140	
Cabo dumyada -	=			-	-	-	- 1	142	
Cabui da vargem -	-			-		-	-	144	
Cabui vermelito -	-			-	-	-	-	143	
Cabul vinhatico -	_		-1	-	-	-		145	
Cambustan	-			-	-	-	-	146	
Capela almeuca -	-		- ,,	-	-	-	-	476	
Canela Capm, mor	-		- ,,	-	-	-	-	487	
Canela capororoca	-			-	-	-	-	147	
l'anela deguamo am.	-			-	-	-	- 1	148	
anela degusmo pris.	-	-	- ,,	-	-	-	- 1	149	
ancla Jacu	-	-		-	-	-		151	
ancia olio vermetha	-	-	- ++	-	-	-	-	150	
ancia preta da varg	em	-	* * * * * * * * * * * * * * * * * * * *	-	-	-		479	
ancia viado	-	-	- ,,	-	-	-		491	
angeranna asu -	-	-	- ,,	-	-	-		151	
Cangeranna merin	-	1		-	-	-	-	134	
apororoca da serra	-	= :	,,,	-	-	-		488	
Papota depobre -	=	= :		-	-		1 5 1	155	
Catulanhi branio -	-		- ::	-	Ξ		1 2 1	450	
Cedrela? (Cearo)	=		Para -	. =	_	29 3	467	765	
Casalpina echinata	Braz			_		58 13	1941	68	Used for dyeing and for turnery,
Corindiba rrozada	-		Brazit	-	_	-	- 1	156	
De Dejeunhecido -	-		- 11	-	-	-	- 1	157	
Demerara wood -	-		- Demer	- ara	-	23 13	.381	783	Used in ship-huilding.
Emblu preto -	-		- Brazil	-	-	-	-	158	
Fruta de arara -	_			-	-	-	-	486	
Fruta de papagaio	-		- 11	-	-	-	- '	159	
Fruta da ponba -	-		- ,,	-	-	-	-	160	
Fruta dianta	-			-	-	-	-	477	
Garapeapunha ama.	-	-	- 11	-	-	-	-	161	
Giquita. See Hyme	nnen.							162	
Goiti	-	-		-	-	-	-	162	
Greenbeart. See La	THE.								
Guaracabo vermetho	. See	r lugu	4					163	
Guelmado	-	-	- ,,	-	-	-		164	
Gulné	-	-		-	-	-	-	497	
Hymenæa? (G	quite	r) .		-	-	-		483	
Inga ? (Guarac	nhi v	erme	. ,,	-	-	-	-	40.3	
tho).						54 2	-862	767	A fine hard wood,
Itanba	-	-	- Para -		Ξ	2	602	484	
Jaburandl Jacarnuda, Ser Mir		-	OPAZH	-	-	-		200	
Jacaranda, Ser Mil Jetuaiba vermetha	nosa.	_	_	_	-		-	167	
Jetuaiba vermetha	-	-	- ''	-	-		-	165	
Jumiusibs — — Jutushibs smarila	=				Ξ	- 1	_	166	
King-wood	-	= :	- **	- 3		43 11	-629	71	Used for turning and ornamental furniture.
Laurus chloroxylor		Trees	Guiana	. :	_	51 15	-831	788	An excellent wood for ship-building.
heart).	. (J. 760	- Cumin		-				
			Brazil		-	36 5	.901	790	Used in ship-huilding.
**	,,		Guisas		=	61 13	-989	789	22
Limpeiro preto -	_,,	_	- Brazil	_	_	-	-	168	***

			oot m		ICA→	Contraction.
NAME		Place of Greath.	Weight per Cubic Pt.	Specific	No. in Cata- logue,	REMARKS.
Macácáubá – – –	-	Para	1bs. cas. 43 13	701	766	A hard and handsome wood, used for furniture
Mejuba branea	_	Brazil	-	-	478	ture.
Malcazado	-		-	-	173	
Mantega	-	.,	-	-	171	
Marcanaila	-		69 4	1:108	761	A hard wood of good quality,
Massaranduba Millio cozido	-	Para Brazil	69 4	1.109	170	A nard weed of good quanty.
Mimora ? (Rosewood.	Ja-	Denzii	41 14	.718	37	Much used for ornamental furniture.
caranda).						
Mora excelsa (Morra) -	-	Demerara -	55 12	1 -892	572	A valuable wood for ship-building.
,, ,, –	-	11	57 15	1927	573	Sometimes called Demerara locust by ship builders.
,, ,, -		Guiano	62 13	1.005	676	A strong and durable wood, much used I
,, ,,		Outside				ship-building.
Morra, Ser Mora.	-		60 13	973	782	
					169	
Muquequeira Notiga		Brazil		-	174	
Daca	-	:: : : :	-	-	178	
Obapeba asú	-		-		176	
Obapeba depedra	-		-	-	177	
Olio ceburaiba	-	,,	-	-	482 179	
Oluranna verm* Orapitin vermello	-	** = =		-	180	
Orapóca smarela	-				483	
Orilo manco	-	:: : : :	-	-	175	
Pao amarella	-	Para	55 2	1882	764	A fine yellow wood, similar to Canary-wood
Pao d'arco	-	.,	54 1	865	763	Used by the ludians for bows, and it is muc
Pao predrigo		Brazil			481	employed in machinary,
Papante				-	181	
Peguia vermelho			-	-	182	
Piquia	-	Para	43 15	.703	762	Very tough; used for water-wheels and tim bers for boats.
Rosewood, See Mimosa,						otto poi boate.
Sabaó vermetho	-	Brazil	-	-	490	
Santa Meria	-		37 8	.600	323	Occasionally used in ship-boilding.
Santa-Maria-wood. See Sc American hard-wood.	mth					
Sardaó		Brazil	-	2	183	
Satin-wood	-	Driver	55 5	. 885	784	Used in ship-building,
Sibo	-	Brazil	-	-	184	
Similibe da folha rredenda -	-	,,			183	
Stink-wood South American hard-wood	-		32 11 47 14	·813	338 130	Ilas a very unplessant smell. Used to ship-building.
Santa-Maria-wood.	, or	Brazil	4/ 14	-104	100	t sed to surp-outstang.
South American hard-wood	or.		53 4	*852	131	
Sucapara,						
Taxomam	-	,,	-	1 .	186	
Tinga sui		20 0 0	-		187	
Ytu - ?		Para -	83 8	1-336	207	Remarkably heavy and tough.
	-		48 2	-770	209	
?		Brazil	-	-	210	Used for making sugar-boxes.
	-	,,	39 9	-521	211	
;	-	,,	32 9	1921	213	17 17
	: :	Carthagena -	25 0	-410	495	Used for boxes and common carpentry pur
?			-	-	501	puses, Used for packing-cases.
-	-		DS OF	AUSTR	ALIA.	
			1			
Beef wood	-		56 12	-965	336	Used for ornamental furniture.
Black gum, Borkee?	-		56 11	907	370 361	Hard and compact. Used in ship-building, and thought to be
Blue gum						

- - 59 1 ·945 360 - - 36 1 ·577 56 - - 34 6 ·550 337

Borkee, See Black gum.

Box
Casuarina suberosa - - Cedar
Dacrydium Fraklinii. See Huon
Pine.
Eucalyptus piperita (blue gum)

332 Used in ship-building; a strong and durable wood.

WOODS OF AUSTRALIA

		Weight		No.	
NAME.	Pace of Granth.	Cubic Ft		in Cata- legue.	REMARKS.
Encalyptus resinifera? (gum		1bs. azs. 52 9	-811	333	Used in ship-building.
Eucalyptus ? (stringy bark)		49 4	-788	\$29	A good wood for making treenails; used in ship-building.
., .,		56 5	1901	795	Used in ship-building.
Eucalypius? '	Swan River -	52 3 44 13	·833	367 472	The "Hallfax Packet" is repaired with this wood.
Findersia Australis Gum wood. See Encalyptus.		32 5	-517	57	wood,
Huon River plne. See Dacry-	Van Diemen's Lazal.	25 2	-4/12	332	
Iron bark		65 9	1.043	355	A very hard and compact wood,
Lemon		60 13	1973	362 359	
Managany		36 11	*587	358	
New South Wales cedar		29 4	1468	102	Used principally for joinery and furniture.
hard wood -		54 9	*873	793	Used in ship-building.
** **		54 11 54 12	·875	791	**
Remor '	= =	39 I	*625	366	**
Stringy bark. See Eucalyptus Swan River mahogany		42 0	1672	563	
		44 0	.704	563	
,, ,,		42 10	1682	474	Used in ship-building; a strong durable
Trydeo		44 13	·696	365	wood.
	Moreton Bay -	61 1	1961	347	From Mr. Lambert's collection.
		31 1	-497	371	
\ke		40 4	-644	522	
Ake Ake, See Mobourangs, Boriele, See Ephialtes,		40 4	-644	522	
Ake Ake, See Mobourangs, Boriele, See Ephialtes, Cowdie, See Dammara, Daerydium taxifolium? (Kiki-		40 4	-644	522 351	
Ake Ake, See Mobourangs, Boriele, See Ephinites, Comilia, See Dammara		22 13 31 1	-365	351	4
Ake Ake, See Mobourange, Boriele, See Ephialtes, Cowdie, See Dammara, Dacrydlum taxifolium? (Kiki- tealt). (Kahikateah)		22 13 31 1 29 11	-363 -497 -475	351	
Ake Ake, See Moboo rangs, Borriele, See Epihaites, Cowlie, See Dammara, Dacrydkun taxifolium? (Kiki- teal), (Kahikateah) Dammara Australis (New Zea- land pine),		22 13 51 1 29 11 25 3 26 13	-363 -497 -473 -403	351 513 568 452 454	
Ake Ake, See Moboo rangs, Borteles, See Ephiattes, Lowdie, See Dammara, Dacrydiam taxifolium? (Kiki- teal), (Kahikateah) Dammara Australis (New Zea- land pine).		22 13 51 1 29 11 25 3 26 13 33 11	-363 -497 -475 -403 -429 -539	351 513 508 452 454 353	•
Ake Ake, Sc Mobor range, Bortele, Se Ephialtes, Lowdie, Se Dammara, Dacrydium taxifolium? (Kiki- teal), (Kahikateah) Dammara Australis (New Zea- land pine), (Cowiie) = (Kowdie) = Ephialtes — ? (Boriele Pu-	1.0	22 13 51 1 29 11 25 3 26 13	-363 -497 -473 -403	351 513 568 452 454	•
Ake Ake, See Mobov range, Borriele, See Ephiaites, Lowdie, See Dammara, Dampara Australi (New Zea- land pine), (Cowlie) (Kowlie) (Cowlie) (Ephiaites), (Borriele Par- rede),		22 13 31 1 29 11 25 3 26 13 33 11 33 9	-363 -497 -475 -403 -429 -539 -569	351 513 508 452 454 353 505	
Dacrydiam taxifolium? (Kiki- teal). (Kahikateal) Danmara Australis (New Zea- land pine). (Cowdie). (Kowdie). (Ephialtes. ? (Borrice Fu- rcele). (Kiwdie). (Kahikatea. Ser Dacrydiam. Kahikatea. Ser Dacrydiam. Karigatia, or Manook.		22 13 31 1 29 11 25 3 26 13 33 11 33 9	-363 -497 -475 -403 -429 -539 -569	351 508 452 454 353 505	•
Aks Ake, See Mobou range, Bordele, See Ephinaters, Josepha Corello, See Dammar, Chikicachi), (Kahikatesh) Landari (Kahikatesh) Dammara Australia (New Zealand pino), (Condic) — Ephinaters — ? (Bordel Parcele), (22 13 31 1 29 11 25 3 26 13 33 11 33 9	-363 -497 -475 -403 -429 -539 -569	351 513 508 452 454 353 505	•
Ake kke, Se Mobov rangs, Beriele, Ser Ephinites, Uowdie, Ser Dammara, Uowdie, Ser Dammara, Kitaketah) Mandalah Mandalah Mandalah Mandalah Mandalah Mandalah Mandalah Mandalah Manok Ser Beryulum, Mikirigata, Se Daeryulum, Mikirigata, Se Daeryulum, Mikirigata, Se Manook Ne Karigatta, Manook Ser Karigatta,		22 13 31 1 29 11 25 3 26 13 33 11 33 9 33 3	-363 -497 -475 -403 -429 -539 -569 -531 -921	351 513 508 452 454 353 505 521 520 532	•
Ake kke. Se Mobov rangs- Beriels. Ser Ephinters. Diecrydium taxifotium? (Kikit- ceal). (Kahikateah) Dammara Australis (New Zea- land pino). (Coodie) - Ephinter ? (Boriel Pa- Pagur Karigutia, or Manook Karigutia, or Manook Kordle. Ser Diecrydium. Kordle. Se Dammana. Manook. Se Karigutia.		22 13 31 1 29 11 25 3 26 13 33 11 33 9 33 3 57 9	-365 -497 -475 -403 -429 -539 -569 -531 -921	351 513 508 452 454 353 505 521 520 532	•
Akh Ake, Se Melowangas, Bertela, Se Fajishirtes, Barerdinin staffolium (Kaihateuh) Darenman Australis (New Zes- land pino). (Cordie) - (Kawitip - Fajishirte - Kawitip - Fajishirte - Fajishirte - Kawitip - Fajishirte - Kawitip - Fajishirte - Kawitip - Fajishirte - Kawitip - Kawitip - Kawitip - Kawitip - Kawi		22 13 31 1 29 11 25 3 26 13 33 11 33 9 33 3 57 9	-365 -497 -475 -403 -429 -539 -569 -531 -921 -772 1-011	351 513 508 452 454 353 505 521 520 532 523 517	•
Akh Ake, See Belowa range, beared, See Fjalisher (Kiki- Barerdilan tsalfolium ? (Kowlity- proble) Fjalisher — ? (Borrde Fa- Fjalisher — ? (Borrde Fa- Fjalisher — Perryllum . Karigatha, See Parryllum . Karigatha,		22 13 31 1 29 11 25 3 26 13 33 11 33 9 33 3 57 9 48 4 63 8 34 5	-363 -497 -473 -403 -429 -539 -569 -531 -921 -772 1-011 -549	351 508 452 454 353 505 521 520 532 517 514	•
Ako Ako, See Mohoo range, Ako Ako, See Mohoo range, Curdio, See Diminer (Kit- curdio, See Diminer (Kit- curdio, See Diminer (Kit- curdio, See Diminer (Kit- curdio), Cowdio- polymer (Cowdio) Cowdio Cowdi		22 13 31 1 29 13 25 3 26 13 33 11 33 9 33 3 57 9 48 4 63 8 34 5	-363 -497 -475 -475 -429 -539 -569 -531 -921 -772 1-011 -549	351 508 452 454 353 505 521 520 532 523 517 514	•
Akh Ake, See Mohow range, Derection See Johnson (See See See See See See See See See Se		22 13 31 1 29 11 25 3 26 13 33 11 33 9 33 3 57 9 48 4 4 63 3 63 3 63 3 57 9	-363 -497 -473 -403 -429 -539 -569 -531 -921 -772 1-011 -549 -629	351 508 452 452 454 353 505 521 520 532 523 517 514	•
Aka Aka, Sey Meloko ranga, touthi, Sey Daminer (Kil- touthi, Sey Daminer (Kil- touthi, Sey Daminer, Bery illian taxifolium (Kikilatenb) Damanara Australis (New Zea- liphilates — 7 (Border Par- reck). (Cowde) — [philates — 7 (Border Par- reck). Kildian & Sey Derrydian. Kildian & Makhaten & Damyon (Milatenb) Kildian & Makhatenbook (Milatenbook) Kildian & Makhatenbook (Milatenbook) Milatenbook		22 13 31 1 29 11 25 3 26 13 33 11 33 9 33 3 57 9 48 4 48 4 63 8 34 5	-365 -497 -473 -403 -429 -539 -569 -531 -921 -772 1-011 -549 -629 -629 -6334	351 508 452 452 505 505 521 520 522 523 517 514 509 354 506	•
Aba Ake, See Melowa range, courtie, See Daminer, Kaileren, Courtie, See Daminer, Kaileren, Merchalder and See See See See See See See See See Se		22 13 31 1 29 11 25 3 26 13 33 11 33 9 33 3 57 9 48 4 4 63 3 63 3 63 3 57 9	-363 -497 -473 -403 -429 -539 -569 -531 -921 -772 1-011 -549 -629	351 508 452 452 454 353 505 521 520 532 523 517 514	Specimen showing wood of the best quality.
Ada Ake, See Mohou range, vortice See Diministration (Citizente See See See See See See See See See S		22 13 31 1 29 11 25 3 26 13 33 19 33 3 57 9 48 4 4 63 8 34 5 39 5 32 16 50 2 2 50 5 51 7 50 17 50 17	-565 -497 -475 -429 -539 -569 -571 -772 -1011 -549 -629 -622 -823 -823 -823 -823 -823 -823 -823 -8	351 513 518 518 452 454 454 454 454 505 522 523 523 527 517 514 509 506 507 527 515 506	Specimen showing wood of the best quality.
Aka Aka, See Makoo ranga, routh, See Daminer (Kai- routh), Kakalatenb) Dammara Australis (New Zen- Ephilates — Clemely) Ephilates — Clemely Ephilates — Clemely Ephilates — Clemely Ephilates — Clemely Ephilates — Compley Ephilates		22 13 31 1 29 11 25 3 26 13 33 11 33 9 33 3 57 9 48 4 4 63 3 34 5 32 16 52 2 52 5 52 5 52 5 53 15 53 15	-565 -497 -475 -403 -539 -569 -572 -772 -629 -622 -834 -823 -683 -683 -683 -683 -683 -683 -683 -68	351 513 508 452 452 505 505 521 522 523 547 544 509 354 507 527 515 507	Specimen showing wood of the best quality.
Ada Ake, See Malono range, vortule, See Daminer (Kai- counties, See Daminer (Kai- counties, See Daminer (Kai- counties, See Daminer (Kai- counties), (Kaiskatesh) Dammarr Australis (New Zee- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley- Land pine), (Cowley-		22 13 31 1 29 11 25 3 36 13 33 9 33 3 57 9 48 4 4 63 8 34 5 39 5 32 10 52 2 52 5 51 7 53 15 54 6 43 18	-565 -497 -475 -403 -423 -569 -531 -772 -1-011 -549 -622 -623 -623 -623 -623 -623 -623 -623	351 513 568 452 454 353 505 521 523 523 523 523 523 524 526 527 527 527 527 527 527 527 527 527 527	Specimen showing wood of the best quality.
Aba Aba, See Mahoo maga- towith, See Damine (Kai- terydine taxifolium (Kai- terydine taxifolium (Kai- terydine taxifolium (Kai- terydine taxifolium (Kai- terydine taxifolium (Kai- terydine taxifolium (Kai- Kaiterydine taxifolium (Kai- terydine taxifolium (Kaiterydine ta		22 13 31 1 29 11 25 3 36 13 33 11 33 9 33 3 57 9 48 4 4 63 8 34 5 32 10 52 2 51 7 53 15 54 6 34 6 34 6 35 7 35 14 36 7	-565 -497 -475 -403 -423 -569 -531 -772 -1-011 -549 -622 -623 -633 -563 -563 -563 -563 -563 -563 -56	351 513 518 452 454 353 503 521 522 523 517 517 509 506 507 527 527 527 527 527 527 527 527 527 52	Specimen showing wood of the best quality.
Aka Ake, Sey Meloso range, wording Sey Daming (Kai- mereyalum textfolium) (Kore Zei- m		22 13 31 1 29 11 129 11 33 33 11 33 9 3 57 9 44 4 4 63 3 3 15 12 10 15 12 12 12 12 12 12 12 12 12 12 12 12 12	-565 -497 -475 -467 -475 -489 -589 -581 -921 -011 -549 -629 -524 -837 -823 -563 -563 -563 -563 -563 -563 -563 -56	351 513 508 452 454 454 505 505 521 523 517 514 506 507 527 515 516 512 515 516 512 515 518	•
Aba Ake, See Melowa range, Courtle, See Daminer, Kailenberg, Mendelle, See Mendelle, See Mendelle, Mendell		22 13 31 1 29 11 25 3 36 13 33 11 33 9 33 3 57 9 48 4 4 63 8 34 5 32 10 52 2 51 7 53 15 54 6 34 6 34 6 35 7 35 14 36 7	-565 -497 -475 -403 -423 -569 -531 -772 -1-011 -549 -622 -623 -633 -563 -563 -563 -563 -563 -563 -56	351 513 518 452 454 353 503 521 522 523 517 517 509 506 507 527 527 527 527 527 527 527 527 527 52	Specimes showing wood of the best quality.

A very beautiful series of about 160 samples of the most useful and ornamental woods from various parts of the world is shown by Messrs. R. and J. HARRISON (6, pp. 195", 196"). The woods are all cut in the form of books, and admirably exhibit the grain and other pecu-liarities of each specimen. For this collection also, the Jury awarded a Prize Medal

A collection of ornamental foreign woods, and other materials employed in cabinet-work, is shown by Messrs. R. Faustleboy and Sons (135, pp. 205*, 206*). The number of woods about fifty, the specimens being all cut and polished, so as to show the grain and colour of the wood to the greatest advantage. Of most of the woods, two or three specimeus are shown side by side, one in the rough, or with the bark oo, one in section, and a third cut loogitudinally and polished. For this series the Jury awarded a Prize Medal.

A valuable and instructive series of all the priorinal woods used for turning is shown by Messrs, HOLTZAPFFEL (14, p. 196*), the character of each wood illustrated by the end of the specimen being turned, so as to show how it works under the tool in the latbe. For this collection the Jury awarded a Prize Medal.

Some remarkably fine specimens of veneering, in wal-out and rosewood, are exhibited by Messrs. E. Scott and To these the Jury awarded a Prize Medal. A valuable and extensive collection of 63 of the timbers and ornamental woods of England is contributed by

S. Cross (136, pp. 206*, 207*, 205*). This was deemed worthy of Honourable Mention.

The series of Scotch woods shown in Messrs, Lawson's collection (Class III., p. 206) is interesting on account of the beauty of the specimens, the excellent manoer io of the seasify or the spectimens, the execution manner to which they are arranged and shown, and the instructive mode in which the characters and peculiar properties of each tree are mude evident. The sections of grafts and diseases of trees are peculiarly good. Praise is also due to this, as to all the other divisions of Nesars, Lawson's collection, for the excellent catalogue which accompanies tre

and v	nich	is ru.	H 01	us	erui	101	ormation. The fo
ring is	the B	st of	the	tit	nber	, 01	mamental, and frui
·cs:							
A	campe		_	_	_		Field maple.
75001	platan	-1.1	_	_	=	_	Norway maple.
	prende	orace	-		-	-	Sycamore,
	saccha			=	-	Ξ	
							Sugar maple.
	striatu			-	-		Striped maple.
Acsen	tlus hip	pocas	tant		-		Horse chestnut.
	gluti	LOSA	-	-	-	-	Alder.
	lacans		-	-	-	-	Hoary-leaved alder
	gdalus				**	-	Almond.
	tus un		-	***	-		Arbutus.
Carne	rana ar	bores	CCDS	-	-	-	Siberian pea tree.
Carpi	nus be	tulus	-	-	-	-	Hornbeam.
Casta	unen ve	sca	-	-	-		Sweet chestnut.
Cerai	rus lusi		8	-	-	-	Portugal laurel.
	pac	us	-	-	-	_	Bird cherry.
	svl	vestr		-	-	-	Wild cherry.
	vol	garis	-	-	-	_	Cherry.
	egus co			-	-	-	Scarlet thorn.
	COX	VRCAT	tha	-			llawthorn.
	. 194	metat		_	-		Dotted thorn.
Copp	essus s	ampa.	relec	ma	-		Italian eypress.
Cupi	, ti	broid		-	-		White cedar.
Cuti	nla vn	Longia		_	-		Quince.
Certie	us alp	pos	=	Ξ	=	Ξ	
cyu	labu	-	е.	_	_		Laburnum.
		er seems		Ξ	-		Broom,
P-11	a sylva	etros	=	=	=		Beech.
Pagu	a sylva	eren		_	_		Ash.
	lnus ex				-	Ξ	Holly.
	nquifol		-	Ξ	=		Walnut.
Jugu	and reg	ia -	-				
Junij	bearra a	ugue	nna	-	-		Red cedar.
Mesp	ilm ge	man		-	-		Medlar.
Ornu	s euro	pres .	-	-	-	-	Flowering ash.
Pinu	s Cana	iensi		-	-	-	Hendock sprace.
79	abies		-	-	-		Silver fir.
79	balsa	asca	-	-	-	-	American silver fir
**	alba	-	-	-	-	-	White spruce.
**	aigro		-	-	-	-	Black spruca.
22	pices	-	-	-	-	-	Norway spruce.
	larix	-	-	-	-	-	Larch.
**	micr	саго		-		_	Americas larch.

, cedrus	-	- Cedar of Lebanon.
s sylvestris	-	- Soutch fir.
" laricio	-	 Corsican pine.
" larielo austriaca	-	- Bisek Austrian pir
" pinnster	-	- Pinaster.
n strobus	-	- Weymouth plue.
" cembra	-	- Swiss stone pine.
Populus alba	-	- White poplar.
" nigra – –	-	- Black poplar.
Prunus domestica -	-	- Plum.
., spinosa	-	- Sice.
Pyrus aucuparia	-	- Mountain ash.
	-	- Pear-
malus	-	- Apple.
Quereus cerris	-	- Turkey oak.
cocclure	-	- Scarlet oak,
u ilex	-	- Evergreen oak.
, peduaculata -	-	- Common cak.
scssillflora -	-	 Ditto.
Robinia pseudo acaela	-	- Locust tree.
Rhododendron arboreum	-	 Rhododeadrou.
y ponticum		- Postie ditto
Sally alba	-	- White willow.
" Babyloulea	-	- Weeping willow.
- copies	-	- Gonts' willow,
	_	- Forby's willow.
fragilis	-	- Crack willow.
Russelliana	-	- Bedford willow,
n triandra	-	- Basket willow.
, viminalis	_	- Osier.
Sambucus aigra	-	- Eider,
Taxus baccata	-	- Yew.
Thuja occidentalis -	-	- Arbor vite.
Ulmus compestrio -	_	- Elm.
meetass	_	- Wych elm.
Viburnum opulus -	-	- Guelder rose.

Piaus pendula - - - Weeping larch

The collection of foreign woods included in the Liverpool series of imports is also highly deserving of ootice: many of the specimeus are unusually fine, and they are all well shown and arranged. (See p. 69.)

Healdes these more important collections, various sin-

gle specimens deserving Honourable Mention are exhigle specimens deserving Honourable Meotion are exhibited. Among these are some samples of woods grows in Perthshire and Angyleshire by the Marquis of Brazaza-naxe (134, p. 205*); a sample of Sentch fir grown in Strathavoo, from Sir W. Mcnaz, Bart. (137, p. 208*); a series of frish woods exhibited by J. Lova (47, p. 198*); a small collection of Irish woods contribated by J. Ctas son (22, p. 196*). These were severally deemed worthy of Honourable Mention.

Beautiful specimens are exhibited of St. Domiogo mahogany, from Messrs, Grillow and Co. (15, p. 196*); and some remarkably handsome oak veneers from an oak grown in Whittlehury Forest, Northamptonshire, are also exhibited by Messrs. Gillow (Class XXVI. 186, p. 748), These were severally deemed worthy of Hopourable Mention.

A pieture-frame exhibited by D. Samuels (21A, p.196*), formed of various common English woods, chiefly cak, elm, and ash, was deemed worthy of Honourable Meu-

Some good specimens of Euglish woods are likewise exhibited by F. C. Fercu (8, p. 196*).

tainited by F. C. Ferch (8, p. 196*). Several specimens of hog wood of different kieds, nod

from various localities, are shown. Among these are tions various localities, are shown. Among these are slabs of bog oak, yew, and fir, from Lord Dillon (138, p. 208*); and bog fir from the Marquis of BREADALBANK (134, p. 205*). These were severally deemed worthy of

Honourable Mentioo In coonexion with the various collections of wood, In coonexion with the various collectious or wood, attention must be paid to the different processes for scassing and preserving it from the influence of the weather, dry rot, sod the attacks of insects, boriogworms, &c. These and other causes form very serious obstacles to the use of wood for many purposes; and obstacles to the use of wood for many purposes; and accordingly a oumber of plans have from time to time been proposed, having for their object the cheap and effectual preservation of wood. Among these schemes, five in particular have attracted especial attention; namely, the plans of Messrs. KYAN, BOUCHERIE, BUR-NETT, BETHELL, and PAYNE. Of these, the first and last are not represented in the Enhilition, and therefore do not come before the Jury, though the machinery em-ployed by Mr. Payne is exhibited, but without my specimeo of impregnated or preserved wood.

Sir W. Bunnerr exhibits an interesting series of speci-

mens in illustration of his mode of preserving wood, &c., and in proof of its efficacy (7, p. 186°). This pracess, which consists in impregnating it with a solution of chloride of sine, was parented in 1836, four years after the date of Kyan's patent, in which a solution of corrosive sublimate was employed for the same purpose. The specimens shown are highly satisfactory, and clearly prove the high preserving power of the solution of sine.
The Jury awarded a Prize Medal for this process.
The specimens shown by Mr. J. RETHELL (21, p. 196*)

are likewise highly interesting and satisfactory. The process employed in this case, and for which a patent was obtained in 1838, consists in thoroughly impreg-nating the wood with oil of tar continuing creosote, and a crade solution of acetate of iron, commonly called py-roliguite of iron. The idea of preserving wood by the action of oil of tar, or similar liquids, is by no means new. In 1756, Hales recommended that the planks of ships should be soaked in vegetable oil to prevent the injury to which wood is subject when alternately exposed to wet and dry; and, indeed, many ships were built in which a hollow place was cut in one end of each beam or stern-post, so that it might be constantly kept filled with train oil. Among other ships so constructed, the "Fame," 74, may be mentioned. When, after some years, this ship was repaired, it was found that, as far as the oil had penetrated—samely, from 12 to 18 inches from the end—the wood was quite sound, whilst the other parts were more or less decayed. In 1805, Mr. Maconochie proposed to saturate with resinous and oily matters inferior woods, and thus render them some last This proposal was practically carried out in 1811 by Mr. Lukin, who constructed a peculiar oven for the purpose of thus impregnating wood under the influence of an increased temperature. The scheme, however, had but very partial success, for either the heat was too low and the wood was not thoroughly aired and seasoned, or it was too high and the wood was more or less scorehed and burut. The importance of oil as a pre-serving agent for wood is also shown by the fact that whalers, and other ships employed in the oil trade, the timbers of which become thoroughly saturated with oil or grease, invariably last longer-and are less subject to decay of any sort-than other vessels. It is also well known that the staves of old tallow-casks make a more lasting and durable fence than any other sort of woodan effect entirely due to the protecting influence of the

The operation, as conducted by Mr. Bethell, is carried on in a strong cylindrical vessel connected with a powerful air-pump, so that in the first instance a vacuum being formed, and subsequently a pressure of several ntmospheres applied, the liquid may as much as possible be forced into all the pores of the wood. It is stated that wood thus prepared is not only protected from de-cay, and from the attacks of insects, but also that it becomes stronger and tougher in consequence of the layer of bituminous untter with which the woody fibre becomes encrusted. Among the specimens exhibited are portions of railway sleepers which have been in use for several years, and which are perfectly sound, whilst others from the same situation, but oot prepared, are quite destroyed. Portions of piles which have been four years in the sea in Lowestoft harbonr, and which are quite sound, are also shown. This process has been extensively employed in the preparation of railway sleepers for more than ten years, and the result of its application appears in every case to be highly satisfactory where the process has been well and properly conducted. The Jury therefore awarded a Prize Medal for it to Mr. Bethell. (See p. 153.) The mere seasoning of wood, though it will not nl-

together prevent its decaying, nevertheless considerably diminishes its tendency to do so, and is of the very named importance in many cases. The value of any process for seasoning wood depends, of course, to some extent, on the

time required for its completion. A valuable series of specimens is shown by Mr. C. H. NEWTON (20, p. 196*) in illustration of Davison and Symington's potent process for speedily and effectually seasoning wood by exponing it to the influence of a rapid and continuous current of heated air, so that it soon becomes thoroughly dry. The practical value of this process appears to be satisfactorily proved, and the Jury accordingly deemed it worthy of Honourable Mention

A fine specimen of elm, cut across the grain, and well

A nice specimen or emi, cut across the grain, and well-seasoned by steeping in whiter and very slow dryling, is shown by Sir W. Micanav. Bart. (137, p. 2008). A sample of Welch ook, stated to be sessoned by a new process, which renders it better suited to the pur-poses of the cabinet-maker, is exhibited by W. Evaxas (9a, p. 196*). The collection of East Indian woods, exhibited by the

HONOCHARLE EAST INDIA COMPANY (p. 884) is by far the most extensive series of woods in the whole Exhibition, and constitutes a very valuable part of the great collection of Indian raw produce. It is remarkable for the large number of specimens, the excellence of many of them, and the valuable practical information to be gained by their examination. The collection consists of many hundred specimens, and includes several minor or local collections of great interest. Amongst these are the valuable collections of Drs. Roxacass and Wallet (884, 885); and extensive series of the woods of the Malay peninsula, Asuherst, Tavoy, Tenasserim, Prince of Wales Island, Assum, Cuddapah, Madras, Orissa, &c.

Considering the extent and importance of Dr. Wallich's collection, the Jury would certainly have awarded to him a medal had not the fact of his being a member of the Jury precluded them from doing so. They awarded a Prize Medal to Mr. Commissioner Beundell (p. 885), for a very valuable collection of Amherst woods. They also awarded a Prize Medal to Messrs. ALMEIDA of Singapore (p. 890), for fine specimens of Lingua-wood and Kayu-huka. 19. COM, for une specimens of Lingon-wood and Kayu-huka. The smaller series of woods contributed by Mestrs. A. P. ONSLOW, of Ganjam; D. Mayne, of Caddapah (p. 188); Walter Ellitor of Vingapatian; J. E. Chapman; Lieut. Col. Tellocu; The Commissant-General of Mannas; Captaio OGILVIE, of Musuliputam; Captain MAITLANN, and Major BALFOUR, of Madras; Dr. HENTER, of Madras; Dr. Winht, of Combatore; Captain Mar-QUART, of Chittagong; and J. R. Colvin, of Moulmein (pp. 888, 891), were also severally deemed worthy of Ho-nourable Mection.

The nature and properties of many of these Indian woods is very little known; and though, for the most part, it is not probable that it would be found worth while to import them into Europe, yet their importance to India is every year increasing, and must necessarily continue to do so, as the demand for timber in India for railways and other engineering works increases. For such uses it is desirable, not only that the wood should be strong and not liable to decay from mere exposure to the weather, hat, also, that it should work freely, and be able to withstand the ravages of the various insects to which wood of all kinds is more or less exposed in tropical countries. It is true that even the most porous and spongy woods may be rendered to some extent capable of resisting all such influences, by being impregnated with various solutions, as in the processes just adverted to; but it is obviously for better, when possible, to select such woods as are naturally saturated with resinous and aromatic substances, as in this latter case all cost of preparation is saved, besides that the preserving matter is far more perfectly disse-minated throughout the whole of the wood than can possibly be effected by any artificial process after the tree is felled

In examining the comparative value of different sorts of wood, it is of the first importance to ascertain the nature of the encrusting nutter deposited throughout the cells and tabes of the wood. For all practical purposes, those woods appear to be best in which the cells are lined with resinous matter; those filled with hygroscopic gammy matter are, for the most part, of less value; they are seasoned with difficulty, and are always more liable to cuted by our artizans.

deny. The best woods are those having a strong fiber propertied from all external influences by a cost of respin one which does not attent importance instructure.

When the contract interpretation is the cost of the cost

No. 1.-WOODS OF NEPAL (Dr. Wallier.)

No.	Name.			Nevar.	Parhettes.	Remarks,
1						
2	Acneia moilis	-	-			A large tree; soft wood.
2	,, fragrans					
3	17 . 17	-	-	Joolchumahl		Very large tree; useful wood.
4	Acer lavigatum	-	-	Sustendi	Cheroual	Used in building.
5	u sterculiaceum -	-	-			Very large tree; soft wood.
6	, oblongum	-	-			Very large tree; good wood.
7	Adamia cyanea	-	- 1	Bansook	Bansook	A shrub.
8	Alnus pepalensis -	_	_			Paie brown; a hard wood,
9	Andromeda ovalifolia	-	-	Juggooclat	Angaree	A shrub; soft wood; used for fuel.
10	formosa -	-	_	Sheaboge	ringuice -	Large tree; fine grain; hard wood.
ii		-	-	Sueavoge = -		Brown wood.
12		-	-			THOUGH MOONE
13	19					
	A					
14	Aralia digitata	-	-	Leesnong.		
15	, nodora	-	-			
16		-	-			A soft wood; used for boxes.
17	Baublula	-	-		Koila,	
18		-	-			A large tree.
19	Berberis pinnatifolia -	_	_	Milkissee	Jamne-munda	A shrub; yellow wood.
20	n seintics -	_	_	Matekissee	Chitra	
21	Betula leptostachya -	=	=	Material -		A tree; good wood.
23			-			
23		-	-	Dhalastia		
24	Bhojpattra -	_	-	Bhojpattra		,, good wood.
29	Biguonis.					A frame tone
25	" ebclonoldes -	-	-			A large tree.
26	Briedelia	-	-			, hard, fine-grained wood.
27	Brucca napalensis -	-	-			A shruh-
23	Buddia paniculata -	-	-	Siana	Narompattu	11
20	Cresalpinia.					
30	Cameltia Kissi	-	_	Kisli		A tree: close-grained wood.
31	Capparis	_	_			A shrub; white and hard.
32	cabbatta	_	_			it sindo, sind and mile
33	Carpinus vimines -	-		Chukisse	Konikath	A tree; good, hard wood.
31	Castanea tribuloides -	-	-	Cunnisse	Kontram	
31	Castanea tribuloules -	-	-	Cotoor and Chiser -		,, hard and heavy wood.
				Makoo and Shingali.		
35	Cedrela bexandra -	-	-	Toon		close and hard; used for
						furniture.
36	Celastrus	-	-			Soft, but fine-grained.
37	yerticillata,					
38		-	-			A tres; soft, and very fine-grained.
39	Celija	-	-	Koosikma	Khori.	
40	Cerasus Puddum -	_	-1			,, soft wood.
41	Chamerops Martiana	-	-1			
49	Champa	_	-4			Pulm tree; a good soft wood,
43	Cinchona gratissima -	-		Tungnust	Tungnusi	A shruh; a coarse wood; used for
43	Citienona graciasima -	-	-	rungaust	runguusi	posts.
			- 1	***	DI.	posts.
44	Conyra candicans -	-	-	Bheen	Phusrae.	
45	Corila myxn (?)					
46	Coriaria napalensis -	-	-	Bhejklasl.		
47	Cornus oblongs	-	-	Easee	Easce	Fine hard-grained wood.
18	capitata	-	-1			Very large tree; hard wood.
49	Corybis ferox	-	-1			Light wood.
0	Cotoneaster affinis -	_	_			A small tree.
Si l		_	2	_ = =		
52	Contessor exhatiflors	=	Ξ	Ropes		Very strong.
	Crategus arbutiflors -	-	-	neces		Fern tree.
53	Cyathea spinulosa -	-	т,			Fern nee.
54	Dalbergia.					
55 1	Daphne Gardneri -	-	-			A shrub.
56	,, cannabins -	-	-1			11
57	Diospyros	-	-	Tendoo,		
8	Ehretia serrata	-	-	Naishima		A tree; soft, tough wood; used for posts.
52	macrophylla -	_	_'	Poegulsce		
50	Elgagnus		21	Baneton		A shrub.
	Likagum	=		Chusen		
51	market	-	-	Chusee		**
52	Embelia	-	-			A tree; hard, brown wood; compac
53	Eriobotria elliptica -	-	-	Michael	Michael	A tree; mara, arown wood; compac
54	Euonymus	-	-	Veysoor	Junghuree	A large tree; close-grained wood.
55	Enonymus tingens -	-	-	Kuroori		Brown, close-grained, hard.
36	echinata -	-	-			A small tree.
57	pendula -	_	-3			

No.	1	WOODS	OF	NEPAL	Du.	WALLICH	continued,

No. Name.					Newsr.	Perbuttes,	Remarks.			
68	F									
69	Eurya	mus	pend	Do bs		-	-	Europara	Juguee.	A small tree.
.0		varu	hili		_	-	-	Chiekouni -	Chickouni	Brown, compact, hard.
1					=	-	-	Cineronni	Cuckoun	
12	Fogara	flor	zbun	da.	-	-	-			Very coarse.
3 4 5 5 6	Ficus		17							
		7	-	-	-	-	-	Doodne-kath -	Doodne-kath	Soft wood; used for gutters.
100	"	-	-	-	=	-	-	Pillaksi	Kaffrea	Soft, light wood.
7						-	-			11 11
8		-	-	-	-	_	_			Light wood.
19	-	-	-	-	-	-				Tolerably hard.
0	99	-	-	-	-	-	-			Coarse, brown, hard wood.
1 2	Frasin		-5.		**	-	-	Dakkuree		A large tree; soft wood. A tree; like English asb.
3	Frezie				_	-	-	Dakkuree		Brown, close-grained, hard wood.
4	Garden	in fi	orida	-	Ξ	-	-	Eandorkomulsoang		A shrub.
5	19		**	_	-	_	-			Light brown, fine-grained, bard wood
6	. 21		33	-	-	-	-	Bundhali	Bundbali.	
7	Gaston	áa pe	ılma'	8.						
99	Gordon	230 10	cegr	rolin	-	-	-	Gorchasse	Chillouure	A tree.
0	Gualth	V 138	-rag	reati	mo till	-	-	Diorec	Dhoseongree	A strub. Tolerably hard; pale brown wood.
н	Holber	llia	latif	olia	-	_	-	Bagul (T)		A climber.
12	Hoven	in du	teis	-	-	-	-			Very large tree; coarse wood.
3	Hydra	ngea	niti	slme	-	-	-			A climber.
14	llymer		trigy	na.						
6	ilex di	rodie	tyot	flac	elds	nm	-	Munasi and Gul-	Karaput	
	nex as	lo re	118	-	-	-	-	sime.	Karaput	A tree; beavy, hard, fine-graine
7	Jasmin	ו משו	urboi	reum	_	_	_	Anjoo		Hard and compact.
18		d	isper	mun	3.					
19	**	el	aryss	inth	ım	-	-			White and fine grained, but brittle.
10	Juglan Justici	» pte	Toco	cca	-	-	-	Alesi	Kath.	Very large tree; coarse brown wood
2.	Laurin	0.040	nato	Ja	-	-	-	Tapahaeo.	Kath.	
3	Laurus		-	-	-	-	-	Chasepoo	Lumpatch	Large tree; useful wood.
4		land	hiife	ra.	Ξ	-	Ξ	Canachoo	manipated	Coarse, soft wood.
ø.	- 6	and	ate.							
6	19 8	hidle	ora	-	-	-	-			Large tree.
17	79	.,		-	Ξ	Ξ	-	Pahela.	Balukshee	
0	**	٠,		-	-	-	-	Phetpetta	Baluksnee	Fine brown wood, used for chests.
ő	10	"		-	=	-		Chlklbul-tussipoo -	Saml-lumpata.	
1	10	11		_	_	_	_	Keebula	Kalechampoo.	
2 .	39	16		-	-	-	-	Pumlasi	Khorkula	Large tree; strong and durable wood
3	77	77		-	-	-	-	Khulai.		
5	99	97		-	-	-	-	Bulooksee	Sengoulu and Tijpaut Physree	Excellent wood, Greyish-brown wood.
6	" 1	anug	inos		Ξ	-		raunce	1 HUM 44	Hard, light-brown wood.
7	- 6	Tet	nuth	ern b	ife	ria)		Juttrungs	Pabelakath.	many ngar orong wood.
8	Leuros	cesiti	rum	-	-	/	-			Soft, inferior wood.
9	Leyces	terin	form	nosa.			- }			
9	Ligusta		napa	lense	-	-	-	Bitlae, or Bancha -	Billae, or Bancha -	Heavy, hard, compact wood. Soft, white, tough; good for turning
1	Limoni	а	- nule	-	=	-		Hakoolnal	Kaiket	Sort, white, tough; good for turning
3	Lorant			-ta	=	Ξ	Ξ	Fee	Lissokatta.	Very hard, yellow wood.
4	Ludia	-	_	_	_	-	Ξ.	Mulloka	Antheel.	
5	Magno	lis le	agla	is	-	-	-			A tree; soft, but fine-grained.
12	Melin	-	-	-	-	-	-	Bakel	Buknens.	
7	Meliaco	e (")		ā.	-	-	Kangu Kurroo (B).		
8	Meousp	erna	ann le	mrif	oliu	mi.		Chobsec	Champ, or Chaump	A tree a second would
0	Milling	tonic	raope	· ·	-	-	-	Cuones	Coamp, or Chaump	A tree; useful wood.
1	Morus	loev i	rata	-gem	`_	_	-1			A large tree.
2	Myrica	supi	iia	-	_	-	-	Kobusi	Kacphul	Like bireb-wood.
3	Myrsin	e sei	misc	rate	-	-	-	Birusee kalikaut -	Bireesee kalikaut -	Hard, handsome wood.
4	Olen gi	andu		n.	-	-	-			A large tree; very hard, heavy wood
5	Oleina	-	-	-	-	-	-	Channel	Shoori.	Hard, handsome wood.
7	Osyris	napa	negrs.	an thur	=	Ξ	Ξ	Shoori	CHOOTI,	Large tree.
4	Panax			-tus	1	-	-	Lubtesee	1 1 1	Soft, spongy wood.
0	**	11					- T		_	
0	17	- :								
1	-	pend	ulus	-	-	-	-			Handsome wood.
	Photini	a du	bin.	-	-	-	-			Fine-grained, hard wood.
				folia	-	-	-		5.5	Coarse brown wood, Handsome, hard, brown wood,
3		****								
13	Phyilar	ithus	Em	blics		_	=			Very compact word
13 14 15 16	Pinus e	ithus	Em	-	-	Ξ	Ξ		- : :	Very compact wood. Excellent timber.

No. 1 .- WOODS OF NEPAL (Dr. Wallich) -continued.

148 149 150 151 152 153 154 155 156 157	Pinus Webbinna. ., Decdara = - Podalyria napalensis - Podocarpus macrophylla				
149 150 151 152 153 154 155 156	Decdara Podalyria napalensis -		1		
150 151 152 153 154 155 156	Podalyria napalensis -				Fragrant wood.
52 53 54 55 56			Portugalla	Oosibn.	Tregrant works
53 54 55 56			Goonsi.		
54 55 56			Tauntue	Tuknee	Used only for fire-wood.
55 56 57	Polypodium giganteum				Fern tree,
56	Premna		Toomulse.		A lease days
67	Prunus glaucifolia -		Rainpuplee		A large tree.
	ferrugines.				**
58					Fine-grained, bard, brown wood,
50	Pyrus indica (†) -		Possy	Mehul	Fine grain; compact, brown wood,
60	vestita				Soft wood.
61	n foliolosa.				
63	", ureina.		,		A very large tree; good wood.
64	Quercus spicata		Charact Come	'	A very sarge tree; good week.
65	semecarpitolia lamellosa —		Ghese and Cusroo - Shulsee and Phrarat		Very hard, and good wood,
66			Gomulsee	Bunaroo	Soft word.
67	in laneta -		Commissee		A very large tree.
68	m lamellate.				1
69	n polyantha -		Soosi-Singhah.		
70	Rhamnes				A large climber.
71	Rhamnus virgatus - Rhodesiendron arboreum			Bhorana	Very hard and heavy wood. Good wood; used for gunstocks.
73	Knodedendron arboreum	vhite)	Tuggoo Teuggoo Tuggoo -	Saphel Bhorans -	A large tree; hard, brown wood.
74	, enmpanul	ofue,	Teotosa	Cheriala	A large tree,
75	Rhns Bukki-smela -		Subuchunsce	Bukki-amela	A large tree; good timber.
76 .	" (j) -		Guarausi	Dubdubes (?)	A large tree; good timber. Very light, soft wood.
77	succedancum -				A lapre tree.
78	" juglandifolium -		Chose	Bhalaco	Reddish-brown wood.
79	Rondeletia cana				Close-grained, reddish wood.
80	Röttlera	: :	Julei Tecta-Kath	Kongeea. Labiesec.	
89			Teeta-Kath	Lancesec.	Small and inferior timber.
83	" (tinctoria?) -				Hard, fine-grained, brown wood,
84	arborea				Coarse, soft wood.
85	Rubus Gouriebul -		Ecsi	Escalon.	
86	Sabia parvifolia		Mhasoosee	Mhasoosee.	
87	Salix		Bluelasi	Bhoelasi,	
88	" Babylonica		Tissee and Bhosee -	Tissee and Bhosee -	Very large tree.
90	Schoepfia fragrans -				A shrub; coarse, light, soft wood.
91	Securidaca reniformis				A soft, white wood.
92	Smilax		Dodnan	Doduan.	
93	Spherocarya edulis -		Lusbuoo, Ael, or	Bun Amb	A handsome wood; used for pos-
			Enimarisee.		and fuel.
94	Spherosceme fragrans				A coarse, soft wood.
95	Spondias axillaris -		Lupabe Sillaephul		A tree.
97 1	Symplocos		Sillaephul		Inferior wood.
98			Gooki		A large tree; fine-groined wood.
99	n Horibunda		Paunlah	Kalikath	A large tree; soft, white, compa-
- 1	17		A deliment	Attorner -	wood,
00			Bulsima.		
10	11 (2)				A large tree; pale brown, hardle wood.
12	- 11 - 1				A small tree.
03	, pulcherrima , tucida -				Harl, fine-grained wood.
14	Taxus virgata		Lobl	Dheyri	A large tree; good and stree
- 1	razur ringana		Done	Dayii	timber.
0.5	Ternstroemia papalensis				Soft and spongy wood.
16	Tetradium (?) cymosum.				
07	Tetradium (?) cymosum.				A very large tree.
08	Thunbergia coccinea.				A Land Control of the
09	Turpinia pomifera -		Phurasee and Signa		A large tree; light soft wood.
10	Uncaria pilosa. Urtica	_	Introduce	Latasishnoo.	
12	" salleifolia.		Jeenagkun	Lackshillion.	
13	Vihumum (?)		Loshima		
14	arubescens	_ =			A middle-sized tree.
15	Vitis				Spongy, coarse wood.
16	Wightia gigantea -				
27	Ziziphus incurva -		Kadubusi	Harobser	A good wood,
18			Chooresi		Very fine wood.
19			Joolsbima		Useless wood,
20			Khura Kujulsee	Kululsee	Strong, good wood.
21			Kuruni	Birouni.	Der onder Boost - copie
23			Mucuns	Anti-Mills	A climber.

The wood of several species of *Briedelia* forms building purposes, seems little—if at all—inferior to excellent timber. The Avanna, *Briedelia mostoov*, is teck; it is said to resist the action of water quite as common in Canara, where it attains great airo, and, for well.

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No. 2 .- WOODS OF GUALPARA (DR. WALLICH).
                                     Jatikorai = - Hard wood; used for farniture.
Korni - - Yields good planks.
Acaela odoratissima -
                                                        - Used for common furniture.
Alstonia scholaris
                                     Chativan - -
                                                             A large tree.
         antidysenterica -
Anacardium latifolium
                                    Bhela - -
                                                             l'ard for chests, courbes, &c.
                                                            I'sed for common foridture,
Andrachne trifoliata -
                                     Boro-helock
Antidesma -
                                                         - Contains a volatile oil.
Anullaria azallochum -
                                 - Aggur
                                 - Kaogtali rhama
- Tukra - -
 Artocarpus chama
                                                             An immense tree; used for cances,
                                                        An open-grained, soft, tough wood.

An open-grained, soft, tough wood.

A close-grained, hard wood.
Bautrinia sutra
           bacuria
                                    Bekuri -
Moj - -
Kolai-beng
Bhiza moya
Bhiza moya - - -
Bignonia calais - -
                           _
                                                            Used for fuel ouly,
Close, hard, tough wood
                            _
Briedelia stipularis
                            _
                                     Kohi -
                                                         Open, soft, tough wood; used for common farniture.

L'acd for morture, pestles, and common farniture.

U'sed for common planks.
llutes frondosa
                                     Potssh
                                    Klinja . -
Callicarpa arborea

    L'sed for common planks.
    A close, tough, hard wood.

                                    Jana
                                          - -
                                    Salinm
Careya - - -
                                                            t lose, hard, strong, tough wood.
                                    Komba -
                                                         - used for ploughs.
- Excellent hard, tough timber.
                                     Sonalu
                                     Golsinggar
Custanca - - -
                                                             Excellent timber; used for canoes and furniture.
                                    Nikari
                                    Kangta Singgur
                                                             Somewhat inferior to preceding.

Brown, aromatic wood, rather brittle; used for furniture,
                       _
Cedrela Toona
                                    Toon, or Tungd
Pithogarkh -
Chrysophyllom acaminatum
                                                             A white, tough wood; used for furniture.
A close-grained, rather brittle wood; used for common furniture.
Hard, close-grained wood; used for cances
Croton oblongifolium -
                                     Parokupi -
                                 - Lalpatula -
Dalbergia monsita
                                                             Close, hard, tough wood; used for common farniture.
                                 - Bongyera -
- Daine-oksi
Decadia spicata - -
                                                         - Open, but land and tough; used for canoes.
Dillenia pilosa - -
,, pentagyna -
                                                             , but closer wood.

Close and hard, but rather brittle.

Valuable wood, like maliogany.
   speciosa -
                                 - Oksi -
                            -
Ekebergia - - -
                                    Jivakohi -
                           -
Fagara rhetza - -
                                     Bajarmondi
                                                            Close, hard, tough, good wood
                                                            Open, soft, rather lough wood; used for canoes.
Soft, open, brittle wood.
                                     Bakhalpani
Ficus oppositifolia -
                                    Khoskadumer -
                                                         " Useful for turning.
                                    Boniam
Gordonia - -
                                    Gambhari
                                                            Light and darable wood : used for turning.
Jambolifera peduneniata -
                                                         - Used for gun-stocks.
                                    Heikhell -
                                                         - A large tree; close, tough, good wood.
                                     Sida - -
Lagerstræmia parviflora
                                     Jarul -
               reginge -
                                                        Used for common furniture.
Laurus salicifolia - -
                                    Horisoppher -
      ebampa - -
                                    Kurka champa
                                                             A large tree; used for planks, canoes, and common furniture.
Melincen -
Chalpsta -
                                                             Used for coarse furniture.
                                     Silapona -
                                     Jhernya -
                                                            A noble tree, yellow wood; used for common furniture.
Used for furniture.
Nauclea cadamba -
                                    Kodom
                                     Adhkuri -
Nerium tomentosum -
                                                                                 and for turning.
       antidysentericum -
                                    Dadkhari -
                                                             Used for coarse furniture
Phyllanthus (7) - -
                                    Horinbara
                                                             A large tree; the wood line a very peculiar aromatic odonr.
                                    Chikagambhori
Premna hircina - -
                                                             Very inferior to the preceding.
                                    Bukdholi -
       flavescops
                       -
                            -
                                                            Used for coarse furniture.
Quercus - - -
Rharanus - -
                                     Tima -
                       -
Rhamnus
                                     Bangla
                                                              sed for chests, stools, &c.
                                    Prenun (?)
                                                             Used for chests, cannes, &c.
Rhamma
                                    Dophari
                                                         . Used for coarse furniture.
 Sapindacea - - -
                                                             A hard, close-grained, rather brittle wood; preferred for furniture.
Not used,
                                    Niyor
Schinus niara
                  - -
                                    Amra -
Bahelii
Spondiss smars - - Sterculia - - - -
                                                             I sed for canoes.
Ditto, rope made from the bark.
                                    Odin -
         urens
                                                             Poor wood, but much used
Stravadinm acutangulum +
                                    Hendol
                                                             l'sed for canoes.
Terminalla belleries -
                                    Bauri
                                                             Light and darable timber; used in boat-hallding.
            moluccana
                                     Joynal
           hilka -
                                                             Used for canoes and furniture.
                                     Hilkha
                                     Pangch-Petlya
                                                             Used for common carpentry.
Tetranthera caduca -
                                     Haola
                                                         - Close, soft wood; used for course furniture.
            peromonia
dorodneda
                                     Paromuia -
                                     Vagnel
Tornex japonica - -
                                                             Used for small canoes.
                                    l'iuyaohama
                                                             Used for joiners' work.
A soft, close-grained, brittle wood; used for planks, posts, beams.
Trophis (?) aspera
Uvaria suberosa -
                                     Saora -
                                                    _
                                    Bandookela
                                                    _
                                                             Used for coarse furniture; a small tree.
                                     Moyen
Vangueria edulis -
                       _
                            ...
                                                             A very close, hard, brittle wood; used for mortars, oil-mills, &c.
A close, soft, tough wood; used for common faralture, &c.
                                     Magor
Vernonia
                       _
Vernonia - -
Vitex acuminata -
                                     Angehhui -
   ,, babula -
                                                             I sed for making ploughs.
   , leucasylon -
                       -
                                    Bhodlya -
                                    Chetagotadhora.
                                                             A large tree; close, tough wood; used for furniture.
                  _
                       -
                                                             Wood not used
                                     Kalajiya -
                                                             Used for egnoes and furniture.
```

"Chatiyan" or "Sativeen," Alstonia scholaris, grows to a large size in the forests of Canorn, the wood is white and compact, and well adapted for turning pur-

The "Jorrol" or "Jarul," Lagerstremia Regime.
This tree grows to a great size in the Chittagong district, though the forests are now, to o great extent, eleared of the best variety. It is considered an excellent wood for ship-building; it is tough, has the character of standing well in woter, and is much used for beams, reflers, and boards.

reflere, and because of "Gambhari," Gmelion achero, in shundart in the Morung and Chitogong forces. It is a weak wood, but is in great estimation for pieture-frames, sounding-boards, organ-pipes, Venetian blinds, and all sorts of light work in which shrinkage is to be avoided. Its specific gravity in 0/466; its strength, according to Caphin Black, compared to tech, ox 459 ig 8-66.

Captain Baker, compared to teak, os 499 to 869.

"Toon," Cedecla Toons, is a somewhat coarse-grained wood, but very extensively need throughout India for furniture and interior carpenters' work.

No. 3.—WOODS FROM CALCUTTA (Dr. Wallich), From the Botanical Garden.

Cassia nodosa	_	- 1	A very large tree,
Celtis australis	- J	echun.	
Chaulmoogra odorata.		-	Ditto.
Clerodendron phlomoid	les.		
Corcoloba uvifera.			
Ehretia kevis.			
Gerchia paniculate.			
Gardenia latifolia.			
luclda.			
Ludia spinosa.			
Mimosa capensis.			
,, odoratissima-	-	-	A large tree; excel- lent timber.
Mimosa polystachya.			
Morinda citrifolia.			
Moras mauritlana.			
Nauelea undulata.			
Premna spinosn -	- G	unlara.	
Seytalla longan.			
litrhi.			
Sonneratia apetala -	- K	есотога,	
Spondias acuminata	-	-	A large tree.
Sterculia augustifolia.	1		
Terminalia catappa	-	-	A noble tree; good

A very fine specimen of malongary, grown in the Botanic Garden at Calcutta, is also calcitated, showing thot excellent "Spanish malongary" may be raised in the East Indias. This is a matter of some importance, for although there are many woods in latin which trial wood which combines all the valuable qualities of the latter, untiting at the same time a rich colour, a fine grain, and the character of working kindly and freely under the

Urtica pulcherrima.

wood.

No. 4.—WOODS FROM SERAMPORE, NEAR CALCUTTA (J. Massimax). Adenanthera pavonina. Dalbergia laiffolia. posgehensis. posgehensis. posgehensis. posgehensis. posgehensis.

, ougeinenis.
, opposition de la contra del contra de la contra del contra de la contra del contra de la contra del contra de la contra del contra de la contra de la contra de la contra de la contra d

These specimens are from Dr. Carey's Botanie Garden near Caleutta. The blackwood or "rosewood" "sit-sid. Dalberjus indipidoja grows to a very large size on the Malabor coast. It is a close-grained, greecish, block wood, braudifully marked with lighter-coloured veins. It is a heavy, elose-grained wood, and is much need in the manufacture of furniture, as it takes a very high polish,

For engineering purposes, and especially for gun carriages, it is very valuable, and in consequence large formers of it have been formed in waste places in the North West provinces of Hindustan.

"Saudal word" (Seatelain alliam) is well known and cyteeraed, on account of its peeuliar perfume. It is used in calinate-work, for faos, basks, ornaments, and all sortes carred faney-work. The bark of this tree contains a beautiful red colouring matter, which, however, does not oppear to be practically made use of.

No. 5.—WOODS OF THE NORTHERN CIRCARS (W. ELLIOTT and A. P. ONSLOW). Comba. Togram: Morinda eltrifoli

Cumba.
Togaru; Morinda eltrifolia.
Gooimoodoo.
Unkoodoo.
Unkoodoo.
Usaloovo.
Isaaruwee.
Isaaruwee.
Chantha.
Talica.

Geompaua; Odius wodier.
Glonara.
Wool apple; Krorocet; Ferocia elephantum.
Tangula; Auvarni marun;
Cassin auriculata.
Paya.
Tella muddi; Pentaptera
tomentosa,
Tella muddi; Pentaptera

Annon.

No. 6, — WENDIS OF ORISSA.

Abber chony, or Kendoo maojan.
Bandanum, or Bundum.

Geomoodoo.

Kungruh.
Tomeskachava; Kakatulu;
Dio-py ros eboreaster.
Sisso; Yekereachava kurra;
Dalbergia sissoo.
Dammer wood; Geogtama
Bokkun; Grashjania seppon.

kurra.
No. 7.—WOODS OF CUDDAPAH (D. MAYSE).

Acacia Ambiea — Nalla tooma; Siah kekur; Karoo Acajet Autanetos — Veltuu. Abangim hexapetalum Woodooya; Akola. Basala longifolia — Yeana; Mohl ka jar; Yelloopal. Bergera Koenigii — Kurri pakoo; Kurle pah; Kurie vipin.

Bornssus finbelliformis - Thatu kurra; Tar; Panuagkutta.
Butea frontesa - Palau samoo; Pinmass; Palau
marum.
Canthium perviforum.

Chloroxyloo Suietenia — Hurugulut,
duyada — Chalcateckue; Chota gonee;
Cordio Myaa — Suna asra villam,
Suna asra villam,
Suna asra villam,
Perco nance villam,
Perco nance villam,

Dalbergia orborea — Kanongori, Kung; Poongum.
Diospyros ebecaster — Kadum berriya.
Erythroxylon arcelstum.
Fuccenia ambolana.

Figura Pairconnia.

Velaga kurra; Korvect vella marum.

Konola vallarga; Junglee; Korvect kolo.

Ficus religiosa – Ramee; Peepal; Arasa.

Ficus religiosa - Ranes; Peepal; Arasa.

, glomerata - Bielee; Gol leee; Altee maram.

, infectoria - Jovee; Kall alim.

libiscus populocus - Paris kajhar; Poorsum maram.

Mimosa chereca - Vellatorroe; Wardil; Vidail.

, Jannae; Vannee.

, ferrugines - Tella toorras; Keckursafaed; Vil

Phyllanthus emblica — Ossarica; Ambah; Toopoo nellee , , , , (black) Nulia oosarica; Siah amba; Nelee kadamboo.

kadamboo.

Pterocarpus santallous - Chendamum; Chanda soorkh; Sogapoo chendamum.

Sapindus rubiginosa - Koopoodoo; Reeh; Manee poon-

Shorea robusta - Yepal; Yepa aossence; Saul. - Kondo marindee: Jungle arm; Katoo maillarum.

Strychnos nuv-vomira - Morshice; Bachla; Mooltee, ,, potatorum - Chilla gluga; Chill bingore; Naumbore; Naronbal; Taltan.

Sa letenia f	cbrifuga	-	Somee; Some'ka	ther: Semr	arum
Tamerinda	s indica	-	Chinta kurra;	Nulee ; P	oleya
Terminalia			Muddee; Maroc kameag.		
	chebula	-	Karaka: Kharas	rna : Kado	okaec.
.,	beleeice	-	Thandra ; Tand	m · Tanon	
Tetranther	a monopet	nla	Mara manaidee	: Jungles	rai;
Vangueria			Pedda munga; kree.	Bangaree	kula-
Wrightia a	ntidysente	rica	Palavardnee; Veppallai.	Palava	ceeo;
Zigyphus je	ujuba -	-	Pedda ratioo: 8	oos bur.	
,,	;, -	-	Pala raijoo; Yelandis,	Dorthea	bur;
			Auray : Aree.		
			Beekee; Bikee;	Biklee.	

Beet cadapa; Beet kurpa. Bunka thada; Baktra. Checkrance; Chickrance; Seck-Chindnes; Soorjsish Katoo valay Corivee: Korivee: Korvoe. Dhoursh; Discour. Duntha; Bekul.

Gopee. Goothee; Gootheeree Gengaramia kurra (tulip tree). Jany Janee. Koada erookee; Juaghy gorei. Kondapala; Khernee ku lakree. Keernee: Khernee. Mahal; Mohul. Muskaka jhar; Muske' ka thar.

Narva: Narvikelahree Nameluddoojoo ; Junglee shaum-Neroodee: Chinna neroodee. Poda : Palias. Peak saul; yengasee; yagasee. Polkee (black); Nulla polkee; Sinh polkee,

Polkee (white); Tella polkee; Suffai polkee.
Pedda tapasee; Baree tapasee. Pedda necrooddee: Barra necroo-

Rudra kadapa; Itoodra kurpah. Swam; swamoo kurra. Sarapappoo; Chara; Cheronjee kaghar saral. Soonkasoola; Sunkesarkelakree;

Vadee narainin, Vadusa; Warsa. Yalama; Yelama; Dhaura Yerra polkee; Nulla polkee; Sag-

laree kala kree. Yeumsddy; Euamsddee; Eum-

and extensively used of all the timber trees of India. It is a heavy, close-grained, light-hrown wood. From the bad and careless manner in which the trees are felled, and from the jujudicious mode in which the timber is squared, its value is often considerably diminished. The Saul timber brought down to Calcutta is seldom more than 30 feet in length. Its specific gravity varies from 0.92 to 1.182, and in strength and tenscity it is considerably superior to the best teak. From Captain Baker's excellent experiments, it appears that, compared with teak, its strength is about as 1121 to 869. From Major II. Campbell's valuable experiments, unseasoned Saul broke with a weight of 130s lbs., seasoned Saul with 1319 lbs., and teak wood with 1091 lbs. It is nuquestionably the most useful known Indian timber for

tionably the most useful known Indian timber for engineering purposes; as a building wood, unless very well seasoned, it is somewhat apt to shrink. "Kadum berriya," Dispyros ebwaester, a variety of Coronandel or Calamander, a striped wood, having a light-hrown colour; it is a handsome furniture wood, which turns well, and is admirably adapted for veneering, and nil sorts of cubinet-work,

"Huragulu," Chloroxylon swietenia, yields the beau-tiful wood used for veneering and other cahinet-work, commonly called Satin-wood; the tree never grows to n

Chiata kurra," Tamarindus indica, is a strong and handsome wood, used for furniture, for washermen's handsome wood, used to remain the property boards, and in the manufacture of oil and sugar mills.

"Pales" or "Palias." Beten frondess. The wood of

"Palan" or "Pallas," Beter frondosa. The wood of this beautiful and useful tree is hardly distinguishable from teak, the timber is large, but it is almost always knotted and gnarled. No. 8 .- WOODS FROM MADRAS (The COMMISSANT-

GENERAL and Captain MAITLAND.) 1. Atta: Anthen marum.

2. Ansoaa; Pterocarpus sp.
3. Chittagong wood; Aglay; Chiekrassia tabularis.
4. Ervombalu wood; Hoomhilly marum; Feriola buxlfolia. 5. Mango wood; Am; Mang cuttal, Mangifera

Indica. 6. Noonab. 7. Paris kajhar; Poorsum marum; Hibiscua po-

pulneus.

8. Peddawk wood. 9. Pala; Pala kuron; Paulal marum; Mimusops hexandra.

necanora.

10. Rosewood; sissoo; Eatty marum; Dalbergia.

11. Satin-wood; blifa kurra; Chloroxylon Swietenia

12. Saul; tapal; aussena; Shorea robusta.

13. Trincomnice wood; Berrya Ammonilla.

Tesk; jarkoo; jake marum; saywan; Tectona grandis.
 Woodia; onthay marum; Odina Wodier.

"Chittagong" wood, Chickrassia tabularis: the wood
The "Saul" or "Sal," Shorea robusta, belonging to of this tree is white, tough, and close-grained; it is, howthe family of Dipterocarpea, is perhaps the most valuable ever, but little used.

				No. 9.—WOO	DS	OF TR	AVANCORE (Col. Farrs).
NAME.				Colour.		Specific Gravity.	REMARKS.
1. Abgulih -	_	_	_	Light yellow	_	0.674	Very abundant; used for furniture.
2. Attoo vuajco	-	-	-	Amber colour	-	0:480	Very cheap; used for firewood.
3. Aranellah -	-	-	-		-	0.645	For building common bouses.
4. Chluny	-	-	-	Rather derk -	-	0.212	From 8 to 16 feet in circumference; used for building
5. Cherrotimha	-	-	-	Durk	-	0.843	About 3 feet in circumference; used for house-building tools, &c.
6. Cherro tanay	_	-	-	Light	-	-	Firewood.
7. Carcemaradeo	-	-	-	Dark brown -		-	2 to 6 feet in elecumference; used for carts and building.
8. Chorocadambou	-	-	-	Yellow	-	0:529	Used for packing-cases.
9. Chitta linny	_	-		Ited	-		I to 14 feet in circumference; used for furniture.
0. Cherro vunice	_	_	-	Brown	-	0.614	Used for firewood.
1. Cherro nalamp	alle	-	-		-	0.483	For making canoes
2. Cherro caany	_	_	_	engine areas	_	- 1	Only for firewood,
3. Cundalahpallah	-	-	-	Bamboo -	_	_	For making candais.

No. 9 .-- WOODS OF TRAVANCORE (Col. Farth) -- continued.

NAME.		Colour.	Gra	eide REMARKS.
14. Channy merrom		Brown		For building common houses.
15. Channy vengah -		Light yellow		 1 to 6 feet in circumference; house boilding.
6. Carrimarriddy -		Dark		to 4 feet in circumference; used by wheelwrights.
7. Cherropoona -				- Huilding houses.
8. Conjah marrom -		Red		Furniture, &c.
9. Conjec marrom -	: :	Light red -	- 0.	630
O. Cahannee	: :	Dark	_ n-	1'sed for oil-mills, &c. 33 Very strong, but knotty: used for common buildings.
22. Ellahneel		Light red -	- 0.	733 Very strong, but knotty: used for common hulldings. 773 A small tree; used for temples, pagodas, and for furniture
23. Erasahoo	5 5	Dark brown -		For common houses
1. Jackwood		Yellow	- 0-	554 2 to 10 feet in circumference; used for furniture, &c.
1). Kullentake		Brown		749 Buildings, wheelwrights' work, &c.
66. Kernuchilly -		Dark	- 0.	519 Buildings and small bouts.
7. Kye attee		Ash colour -		972 Carts and buildings,
is. Kanjarum, or nux v	omica	n" -		796 For making cots.
). Kar-itty, or black w	rood -	Black	-, 0.	948 2 to 4 feet in circumference; strong wood; used for ful
0. Kanj srom		Ash colour -	-1 -	niture. Used for common buildings.
i. Manje cademba -		Yellow	= =	Used for packing-cases,
2. Moolu venga -			- 0	831 Used for common buildings
3. Masoodah		Ash colour -	_	
A Myle Ella				Used for carts, building &c.
55. Maily velly ravah 55. Munjaddy				664 For building houses only.
16. Munjaddy		Purple	- 0.	967
37. Myle Ellah				196
18. Manny msrootha 10. Magadamboom -		Firsh colour White	- 0-	For carts, and building houses.
i), Magadamboom = i0. Munny martha =				462 Used for light work generally. 607 . I to 6 feet in circumference; used for furniture.
	: :	Light yellow	- 0	L'and for nachine cases
42. Muttalia		Brown		Used for packing-cases. Used for light work.
43. Neelahampellah -		Light brown		Used for house building, ceilings, &c.
H. Nanamboo		Brown		Used for common buildings.
 Neelumpallah - 		Light brown		Used for light work.
		Bamboo -		615 Buildier common houses
		Brown Dark brown	- 0.	
is, Nulampallah -		Dark brown	-	 2 to 4 feet in oircumference, and 30 feet long; used for common houses and carts.
io. Odoorsh vengs -			- 0.	853 4 feet in circumference, and 40 feet long; a strong goo wood, used for wheels, supportinged, 60
50, Oddysaga			-1 -	Used for common building purposes.
51. Oddamarrom -		Dark	1.1	3 feet in circumference; used for tent-pegs, mallets, &c.
52. Peul teak	: :	Brown	- 0.	75.) Used for furniture, gun-carriages, &c.
3. Poon		,,	- 0	623 2 to 4 feet in circumference, and 80 feet long; used for
54, Pongah			- 0	988 For hulding houses.
io. Pooly etty		Black		858 2 to 8 feet in circumference; strong wood; used for fu
				niture,
56. Poddy vaga -		Brown	1	400 4 to 10 foot in circumference, 40 feet long; strong, never splits; used by wheelwrights.
57. Penghu	-, -	F1 **		960 3 feet in circumference; used for building.
38. Theyahdarum, or wood.	cedar	Flesh colour	- 0.	457 2 to 8 feet in circumference; used for palaoquins, cabi fittings, furniture, &c.
9. Tharanchilly -		Bamboo -		5 to 8 feet in circumference; used for canoes only.
0. Tekkeer sttoovye en	ielly	Brown	- 0	528 4 to 6 feet in circumference; for house and ship-building.
i. Tharanjoils -		Bamboo -	- 0.	576 Used for common huildings.
9. Tambagum		Brown		910 5 feet in circumference; very strong wood; used for house blocks. &c.
3. Venpalla			-1	Only used for carved figures, sandals, &c.
4. Vstanboo		Brown		434 Only used for firewood.
	0.00		- 0.	2 feet in circumference; used for railings, fences, &c. 855 Used for building houses.
6. Varoodah 7. Velha ahguili -	= =		- 0.	855 Used for building houses. 2 to 4 feet in circumference; used for furniture.
8. Veytty	2 2	THE STOWN		Used for making carts, coilings, &c.
		Flesh colour	- 0.	483 2 to 4 feet in circumference : used for tables, &c.
0. Volte abguill -		White	- 0"	502 2 feet in circumference, 50 feet loog; used for furniture.
1. Vella carduntha		Brown	- 1	 3 to 6 feet in circumference, 40 feet long; strong wood used for furniture.
				F23 Used only for firewood.
3. Vetalco				535
				635 Used for light work.
5. Venpuggaiah = 6. Vutty marithy =	: :			595 Building common houses.
6. Vutty marithy - 7. Vuddamba			- 0-	
	= =		- 0	703
9. Vellaneermaradoo			- 0.	573 Used for furniture.
		Brown		Used for light work.

Tir Gregoria

These woods, as well as the collections from Palann-contain (No, 11), from Palaghant (No, 12), from Tisevelly gravities have been calculated from comparatively in-(No, 13), from Carran (No, 13), and from Panan (No, 20), and perfect data, and therefore can only be regarded as rough were selected and sent over by the late Col. Print; they are exhibited by Electi-AC Bossvan, military storys.

No. 10 .- WOODS OF HINDOSTAN (Dr. Roxnenger).

	Weight per cubic foot,		Weight per enbic foot,
	the, one.		He. ozz.
1. Artocarpus Chaplasha	- 31 12	18. Odina Wodier	41 0
2. Averrhoa Carambola	- 31 11	19. Osyrie peltata	30 8
3. Castanea indica	- 3) 0	20 Palm	30 8 57 9
4. Cedrela Toons	- 33 9	31. Querous fenestrata -	47 0
5. Cynometra polyoudra	- 52 10	22 lancifolia -	41 10
6. Diospyros racemosa	- 34 11	23 Inppacea -	31 4
7. Dombeya melanoxylon -	- 71 9	24. Red Sanders	46 14
8. Engelhardtia pterocarpa -	- 39 14	25. Santalum album	47 18
9. Gmelina arborea	- 32 3	26. Samafras	32 12
10. Guacua	- 41 14	27. Sevtalia	- 41 8
11. Gundruev	- 31 15	28 triiuga	60 0
12. Jeah	- 36 11	29. Sophora roleusta	42 4
13. Lagerstromia Regine	- 46 B	30, Swietenia febrifuga -	- 54 14
14. Louvat	- 46 11	31. Terminalia Chebula -	- 42 10
15. Melia Azadirachta	- 46 1	39. p citrina -	- 60 3
16. Acacia odoratissima	- 45 6	33. Tetranthera nitida -	- 31 4
17. Nerium finetorium	- 39 4	34. Vateria laucifolia	53 15
		,	

Specimens of the wood of the Indian cedar, Cedrus | ceutly introduced into this country as a beautiful orna-Drodara, and of the cypress, Cupress to reloss, from the | mental tree,—appears to promise well as a useful timber Himalaysa, are shown by Dr. Roxue; the former—re- | tree; the wood works well and freely.

No. 11.-WOODS OF PALAM-COTTAH (Col. Faith).

NAME.	Colour.	Specific REMARKS,
1. Fibony — 2. Eroompooley — 3. Mountain teak — 4. Oonay — 5. Pertis, or Poovarsay 6. Palava — 7. Selavangs — 8. 7. Selavangs — 9. Toompoolera — 10. Tamarind — 11.	Very dark - Red Light Brown Rather dark - Light brown - Dark	Lavy and brittly, very hand, makes houselful furniture. Groß Diede for shafts, Acc. Level for shafts, Acc. Level for shafts, Acc. Level for shafts, Acc. Level for spanders, and wheretypink work. Level for spanders, and wheretypink work. Level for whoselves, and wheretypink work. Not of much use : span-wook. Not of much use : span-wook. Level for whoselves, and for making code. Level for shaft was a for making code.

No. 12 .- WOODS OF PAULGHAUT JUNGLE (Col. Fairs).

_		ME.		-		Colons.		Specific Gravity	REMARKS.
	Ab Ency	-	_	_	_	Brown -	_	-	A large tree; used for furniture.
	Belmboo	-	-	-		Yellow -	-	-	A large tree; used for building and for furniture.
3.	Beuteak	-	-	-	-	Light -	-	0.591	Inferior; used for huilding, and common carts,
- 4	Cedar -	-	-	-	-	Reddish -	-	0.207	A large tree, wood aromatic; used for farniture.
5.	Cedar-roo		**	-	-		-	-	Very aromatic; used for ornamental furniture,
6	Cautovana	67	_	_	_	Dark	_	-	Very strong; used for wheelwrights' work,
7.	. Chadache		-	-	-	Light brown	-	-	A small tree; used for buildings and carts,
8.	Erropporti	oo Ir	voll	v	-	Brown -	-	0.861	Used for huildings and hallock-yokes,
9	Ittee veitt	ee.	-	-	-	Black -	-	-	A small tree; used for furniture.
10.	Kullen ten	k	-	-	-	Dark	-	-	The best teak ; very strong and large,
11	Kurrooval	heror	0	_	_	Light brown	_	0.704	A small tree; used for naves of wheels.
	Kurrooma			_	-	Dark	-	-	Strong wood; used for wheelwrights' work,
13	Kuroongy	alee	-	-	-		_	_	A heavy and hard wood; used for furniture.
	Muroodoo		-	-	-	Light	-		A small tree : used for buildings.
15	Nova -	-	_	_	_	White -	_	-	I'sed for shafts, cart-poles, &c.
16	Oome test	- 1	-	-	-	Dark brown	-	-	Third-rate teak.
	Oodoogoo		-	_	-	Red	-	-	A large tree; used for ploughs and hullding.
18	Portla -	-	-	-	-	Brown -	-		A small tree; used for musket-stocks,
19.	Teak -	-	-	-	-	Light	-	0.852	Second-rate teak.

No. 13,-WOODS OF TINNEVELLY (Col. Fairs).

NAME.	Coleur.	Specific Gravity.	REMARKS.
. Arrava ponpathera -	- Light brown -	-	Used for bull-ling, handspikes, tools, &c.
2. Auttee	- Red	- 1	Used for furniture.
3. Augenerpelah	- Brown	0.484	General work.
L Cangoo	- Whitey brown -		Hamispikes and wheelweights' work.
. Eloopay	- Red		Building in general,
i. Hill tenk	- Light brown -		General purposes.
. Karootauley	- Black	-1 -	Fancy work.
Koongbeelynra	- Light brown -		Used for building purposes; yields dammer.
Kotamaram	- Brown	0.723	Building ju general.
Mookersey	- Red		
. Munict Kerddumpah	- Light straw -	-	
. Mathgirie vamboo -	- Whitey brown -		A strong light wood; used for general purposes.
Marootho			Building in general.
. Matheririe vamboo, old	- Red	-	A strong light wood.
Naupron	- ,,		Used for building, wheelwrights' work, handspikes.
Nutfell	- 1 22		Building lu general.
Nelly	- Light brown -		initialing to general.
Nurryverocson	- Whitey brown -		
Nagakunuy			11 11
Ounnay			A strong wood, used for wheelwrights' work , handspikes
Oosulay	- Light brown -		Building in general.
Polava	- 11		Musket stocks, and building purposes.
Paulay	- Deep straw -		Fancy work
Provertoo = = =	- Red		Used for making bandles
Poupathers	- Whitey brown -		Used for building purposes,
Poonnay	- Deep straw -		
Poovey	- : Light brown -		11 11
Pasclay	- Whitey brown -		Used for forniture.
Sammerm	- Red		Furniture of any description.
Farekontay = = =	- Whitey brown -		Building lu general.
. Sameevapaulay	- Light brown -		Building purposes.
Thothskutty	- Red		
Thuunaka			Furniture of every description.
		0.950	Making tranks.
			Building purposes.
Vangay	- Light brown -		Wheelwrights' work.
. Vakauley			Building in general.
. Vamboo	- Light straw -		11 11
Vankay	 Light brown = 		11 12
Veroosoo	- Whitey brown -		11 11
Vakanacty	- 22 -		11 11
Vennary	Brown	0.786	11 11

No. 14.—WOO	ODS OF COIMBATORE (Dr. Wight).
1. Acacia amara Woongo marum, 2 leucophica Velan marum, V	20. Euphurbia nereifolia - Yellai kullie.
 j. leucophica - Velan marum. Ve	cel valla. 21. , tirucalli - Katti. Katti milk. um. Curry 22. Eugenia caryophyllifolia Nawel marum. Naridon kurra.
4. ,, speciosa Vel vangay marut	m. 23. Figus Indica Allum vildo,
5 Sundra Ceroonguly marus	m, Curreu- 24 tsiela Eichie marum,
gally,	 Grewia titio folia - Sadalchie marum.
 Ailanthus excelsa - Perco marum, 	Pethawkoo 26, Hymenodietyou utile - Paroonjoly marum.
kurra.	27. Inga dulcis Cadookapooly marum. Cook-
7. Balanites Ægyptiaca - Nunjoonda marun	n. spuly.
8. Biguonia xylocarpa - Vadingoorany m dursornie.	arum, Va. 28 xylocarpa - Irroovaleo marum, Erovaleo. 23. Moriuda citrifolia - Moniul mouttai, Maniay
9. Briedella spinosa Moriloovanal mar	um. Mool-
loo yangay.	 Nauclea cordifolia Mangul cadumbal marum.
 Capparis grandis - Vellal torrattie. 	 parviflora - Neer cadumbai marum.
11. ,, divaricata (?) - Townsthe marum.	32. Odina Wodier Annaikarai marum,
12. Chryten collina Woodoogoo marut	n. 33, Phornix sylvestris Etcha marum.
13. Cocos nucifera Nasel thenna man	
lana karra,	35. Pterocarpus mersupium Vana kurm.
 Concentrus latifolia – Vella naga mara naradoo korra. 	37. Terminalia Belerica - Vellal murdoo.
 Cratova Roxburghil - Marvolinga maret 	n. 38 Chebula - Pilla maroodoo.
 Dalbergia latifolia Irrooppoottoo ma wood), 	rum (black 39, glabra Kuraj maroodoo marum. 40, Ulmus integrifolia Ayab marum.
 panlenlata - Putchelia soorum. 	
18. Dilleuia pentagyna - Pinnai murum. Po	onus kurra. : 42 Camoogoo marum (Camoogou
19. Erythrina Indica Mescrockoo marun	n. wood).

[&]quot;Nor cadumlai marum," Nunclea partifluta, is rather | Bombay, numely, tesk, and a variety of olive, lately idencommon in the forests of Canara, especially telew the
titied by Dr. Syroras; the latter appears to be a good and
floatus; it is valued a yielding excellent flooring plants,
Only two specimens of wood are contributed from

x 2

	NAME,		J.	Volon			Specific Gravity,	REMARKS.
	Black wood			Bluck	-	-	-	A very large tree, used for ornamental furniture.
	Bannapoo -			Light -	-	-	-	Used for building and for farm implements.
				Rather d		-	-	11 11 11
				Dark -	-	-	-	13
-9.			-	Light	-	-1	-	I sed for building purposes.
6.			-	Rather li			-	
	Beety					-	-	I sed for furniture.
8,			-	ldght	-	-	-	I'sed for house and boat-building.
	Bellah			Light bro			-	From 2 feet in 3 feet in diameter, 10 feet to 24 feet in length; used for home-building.
10.	Bhoguy -		-	Dark bro	wn	-	1:107	Strong and heavy; used in house and boat-building.
11.	Billanundy -		-	Brown	-	-	-	House-building.
12	Colasumpogh	icy	-	White	-	-	-	5 feet in circumfercoce, from 20 feet to 30 feet in length; used for
13,	Hebalson -			Yellowls	h -	-	-	Yields beams of 2 feet square, and 20 feet long; used in house sud boat-building.
	Ilaisoo			Yellow	-	-	-	Used in building, and for furniture.
15.	Heonvalloo -		-	Brown	-	-	-	I foot to 2 feet in circumference, 10 feet to 20 feet long; used for common purposes.
16	Hedech -		_	Light -	-	-	-	Land for making combs and similar light work.
	Hough		_	Brown	_	-	-	
18.	Holahouuka		-	Light -	-	-	-	3 feet to 4 feet in circumference, 30 feet long; used for beaus in building.
19.	Jack		-		-	-	-	A very large tree; used for furniture.
20.	Jumbeh -		-1	Brown	-	-	-	4 feet to 6 feet in circumference, 30 feet long; used for building and
21.			-0	Brownish	-	_	-	I foot in circumference, 30 feet long; used for beams of houses.
22.	Kalabagy -		-	Light -	_	-1	-	House-building.
9.3	Kunduliy -		-	Yellow	-	- 1	-	
94	Marraych -		-'	Darkish	-	_	0.890	A heavy wood; used for beams and posts.
	Madthy -			Light bro		Ξ,	-	
26.	11			Dark -		_ [-	3 feet in eircumference, 40 feet long; used for beams of houses.
	Sagwany -			Brown		-1	-	Third sort of teek.
29.	ing rully -		- 1	Dio-u			-	Finest sort of teak.
	Tecravab -			Light	=			Not strong; used for light work.

No. 16 .- WOODS OF MALABAR FORESTS (J. E. CHAPMAN).

10, Ombah. 1. Jamboo; a very heavy | 11. Pood goossa.
12. Ruccult korurab; a very straight-grained wood. wood 2 Kad kud. 3. Kelaho. 4. Koompoi 5. Kendel; a heavy, strong, close wood. 14. Sarrah. 15. Secrass. 16. Sood beebo. dark wood.

6. Kunganec. 7. Kursion. 17. Sawree; a white, soft wood, very light. 8. Kumdee. 9. Marlen; a very heavy, wood, wood, 18. Teb pully. 8. Kumdee.

"Jamboo," or Jamba, Misson relocarpa. This tree grows to a large size: on account of its strength and toughness, it is much valued for house-building.

"Mairtee," Pentapiera coriacea, a very common tree
both above and below the Ghants. The wood is very durable, and is therefore used in house, ship, and hout-

huilding. These woods were collected, in 1846, by Dr. Gibsou, Conservator of Forests in the Bombay Presidency, for Mr. Chapman, in connexion with the projected "Great Indian Peninsula Railway." Previous to the appoint-ment of Dr. Gibson, the forests in this presidency, particularly those south of Bombay and between the western Ghauts and the Indian Ocean, were almost entirely left to the management of the natives in their immediate neighbourhood; the consequence of this was, that, as the country under British rule became more settled, and as the population in those districts increased, the forests ware gradually destroyed, the timber being out down in the most reckiess and wasteful manner, and a consider-able quantity of it burnt, for the mere purpose of affording ashes for manore. Regulations have now, however, been adopted, under the superintendence of Dr. Gibson, for the preservation and maiotenance of forests, so that, for the future, such thoughtless and inconsiderate defor the interest of them will be prevented. At present, the Government and mercantile yards of Bombay are chiefly

supplied with timber from the Concan, to the north of the latitude of Bombay. In the Decean, the supply of timber, of any size, is very limited; it has, therefore, for the most part, to be brought from a distance, and the expense and difficulties of transit present serious obstacles to its employment in buildings of all descriptions. Mr. Chapman states, that a short time since, when Viceajee Merjee, Esq., an enterprising Parsee capitalist, built a house at Hyderalud, he was obliged to have all the principal beams carried up from Bombay, a distance of more than 500 miles; and at the present time, most of the timber of the country is greatly diminished in value, being of occessity ent down, and reduced to shapes and sizes most convenient for land-carriage. From Dr. Gibson's reports it appears that the forests of Soosda and Casara, if properly managed, will, in a few years, afford a large and regular supply of first-rate timber.

No. 17,-WOODS OF ROBILKUND, These are from the districts of Barelly and Phillibhect-Mulberry. 1. Aencia Arablea. 13. Melia Azadirnehta; entechu 3. Bassin Intifolia neem or nlmb. 14. Aescia serissa. Bombax heptaphyllum. 15. Nauclea parvifolia, 5. Calyptraothera sp. 16. cordifolia. 17. Phyllauthus Emblica. 6. Cedrela sp. 7. Chowince (?) 18. Rohance (f) 8. Dalbergia sisson. 19. Shores robusts 9, Goshum (1) 10, Grewia. 20, Urseina (?) 21, Wrightia mollistima.

The "Sisson wood," Dalbergia Sisson, somewhat resembles the finer sorts of teak, but it is tougher, and more elastic. It usually grows to a height of about 30 feet, but is generally more or less crooked, and therefore not suited for beams, though highly valued by the ship-hailders of Bengal. The wood is said to harden with age. When fresh, its specific gravity is 0 691; when seasoned, 0.764; and according to Captain Baker, compared with teak, its strength is as 1030 to 869. It has a light grey ish-

10. Nadosur (?)

12. Oak, hingo

15. Shullock

18. Tnp sopo.

11. Naboo (Casuarina coulsetafolia) (?)

13. Poma (Cedrela Toous). 14. Ratta.

16. Saul. 17. Terminalia bhota (?)

CLASS IV.] LIST OF WOODS OF TAYOU. brown colour, with darker coloured veins, and when ex-nomined with a lens, the pores of the wood are found to be nearly filled with dry resinous matter. "Neen wood," Melia Azadirachia, a large tree, which Acaria 2. Agar. 3. Babue 4. Cattul. is used for making carved images, as it is not liable to 5, Cham (Artocarpus chama the attack of insects Dalbergia Sissoo Nn. 18.-WOODS OF ASSAM 7. Hindeo palm-toan (?)
8. Korai (Aeacia margi-nata) (?)
9. Laurus Sassafras, Goond-These woods, grown in the forests of the province of Assam, are contributed by Mr. Martin, Major Hannay, aud Captain Rate (p. 884):-No. 19 .- WOODS OF TAVOY (Dr. WALLICH). Burmeee 1. Acnein-Papecah - A very large tree, used for posts and rollers. Paingadon, â Anacardium _ Thubbamboo -Thoucaben -- A large tree, used in boat-building. 4. Artocarpus -A large tree. Pynyathe or tannaburg Wood not used Bignonia Thather -A very large tree ;, (?) -A large tree, used in building. A middle-sized tree. Thuggainee 9. 10. Calaphyllum einbha -Used for masts, &c. Turra-phee Carapa -Tails oon -Used in building. Careya - -Kaga-- Large timber tree. _ 13. Castanes martabanica Norne nr Zitha. 14. Cerbern Manghas Kulloon - -Wood not used. Zimboon -Used In building Ain or sinths -An immense tree Used as timber. 17. 18. Euphorbiacea -Kunneau-phin -Yamala -19. Eurya -Thaun 20. Excoccaria (?) hurrotha. 21. Ficus -Thubbon -Thuppan -Pullows -Garcinia - -

Used for frames of lacquered ware. Used for fuel nuly. Used in house-carpentry. Large tree; wood not need. Large tree, used far posts, &c. Grewla Minya. Beritiera Fomes Very large tree: very bard and durable wood. Used in building. 96 Hibiscus macrophyllus (?) -Hopes floribunda Tanthern -_ A very large tree. Used in building. Lagerstrumin nmounce or puma -30. Laurus - -Kullows or kurrnes. 31. Used in house-earpentry. --_ _ Panatha -Maythen -37 -A large tree, good useful wood, much used. Small tree, used for posts. Keemna -

Used in house-carpentry. Used in ship-building. 37. Mimusops -Thubbae Elengi Maikay A tough close-grained wood, used for handles. A large tree, used in boat-bailding. A large tree, used in flooring bouses. 39 Murraya -40. Myristica -Kosthoe nr Kunneen 42. Osyris peltata 43. Pierardie (?) Kunun or Kuzzo. A very large tree, used in building, A large tree, used for furniture, &c. 4t, Pinus Dammera 45. Pterocarpus (?) = Puddow -46 Rottlera Mimasko Keoun-lae A large tree, used for rudders, &c. 47. 48. Sandarieum Thittoo -Used for furniture 49, Sapotes (?) -Palacpean -١. A very large tree, used in building. A small tree. 50, Fonneratia (?) Thoumma-Sterculia (?) Kununu An enormous tree. Thikadoo 52, 53, Symploros (?) – 54. Syndesmis Tavoyana Kain-the-phogee Used in bout-building. A very large tree, used for building, boxes, &c. Ku-the _ Kunnun Keunkee-Used for beams, posts, &c. Kunnun Keunla -Kunnun A. Thuphanga 56. Terminalia – 57. Ternstromia A large tree, used in building. -Puzzeen zwa Thubbor -58, Uvaria-59. Wrightia antidysenterica

Kaungo-kurro -

Kuddoot-alsin -

Thuggeo -_ --

_

38

55.

66. -

60, Xylocarpus

64. --- ? --

68. ---- ? --

61. Zizyphus

A large tree, used for boat-building. Small tree, not used. Very durable timber. Lathou Hard and durable wood. Zeethce -Strong and very durable timber, used in ship-building. Bah-nah-thea Good timber, used for building houses and boats.
Small but valuable wood. Con-mos -Kaantha -

A heavy but durable wood, used in bout-building : specific gravity 0.96 Strong crooked wood, used for gun-stocks A large tree, used in house and ship-building.

Used for oars, &c. Very large tree, used in building, &c.

	No. 19.—WOODS	OF TAVOY (Dr. Wallacu)—rontinued,
	Burn	100.
69. ——— ?	- Kuddoot-nu	Inferior wood, used in bost-building.
70, ?	- Kummi.	No. 1 de la
71	- Malnaban - May-klin -	Used for bows, lances, beams, rafters, &c Used for rudders and anchors.
72	- May-maka	I lised to side-building.
78	- May-rang -	
75.	- May-tobek	Used for the bottoms of ships; preferred to teak.
76.	- Megeonge Penlay-peen	A large tree, used in building. Used in building.
77?	- Penlay-peen - Plenmahne	Yields very strong knee-timber.
79.	- Picamah-pu	
80 ?	- Tantheya.	
81?	- Tauguet-nu, - Teutha.	
82?	- Thauga-et-tl	ittee Inferior wood.
84 ?	- Thau-baun-	o = - Inferior wood, used for common cances. out-lay - Very fiexible wood.
85,	- Thau-baun-t	Inferior wood.
86? = = = = =	- Thousayng	
88	- Thymbro -	
80 ?	- Town pine	Good wood, used in boat-building.
y v	m WOODS O	F TAVOY (Mr. Commissioner Brundell).
	1	
1. Aman	= =	A small tree; used for building. Used for building.
3. Bep-won		
4. Bhan-bhway		Used for house-posts; like sissoo.
5. Bha-ta ka	5.5	Used for common carpentry. Used for building.
6. Daup-yan		Strong wood: need for common carpentry.
8. Kad-wot-nu	Cedrola?	
		gravity 1:060. A very tough close-grained wood.
9. Kanna-tso 10. Ka-nyeng-kyaung-khyay	1 : :	Used for boat, ship, and house-building; yields an oil; not attacked
		by Insects.
11. ,, ,,		A heavy, grey wood; used for hand-pikes. Like Toon; used in building, &c.
12. Ka-nyeng-pyan	1 1 1	Like Toon; used in building, &c.
14 Knung-thmon-view-say -		A rough strong wood; used for posts, &c. A light, inferior wood; used in building.
15. Keng thep-guyung-ywept 16. Kengthep-pheoot-kyny -		A light, inferior wood; used in building. A sound small wood; used in building.
16. Kengthep-pheoot-kyay -		Heavy wood, not attacked by insects.
17. Khamoung-noc 18. Khamoung-pyion		
19 Kharnway-nu		Porous, heavy, strong wood, not attacked by insects. Employed for bottoms of loats.
		A heavy, compact, dark wood; suitable for gun-stocks.
21. Kyay-tsay-gyu-khyny 22. Kyay-tsay-bayoun 23. Kyep-yo		useful for common carpentry.
23. Kyep-yo		A kind of teak,
		A soft wood like the nauelea.
24. Kywon-bo		A soft wood like the namelen. a variety. beginning in the property wood like terminalise
25. Kywon-ma		A soft wood like the namelen. a variety. beginning in the property wood like terminalise
26. Lienman		A soft wood like the namelen. a variety. beginning in the property wood like terminalise
28. Ma-yam		A soft wood like the namelea. a variety. A small tree; heavy, elnse-grained, light-rolonred wood, like terminalis Small-sizel, strong wood; useful for bandles. An indestructible, strong, beavy, dark-red wood.
28. Ma-yam		A soft wood like the naseles. a variety. A small tree; heavy, the a-grained, light-coloured wood, like terminalis Small-sized, strong wood; useful for handles. An indestructible, strong wood; useful wood, wood. An indestructible, strong wood; useful wood, wood. A small-sized, comparet, grey wood; used for handles, &c.
29. Mee-kyaung-kyay		A soft wood like the nauteles. **small tree; heavy, elmo-grained, light-coloured wood, like terminalis **Small-lizel, strong wood; useful for handles. **An indestructible, strong, bravy, dark-red wood. **A heavy wood, not attakked by linearies. **A small-lizel, compact; grey wood; useful for handles, &c. **Usel for furniture, &c. **Less
29. Mee-kyaung-kyay		A soft wood like the namelea. a variety. A small tree; heavy, elsa-gained, light-ordered wood, like terminalis Small-sized, streets, streets, light-ordered wood, like terminalis Small-sized, streets, streets, likely, districted wood. A heavy wood, not attakeful by insects. A manifactor, compact, grey wood; used for handles, &c. Used for fursiture, &c. A valuable street, owneyd, used for handles, &c. Test for fursiture, &c.
23. Mee-kyaung-kyay		A soft wood like the naurela. ***surjey** **A small tree; leave, plane-grained, lighter-boarest wood, like terminatie Small-lack, strong wood; useful for handles. **Small-lack, strong wood; useful for handles. **A instantiational strong, heavy, after-for-wood. **A mutal-laired, compact, grey wood; used for handles, &c. **Leave for furnitures, &c. wood; used for handles, &c. **Leave for furnitures, &c. wood; used for handles, &c. **A strong, blustle grey wood; ushpied for handles. **A strong, blustle grey wood; ushpied for handles. **A strong, blustle grey wood; ushpied for handles. **A strong, wood; used for post sand planking. **Dear the plane of the plane of the planking. **Dear the plane of the plane of the planking. **Dear the plane of the plan
23. Mee-kyaung-kyay		A soft wood like the naurela. ***surjey** **A small tree; leave, plane-grained, lighter-boarest wood, like terminatie Small-lack, strong wood; useful for handles. **Small-lack, strong wood; useful for handles. **A instantiational strong, heavy, after-for-wood. **A mutal-laired, compact, grey wood; used for handles, &c. **Leave for furnitures, &c. wood; used for handles, &c. **Leave for furnitures, &c. wood; used for handles, &c. **A strong, blustle grey wood; ushpied for handles. **A strong, blustle grey wood; ushpied for handles. **A strong, blustle grey wood; ushpied for handles. **A strong, wood; used for post sand planking. **Dear the plane of the plane of the planking. **Dear the plane of the plane of the planking. **Dear the plane of the plan
23. Mee-kyaung-kyay		A soft wood like the nautes. wwiet; A mail true [serve, benegrained, light-ordered wood, like terminalis A mail true [serve, benegrained, light-ordered wood, like terminalis An indermethide, streng, lewey, darkered wood. A heavy wood, and statisch by jussels. I would ge familiare, like. A strong, historichery wood; laupsel of hundles. A strong, wood, strong heavy would; superful permitter. A strong, wood, strong heavy would; superful permitter. A strong wood, strong heavy would; superful permitter. A strong wood, strong heavy would; superful permitter.
28. Ma-yam 29. Moe-kyaung-kyay 30. Meep-thun-bau 31. Misup-baut 32. Mya-kamaun 33. Myang-ta-bep 34. Ngoo-beng 35. Noalco-lyeng 36. Pan-loun 37. Pantheet-ya 38. Patseg-t-sway		A soft wood line the number. **Musall rare; heavy place product, lipid correspondent, lipid
28. Ma-yam 29. Moe-kyaung-kyay 30. Meep-thun-bau 31. Misup-baut 32. Mya-kamaun 33. Myang-ta-bep 34. Ngoo-beng 35. Noalco-lyeng 36. Pan-loun 37. Pantheet-ya 38. Patseg-t-sway		A soft wood line the number. **Anult rure; heavy plessequents, light-denored wood, like terminality bands class, 4-rings word; sord file for heards. **Anult rure; heavy plessequents, light-denored wood, like terminality bands class, 4-rings word; sord file for heards. **Anthery word, and thesic ob y justeen; **Anther arrange files, word; sord for harden, do, **Variable arrange files, word; sord for harden, do, **Variable arrange files, word; sord for harden, do, **Anther, word; sord for perst and planking. **Anther, word; sord for bands for handlen, **Anther, word; sord for handlen, **Anther, wo
28. Ma-yam 29. Moe-kyaung-kyay 30. Meep-thun-bau 31. Misup-baut 32. Mya-kamaun 33. Myang-ta-bep 34. Ngoo-beng 35. Noalco-lyeng 36. Pan-loun 37. Pantheet-ya 38. Patseg-t-sway		A soft wood line the number. **Musall tree; heavy place quitable, lipid-convert wood, like terminally a main region of the properties of
28. Ma-yam 29. Mee-kyaung-kyay 30. Mee-kyaung-kyay 30. Meep-khua-hau 30. Mya-kamsun 33. Mya-kamsun 34. Ngoo-beng 35. Noalee-lyeng 36. Pan-boun 37. Pantheetya 38. Patseng-tsway 38. Patseng-tsway 39. Patseng-tsway 30. Patseng-tswa		A soft wood line the nametes. **Anuali tree; keep; "lose organizati, light-denored wood, like terminalis Small-state, strong wood; useful for hearders. **Small-state, strong wood; useful for hearders. **Anuali-state, strong wood; useful for hearders. **Anuali-state, strong wood; useful for handles, dar. **Anuali-state, strong wood; useful for handles, dar. **A strong wood; useful for perist and planking. **A strong wood; useful for perist and planking. **A strong wood; useful for perist and planking. **A poal white reach wood; useful for boat-building. **Small-strong wood; useful for boat-
28. Ma-yam 2 30. Meekyaung-kyay 2 30. Meep-buat-ban 3 30. Meep-buat-ban 3 30. Mya-kamaun 3 33. Mya-kamaun 3 35. Mya-kamaun 3 36. Pan-buat 3 37. Pantheetya 3 38. Patseng-tsway 3 38. Patseng-tsway 3 39. Patseng-tsway 4 30. Patseng		A soft wood like the number. **Amalitrus; how, you're permissed, like terminalite studied processed, like terminalite studied processed, like terminalite studied processed, like terminalite studied processed, like the studied processed processed processed, like the studied processed p
28. Ma-yam 2 30. Meekyaung-kyay 2 30. Meep-buat-ban 3 30. Meep-buat-ban 3 30. Mya-kamaun 3 33. Mya-kamaun 3 35. Mya-kamaun 3 36. Pan-buat 3 37. Pantheetya 3 38. Patseng-tsway 3 38. Patseng-tsway 3 39. Patseng-tsway 4 30. Patseng		A soft wood like the number. **Amalitrus; how, you're permissed, like terminalite studied processed, like terminalite studied processed, like terminalite studied processed, like terminalite studied processed, like the studied processed processed processed, like the studied processed p
28. Ma-yam 2 30. Meekyaung-kyay 2 30. Meep-buat-ban 3 30. Meep-buat-ban 3 30. Mya-kamaun 3 33. Mya-kamaun 3 35. Mya-kamaun 3 36. Pan-buat 3 37. Pantheetya 3 38. Patseng-tsway 3 38. Patseng-tsway 3 39. Patseng-tsway 4 30. Patseng	Mimosa. Artocarpus -	A soft wood inke the namebes. **Amail tree; keep; "desequented, light-denored wood, like terminalite Small-state, it rengt wood; sord life the leadings. **Small-state, it rengt wood; sord life the leadings. **Amail-state, it rengt wood; sord life the leadings. **Amail-state, it rengt wood; sord life the landles, act. **Amail-state, life the wood; sord for the life handles. **A strong wood; sord for perst and planking. **A strong wood; sord for perst and planking. **A strong wood; sord for perst and planking. **A pool white rength wood; sord for load-building. **Ampoint-light-chood armount twood, like madegary. **Small-stared wood; surface for load-building. **Ampoint-light-chood armount twood, like madegary. **Small-stated wood; surface strong wood; sord like and
28. Ma-yam 2 30. Meekyaung-kyay 2 30. Meep-buat-ban 3 30. Meep-buat-ban 3 30. Mya-kamaun 3 33. Mya-kamaun 3 35. Mya-kamaun 3 36. Pan-buat 3 37. Pantheetya 3 38. Patseng-tsway 3 38. Patseng-tsway 3 39. Patseng-tsway 4 30. Patseng	Mimosa. Artucarpus -	A soft wood into the number. **Amalitrus; heavy "lower granden, flight-choured wood, like terminally funded size, bring wood; seried for house, bring the control of the c
28. Ma-yam 2 30. Meekyaung-kyay 2 30. Meep-buat-ban 3 30. Meep-buat-ban 3 30. Mya-kamaun 3 33. Mya-kamaun 3 35. Mya-kamaun 3 36. Pan-buat 3 37. Pantheetya 3 38. Patseng-tsway 3 38. Patseng-tsway 3 39. Patseng-tsway 4 30. Patseng	Mimosa. Artucarpus -	A soft wood into the number. **Musall rare; heavy place product, light extensional in Amalitary; heavy place product, light extensional in Amiliary; heavy, shark-rich wood. **Amiliary: heavy, shark-rich wood. **Amiliary: heavy shark-rich wood. **Conf. for familiary: heavy shark-rich wood. **Conf. for familiary: heavy wood; oder of the Tandach, familiary: heavy wood; oder place the Bandler. **Conf. for familiary: heavy wood; output for handler. **A close-granited, strong, heavy wood, strong wood; heavy, wood for handler, heavy, wood for handler for handler, heavy. **A heavy small-stead wood; but handler, hea. **Remail. Janual. Park wood. **Any syramac. please-granish. Lanual. Right-colonerd wood.
28. Ma-yam 2 30. Meekyaung-kyay 2 30. Meep-buat-ban 3 30. Meep-buat-ban 3 30. Mya-kamaun 3 33. Mya-kamaun 3 35. Mya-kamaun 3 36. Pan-buat 3 37. Pantheetya 3 38. Patseng-tsway 3 38. Patseng-tsway 3 39. Patseng-tsway 4 30. Patseng	Mimosa. Artucarpus -	A soft wood like the number. **Amalitrus; heavy jibese qualtus, light-choursed wood, like terminally fanalisticals, rings word; sord like benedits. **Ranki rings word; sord like benedits. **Amalitrus; heavy jibese qualtus; light-choursed wood, like terminally all the properties. **An there words, and therefore, for the harden, for, a real content of the properties. **Variable errors; for word; sord for hall-chourties. **A strong word; sord for perst and planking. **A strong word; sord for perst and planking. **A strong word; sord for perst and planking. **A point white remit word; sord for band-banding. **A remy stanking and word is stanking the handles, be. **Strong, cheep-grained, pulse word. **A rest in ferminant word. **A next if in ferminant word. **A next if in ferminant word. **A light for fe
25. Mer. January, kay 3 Mer. January, kay 3 Mer. January, kay 4 Me	Mimosa. Artucarpus -	A soft wood like the number. **Amalitrus; heavy jibese qualtus, light-choursed wood, like terminally fanalisticals, rings word; sord like benedits. **Ranki rings word; sord like benedits. **Amalitrus; heavy jibese qualtus; light-choursed wood, like terminally all the properties. **An there words, and therefore, for the harden, for, a real content of the properties. **Variable errors; for word; sord for hall-chourties. **A strong word; sord for perst and planking. **A strong word; sord for perst and planking. **A strong word; sord for perst and planking. **A point white remit word; sord for band-banding. **A remy stanking and word is stanking the handles, be. **Strong, cheep-grained, pulse word. **A rest in ferminant word. **A next if in ferminant word. **A next if in ferminant word. **A light for fe
29. Med-hammerkyy 20. Merg-hamban = 31. Minap-hoat 1 32. Panhune = 3 32. Panhune = 3 33. Panhune = 3 34. Panhune = 3 35. Panhune =	Mimosa. Artucarpus -	A soft wood into the number. **Musall rever, here, yellower, well-try, **Musall rever, here, yellower, believed wood, like terminalis An inderscruttle, streng, herey, sharterds wood. **An inderscruttle, streng, herey, sharterds wood. **An inderscruttle, streng, herey, sharterds wood. **Load for farminar, he. **Load farminar, he. **Load for farminar
29. Med-hammerkyy 20. Merg-hamban = 31. Minap-hoat 1 32. Panhune = 3 32. Panhune = 3 33. Panhune = 3 34. Panhune = 3 35. Panhune =	Mimosa. Artucarpus	A soft wood like the number. **Analitracy keep vijewergland, lijke bedomred wood, like terminalite Stanklender, krengt wood; sord life be leardies. **Stanklender, krengt wood; sord life be leardies. **De stanklender, de stanklender bedom de stanklender. **Lower wood, met de tender, de stanklender. **Tot de for annetter ske, "Sord out out off ar handlen, de, "Condition and the stanklender. **A strangt wood; sord for perst and planklage. **A strangt wood; sord for perst and planklage. **A strangt wood; sord for perst and planklage. **A pool wither rangt wood; sord for boad-bindling. **A recognition of the stanklage of the st
25. Mac-Januang Ayay 26. Mac-Januang Ayay 27. Manuanan 28. Mya-kansun 28. Noales-lyon 29. Pateng-tayay 29.	Mimosa. Artucarpus	A soft wood into the number. **Musall rever, here, yellower, well-try, **Musall rever, here, yellower, believed wood, like terminalis An inderscruttle, streng, herey, sharterds wood. **An inderscruttle, streng, herey, sharterds wood. **An inderscruttle, streng, herey, sharterds wood. **Load for farminar, he. **Load farminar, he. **Load for farminar

			No. 2	20	WOODS OF TA	VOY (Mr. Commissioner Blewnell)—continued,
6. Thica	n	-	-	-		A serviceable timber. A close-grained, heavy, strong wood; used in ship and bosse-building
			-	-		for carts, &c.
8. Thus	ng-ba = ng-tshow	-	-	-		Like red jarrool; used for posts and cotton-rollers. A small, heavy, coarse, brown wood; used for door-frames and boat
			-	-		benms,
0. Toun 1. Toun	g-bhaut g-bhien	-	-	-	0.0	Rough, knotty wood; used for knife and spear-handles. A light, perous wood; used for common carpentry.
2. Toun	g-hyeng	=	-	-		A kind of red saul,
		-	-	-	1 1	A close-grained, brown, shaky wood,
4. Toun	kha-ray byioun	=	Ξ	Ξ	::	Red jarrool; used in boat-huilding. A compact greyish-brown wood; suitable for common carpentry.
		-	-	-		Used for gun-stocks.
7. Wont 8. Yau-1	hay-khya	y_	Ξ	Ξ	5.5	A small, strong, compact, yellowish-white wood. A strong, heavy, rough, white wood; used for house-posts.
9. Zoo-l	at	-	-	-		A small, heavy, compact, yellowish-white wood.
					WOODS OF	AMHERST (Mr. Commissioner BLUNDELL).
				10. 2	II.— WOODS OF	
i. Anan		-	-	-		A yellowish-white, heavy, durable wood; used in constructing temples specific gravity 1:312.
2. Ban-1	cha -	-	Ξ	Ξ	Mimosa	A strong and useful wood; used for posts in huilding houses. A grey-coloured wood; used for posts in building houses.
4. Baha	-bva -	-	-	Ξ	Lagerstromia -	Used for house-posts,
5. Bep-t	hon - ng-tseng	-	Ξ	Ξ	= =	A good wood; used for making handles to spears and swords. A close-grained, compact, grey wood, seems not to be attacked b
			-	-		insects,
7. Bijio		-	-	-		A heavy, close-grained, compact, grey wood; used for house-post- rafters, &c.
8. Danp	-yat -	-	-	-		A beautiful yellowish-white, compact wood, but shaky: used for rafter
9. Dien- D. Eng	neeang	-	Ξ	Ξ	0.0	
1. Eng-	gyeng -	-	_	=		A strong, heavy, grey wood; used in boat-building, for piles, beams, & A useful wood, but shaky; used for posts. A very tough, strong, hard, red wood; suitable for mechinery.
2. Gan-	can -	-	-	-		A very tough, strong, hard, red wood; suitable for machinery.
3, Gyo 4, Ka-tl		Ξ	=	=	::	A close-grained compact wood; used for ploughs, handspikes, peats, & A heavy, bard, grey wood; used for bosts, posts, carts; liable t attacks of insects.
5, Kha-	boung -	-	_	-		A small tree, but the wood is very strong.
6. Klep-	dep -	-	Ξ	-	Shoren (?)	Used for posts, &c. A superior wood; used for wheel spokes.
7. Klep 8. Klep	70 =	-	-	-		A small tree; heavy, good wood; used for rafters, posts, &c.
9. Koup 0. Kys-		-	Ξ	=	Nauclea (?) -	A light soft wood; used for carving images, &c. A very bard, close-grained, dark-red wood; used for musket-stock-
o. Kys-	man -	-	-	-		
1. Kya-	noo - sy-thosy	-	Ξ	Ξ	. 7.5	A very heavy wood, A strong solid wood; used for posts and rafters.
3 Kywe	on -	Ξ	=	-	Acacla (?) -	A kind of tesk,
4	-	-	-	-		used for posts, rafters, ears, &c.
	on-gaung-	nony	-	-		A compact, heavy, tough, yellowish-white wood; used for posts an rofters.
 Lami Laph 	asy -	-	-	-		A light, red wood, not attacked by insects.
7. Laph	ran -	-	Ξ	Ξ		A heavy, solid wood, soon destroyed by insects. A valuable, compact, heavy, homogeneous, deep-brown wood; no
9. Liep- 0. Lip-d	yo -	Ξ	Ξ	Ξ	Naucles (?) -	Small, but compact and heavy; used for carpenters' tools. A fine-grained white wood; turns well; used for spear and sword
-						handles.
1. Maga 2. Main	-neng -	Ξ	Ξ	Ξ		A close-grained wood; used for boats, carrs, paddies, oars, posts, &c. Small, but compact and heavy; used for carpenters' tools.
3. Mn-tl	olos =	-	Ξ	-	Artocarpus (?)	Used for house-posts.
4. Ming 5. Morn	nakha -	Ξ	Ξ	Ξ	Shoren (?)	Used for house-posts, rafters, &c. A close and compact, but softish, red wood; used for turning.
6. Mout	ha-ma -	-	-	-		A fine-grained, compact, red wood, but shaky.
 Myau Myau 	n-ngo -	-	Ξ	Ξ	Cedrela	Used for rafters. A kind of toon.
		-	-	-		A hard, close-grained, darable wood; not attacked by insects.
0. Mycr	g-kha	-	Ξ	-	Acacia. Heriteria	Very strong and tough; used inmaking carts, carriages, &c., and for fue
2. Naoo		Ξ	Ξ	=		
3, Neet-	gnyoo -	-	-	=	Mimosa (?) -	A useful, strong, heavy, red wood. A very leavy, solid, red wood; used for posts and rafters. I sed in boat-building, and for posts and rafters.
5. Nyau	ng-lan	Ξ	Ξ	-	Shores	I'sed in boat-bullding, and for posts and rafters.
6. Oun-	thuay -	-		-		
	ran -	Ξ	-	-	Gmelina	I'sed for musical instruments. Compact white wood; used for boats and musical instruments.
7. Pad-c		Ξ	-	-		A hard red wood, not attacked by insects; used for spears and arrow
7. Pad-c 8. Pa-na 9. Pa-ra	wa -		-	-		A very valuable, close, heavy, red wood; used for spear-hundles.
7. Pad-c i8. Pa-nj i9. Pa-ru i0. Pens	-lay-oun	-	_			
7, Pad-c 8, Pa-n _j 9, Pa-ra 0, Peng 1, Pinna 2, Povla	lay-oun	Ξ	Ξ	Ξ	Artocarpus (?) Lagerstrormia -	A close, handsome, yellow wood, A good useful wood; used for posts and rafters.
7. Pad-c 8. Pa-ra 9. Pa-ra 0. Peng 1. Pinna 2. Povis 3. Pyees 4. Raun	-lay-oun ul – – n-guyet n-ma –	-	-		Artocarpus (?) Lagerstromia – Shorea (?) – –	A clouc, handsome, yetlow wood, A good useful wood; need for posts and rafters. A capital wood; used for carts, boats, cars, posts, rafters, &c. specificarly to of 990. Used for house-posts. Used for house-posts, one aitacked by insects; used in buildin, a good, heavy, white wood; not aitacked by insects; used in building.

Tawot-ba-lwot Yammandy 87. Yeng-taip -88. Yetha-hyay -

10.

Ξ Zee-byiou -91. Zeng-bywom

Heretiera minor, or soondra.
 Inditte, or ebony.

13. Inga xylocurps, pyangadian.

16. Lagerstromia Region : jarreoi, or jamoung. 17. Lagerstromia macrocarpa; pyeu ma, or jarreoi.

20. Pterocarpus Wallichii, Pterocarpus Indica, podanck.

14. Kazaret. 15. Laurus, sp., sassafras wood.

18. Mergui, red wood. 19. Piuus Latteri,

Sandal-wood (wild). 24. Thanaka.

21. Rose-wood. Sterentia fortida

13	6	L	IST	OF	, 1	roods	OF.	A M	HERST, TENASSERIM, AND MARTABAN. [CLASS IV
			N	0. 21		woods	OF.	V.M	HERST (Mr. Commissioner Blusnell)-continued.
	Seet-seen	_	_	_	_	-	-		A valuable, heavy, compact, red wood; used in building tempies.
57,	Taup-sha	-	-	-	_	-	-		Shaky wood; used in corpentry,
	Teng-khat		-	-	-	-	-		A heavy, widte, compact wood; turns well; used for rice-mortary,
	Thab-ban		-	-	-	-	-		A heavy wood; used in boat-building; timber sometimes 70 feet long specific gravity 0:814.
50,	Tha-herot-g	yee	-	-	-	-	-		A good, heavy, useful wood.
51.	Tha -invion	_	-	-	-	Eugenis	(5)	-	A useful timber tree.
18.	Tha-kirwot	-	-	-	-	-			Used for saudals,
3.	Thammai	-	-	-	-	-	-		A strong bandsome wood, like box.
4,	Than kya	-	-	-	-	-	-		Wood like saul-wood.
	Tha-nat	-	-	-	-	-	-		A kind of grey teak.
6,		-	-	-	-	-	-		Resembles saul.
7.	Than-that	-	-	-	-	-	-		Resembles saul, a capital wood.
	Thanna-don		-	-	-	-	-		A reddish-hrown, heavy, strong wood, but somewhat slaky,
	Theng-gan		-	-	-	-	-		An excellent compact wood; used for earts, boats, house building, &c and considered superior to teak; specific gravity 0:911.
Ю,	Thep-yeng	-	-	-	-	-	-		A fine-grained wood,
n.	Theet-physio	to .	_	-	-	Mimosa	(2)	-	A fine white wood; used for fan-handies.
2.	Theet-to .	-	-	-	-	-	~		A dark-coloured, hard, heavy wood; used in boat-building, &c.
3,	Theet-va .	-	-	-	_	-	-		A fine strong, tough, brown wood; used for rice-mortars, or pounders
4,	Thiem	-	-	-	-	-	-		I sed in house-building and carpentry.
5.	Toung-bien		-	-	-	-	-		A strong heavy wood; used for carts and boat-building.
6,	Toung-than-	277	e	-	-	-	-		A hard, compact, dark-brown wood.
7.	Toung-tha-b	1101		-	-	Mimosa	-	-	A strong, red, heavy wood; used in building.
8	Tacet -	-	_	_	-	-	_		I'sed for house-posts, and in boat building.
	Tackka-dour			-	-	-	-		Used for house-posts, and in boat-building, but very shaky.
Ð,	Tshanp-yo -	-	-	-	- '	-	-		A heavy, very s'rong, white wood, but liable to attacks of insects.
١.	Tehan-tshay			-	_	-	-		A useful wood, but shaky, and liable to attacks of insects.
	Tehwai-lwai		-	_	_	-	_		A hard red wood, suitable for cabinet-work; used for musket-stocks,
3;	Tshiet-klive	en	_	_	_	-	-		I sed for house-posts.
4.	Tsoav-dan -	-	-	_	_	-	-		Hard, heavy, tough wood; used for whoels, musket-stocks, &c.

No. 22.- WOODS OF TENASSERIM

A useful wood; employed in building.

. Bauhinia, or mountain ebony.	25. Tectona grandis.
. Calophyllum, ap.	26. Vitex arborea.
Careva arborea, C. spherica, bambuoco.	The "Soondra" is a very tough and elastic wood, com-
. Cyrtophyttom fragrans. Annn.	The "Soundra is a very tough and ematic wood, com-
Dalbergia tatifolia, or lana wood.	munly used for boat-building, &c. it is, however, a very
. Diospyros, sp.	perichable wood, and shriuks a good deal in seasoning;
Erythrina.	specific gravity 1:002 to 1:086, From Major H. Camp-
Fagura fragrams,	bell's valuable experiments on the strength of Indian
Grewin, sn.	timber, this is evidently a very strong wood; since not of
Hopes odorsta, or thencan.	27 woods which he examined, he found the Soondra to

27 woods which he examined, he found the Soondra to be the strongest.
"Anan," a tree belonging to the nux vomica tribe, one of the hardest and most compact woods known.

a very hard, dense, and durable wood,

liard, heavy, tough wood; used for wheels, musket-stocks, &c. Like the wood of Lagerstremis.

A good and valuable wood; used for carving images,
A strong useful wood; used for common carpentry.

Used for carved images; the bark used as soap.

A close compact wood, but rather shaky; not attacked by insects.

"Podanck," a leguminous tree, commonly called "rose-wood," a very beautifal, compact, and hard timber, resembles the Andaman wood.
"Thengan," Hopea odorata, an enormous tree of the Dipterocurper, or Saul tribe; a very strong but coarsegrained wood, used for making canoes; immense quan-tities of good dammer, or resin, are obtained from this tree. "Pyangadean," a tree belonging to the Acacia tribe, commonly called "iren-wood," in the Armean provinces;

No. 23.-WOODS OF MARTABAN (Dr. WALLEYS).

1	Calophyllum	_	_		Thurspee -	_	A large tree; used for masts and spars.
2	Careys -	-	-	-	Kaza	_	used for posts, &c.
3	Cynometra -	-	-	-	Maingga -	-	A small tree.
4	Diospryros (?)	-	-	_	Ryamucha	_	Used in house-building,
5	Elmocarpos	_	-	-			Very large timber; used for masts and house-posts.
6	Fegree fragras	**	-	-	Annah-benz	-	Compact, hard, vellow, and very beautiful wood; little used,
ż	Gordonia (7)	_	-	-		-	Large common timber,
Ä	Hopen oderata	-	-	_	Tenraun -	-	An immense tree.
	Meenalma -	-	-	_			A durable pliant wood.
10	Pongamia atro-	mr	mren	_	Lagun -		A noble tree; used in boat and house-building.
	Ourross Amher			-	Tirbbac -	-	A large tree; used in boat-building.
19	Tectona scandi		_	_			Tenk wood.
	Terrainalia bia						Telle woods

14. Xuuthophyllium - - - Saphew - - A very large tree; used for posts and rafters.

	No. 21.—WOOD:	OF ARRAKAN.
1.	Bhamas.	8. Therock.
2.	Kyandevel teing,	9. Theku-ido,
	Moo-tso-ma-	10. Thorat-solns
4.	Parawa.	11. Theuganet,
5,	Pyawa tulli.	12. Iswanhyce,
6.	Pyanany.	13. Inwroot.
7.	Pyaing.	

No. 25,-WOODS OF CHITTAGONG (Cant.

MARQUART). 1. Concearous-Buthan

- 2. Diospyros melanoxyloa.
- Dypterocarpus -- sargetiah.
 Acaria, sp -- koom koyre.
- 5. Swietenia ehickrassia Chnckrassec.

No. 26,-WOODS OF MIRZAPORE (BENADES). 1. Dipterocurpus-Biggedar. 5. Phylianthus emblica - Amorah.

- 2. Diospyros—Absoos, 3. Conocarpus—Sickron
 - Peatsptera glabra- Assa.

6. Terminalia Bellerica-Ruheers safed mooslee. hurrab.

Some fine planks of teak, from Raugoon, nearly 31 feet wide, are exhibited by Mr. McDowell (p. 888); these were deemed deserving of Honourable Mention. Teak is n light-brown, porous, and quick-growing wood; it derives much of its value from the aromatic, oily substance with which it is more or less saturated in the fresh state. A very interesting series of examples of teak wood, formed by Mr. Serrixos, of Calcutta, is contributed from the Naval Department of the Honourable East India Compasy. It consists of 72 specimens from various localities, and the weight of each, per cubic foot, has been care-fully ascertained. From the experiments of Major II. Campbell, it appears that the density of teak wood varies from 0.534 to 0.876, according to its quality and the mode in which it is seasoned; whilst Captain Baker found it to wary from 0.631 to 0.792. It is evident, however, from the following table, which shows the results of Mr. Sepping's experiments, that the specific gravity of teak varies considerably more, not only between the wood of different forests, but even in different parts of the same beam.

No. 27.-SPECIMENS OF TEAK FROM THE WOODS OF MOULMEIN,

No,	Place in which the Tree wa	u Cst,		Number of Years Cut.	tise ui	th of Tree sen ghlv med.		Gravity of amples.
1	Kyeon Gyoung		_	3	n.	in.	0.708	0:781
2	Kyat Gyonng		-	3	8	0	0.650	0:758
3	Malon Gyong		-	4	Н.	0	0.678	0:750
4	Mote Somahmen		-	2	9	0	0.785	0.777
5	Gwea Gyee		-	6	8	0	0.600	0.630
6	Shwaibo Hat		-	4	7	6	0.651	0.769
7	Kid Yai Tsuk		-	4	6	6	0.772	0.819
8	Mayan ben Tsuk		-	5	7	6	0.742	0.143
9			-	5	8	0	0.732	0.645
10			-	5	9	0	0.757	0.833
11			-	6	- 7	0	0.787	0.756
12			**	7	9	0	0.767	0.201
13	Nat Kyoung		-	. 4	- 7	0	0.800	0.686
14	Paldaree Kyonng		-	8	6	0	0.649	0.731
15			-	3	6	6	0.742	0.208
16			-	3	8	6	0.733	0.248
17	Mala Kyoung		-	4	8	0	0.594	0.202
18	Pra Gyee		-	5	7	5	0.687	0.765
19 20	Kyoung Galal		-	4	8	6	0.608	0-765
21		= =	-	3	6	ò	0.609	0.832
22				3	3	6	0.242	0.086
23				8	6	6	0.625	0.773
24				4	7	ñ	0.654	0.663
25	Pakan Kyoung			- 4	é	ñ	0.756	0.745
26	Ouck Boweng		-	5	5	6	0.658	0.635
97			-	4	7	o i	0:766	0.583
2%			-	5	8	ñ	0.6.0	0.730
29			_	4	7	6	0:748	0:597
30			-	4	6	6	0-509	0.681
31			-	4	6	0	0.680	0.721
32	Swaiboung Kyoung -		_	3	- 5	6	0.772	0.815
33	Pan Daw		-	3	7	6	0.737	0.610
34	Karen Kyoung		-	3	8	0	0.736	0.768
35	Thouag Keen Daugueat Se	ck -	-	4	6	6	0.708	1.056
36	Kaulow		-	- 1	7	ō.	0.761	0.652
	Maximum -		-					056
	Average -							711

No. 28 .- WOODS OF MALAY .- From Senoapose.

This collection cousists of about one haadred specimens, many having no latels; those marked are as follows:-1. Augranah. 9. Kayau Arang. 17. Leban.

1. Aag. 2. Biliong. Wangi. 10. Kemnalag. II. Kroutal. 4. Bras Bras. 12. Aranji. 5. Bitanger wood 6. Chaagis. 7. Glam. Klat. 14. Kayu Brombe 8. Jambu-aver-utan.

18. Meusboa 19. Mednasl Miniak 20, Bush Yesh. Tandoh. 21. , Tandoh. 22. Medansi Kitasahas 23. Konit. 16, Lakah wood,

25. Peragali. 26. Rungens 27. Simpoh Ryah, brekit. 28. Slumer. 29. Slumer. 30. Tempong

99 Pasa Linja -

30. Pala - -31. Pinang Back

32. Pain Utan -

45. (No name) -

Of these the "Bintanger" wood is the most used, espe-cial in canking the seams of vessels. The wood of the cisles in provision the greatest deadner, mosts, spars, &c.; if grows in the greatest deadner contal Naga-pore, and is largely experted to the Abarriina, Chifornia, &c. The "Claim" tree furnishes a paper-like bark, used cock, and some similar substance; as a substitute for &c. The "Claim" tree furnishes a paper-like bark, used

No. 29.-WOODS OF PRINCE OF WALES ISLAND.

No. 20 WOODS OF BENAND (Col Faces)

1. Angsena, or Senna Baymah.	8. Coron-nut tree root.) 15. Mirlimob.
2. Balah Bungah.	9. Dariam (wild).	16. Penang wood.
3. Balach.	10. Eboch-tree root.	17. Ranggas.
4. Baloh.	11. Ebony.	18. Sism wood.
5. Balon Bungah.	12. Gusva wood,	19. Timbusi.
6. Betel-not tree root.	13. Popel wood.	
7. Clove tree.	14. Kamuning.	

		No. 30,	WOODS	OF PENANG (Col. PRITII).
_	NAME.	Colour,	Specific Gravity.	REMARKS,
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Brantey Bunho Bintogos Curupas Chiupas Chiupas - Canas Chiupas - Chais Chiuray - C	Light brown - Dark red - Light brown - Brown - Light hrown - Pale brown - Lyght brown - Brown - Brown - Red - Brown - Red - Black - Brown -	1.165	An inferior weak word, more for building. Along weak of the words for building. A long weak of the building. The word of the building. The sold for plants for building. A small lives and for furnitum. A small lives and for furnitum and or summer of the furnitum and the furnitum and or furnitum. Long for furnitum and or construction furnitum.
18. 19. 20. 21. 22. 23. 24. 25. 27. 28.		Light brown - ,, Light red - Dark brown - Light brown - Brown - Prople - Pale red - Dark - Pale brown -	1.016 	A very 'most twe'; used for ornsmerint farafure. Lock by the Chiruse for main; busine, Stack used for ship-building, furniture, &c. Stack used for ship-building the stack; used for furniture, A small tree; tured for work-bucet and ornsmerial work, A way tree tree difficults two see; used for furniture, A sail soil bids, but straight tree; used for shipping, Land soil bids, but straight tree; used for shipping, beautiful bids, but straight tree; used for shipping, beautiful bids, but straight tree; used for shipping, beautiful bids, but straight tree; used for shipping.

Light brown Purple -33. Papitrang -34. Pennig tenk A strong wood; used for brams. Brown _ A scarce tree now, Used only for ornamental furniture. Raugha-as -Used for furniture. Light brown Used for boxes and furniture. 37. Rokam - - - 38. Red wood -Light red -1:000 In general use for furniture. 39. Sanknang -40. Satin wood -Pale brown Used only for ornamental work. A beautiful wood for ornamontal furniture, &c. 41. Sinm ebony -Black -Used only for ornamental furniture, inlaying, &c. 42. Tenk - -43. Tauspinnis -44. Tija - -In general uso. -Brown Light red -Light brown A fenit-tree; used for ornamental furniture, billiard-cues, &c. A trust-tree; used for ornamental furniture, hi Used for furniture, boxes, &c. Not durable; used for all sorts of rough work.

No. 31.-WOODS OF THE INDIAN ARCHIPELAGO.

Extensive collections of woods from Borneo, New Guinea, and several other of the Archipelago islands, are contributed; including sandal-wood from Timor, and Liugea, or Amboyna wood, from Ceram, in the Moluccas, This wood, which is very durable, and takes a high polish, was imported from the Moluccas in considerable quantities at the time when the latter were British possessions; It is very abundant, and may be had in any quantity. Very large circular slabs are obtained from the lower part of the tree by taking advantage of the spurs, or Interal growths; they are sometimes as large as nine feet (Chinese, in diameter. A circular disk of wood thus obtained, Labasa;—

Purple

Light brown

-Brown

> nearly seven feet in diameter, as well as some other spe cimens, are exhibited by Messrs. ALMKIDA (p. 891), of cimens, are exhibited by messis. Alamada the control singapore, and were decimed deserving of a Prize Medal by the Jury. Specimens are also shown of the "Kaya-Iloka," which is brought from Ceram, New Guinea, Arra, and the other islands of the Moluceas, to Singapore; it is a knotty excrescence, which forms on the stems of the Lingon tree, and is much esteemed as a fancy wood for cahinet-work; of late years its estimation seems to have decreased in Europe, but it is still much valued by the Chinese. The following is a list of the woods from

A large tree; used only for planks; soon decays. A tail thin tree; used for planks.

only used for planks.

A large tree; used for beams.

	NAM	E.				Height.	Diameter.	REMARKS,
						Feet.	Fret.	
	Dadarru -	-	-	-	-	30	2	
	Gabur Buto	-	-	-	-	about 60	3	
	Jati chica -	-	-	-	-	60	14	
4.		ndo	k	-	-		1.5	
5,		-	-	-	-	about 60	3	
G.		-	-	-	-	-	- 1	Grows to a large size in Borneo.
7.	Arru -	-	-	-	-	30	2	
۹.	Benatore		tlt	-	-	70	3	
9.	,, Bencoola		-	-	-	about 60	3	
n.	Badak ut		-	-	-	-		A fruit tree.
ı.	Bi-larru	-	-	-	-	30	13	A scented tree.
2.	. Impas	-	-	-	-	40	2	
3,	Gading			-	-	25 to 30	ī"	
4.	. Jamber	-	-	-	-	30	2	
5,	Kandis I			-	-3	30	2	A fruit tree.
6.	Kalam P	ous	a	-	-8	30	2	
7,	Karre	-	-	-	-1	20)	îį	
Ř.	Kapur B	anc	in	-	-4	90 to 100	4 to 5	
9.	, Kuing	-	-		-1	70	3	
ñ.		-		-	-1		5	
ï.			-	-	-1	40	21	
2			-	_	-	40	ol.	
3.		Ψ.	_	_	-	-	ol	
4.		-	-	-	-1	-	- 01	Small tree.
3				_		about 60	3	Small tree.
5		. 540	• •	-			3	
7.			-	-	- 31	10	2	
á			1	-		40	11	Bark used to dye red.
9		·	-	Ξ		40	19	Dark used to dye red.
î				-		30	18	
ĩ.		THE AL	141		_	30	18	
2		-	-	-	-	40		
ď.			-	-			2	Used for common furniture
4.		-	-	-		30 60		t seu tor common furniture.
Š.					-		15	ma - 6 - tr - t - t
å			mi tola l	ut		90	4	The fruit yields an oil.
			-	-	-			Used for dyeing.
7.				-	-	90 to 120	5 to 6	
8,			-	-	-		1	
9.				-	-		-	A fruit free.
0,		-	-	-	-		3	
١.				-	-	30	3	
2.		t 3	-	-	-		2	
3,			-	-	-		3 to 4	
	Madang sisik	-		-	-	50	21	
6.		-	-	-	-		2	
ő,	Nibong binar	-	-	-	-		-	A species of palm,
7.	., sabara	nl	-	-	-		-	
8,	Samala	-	-	-	-		21	
	Sarylah -	-	-	-	-	50	3	

are enumerated more than more, being contributed from many of the specimens sent over are of a large size.

Beginning the density, escaped, and of particular means will be afforded of secretaining the density, escaped, and other properties of the serval woods.

The following is a list of these woods:—

Although, in the preceding lists of woods exhibited by and thus much valuable practical information may be the Honourable East India Company, some of the woods obtained.

A collection of forty-eight specimens of woods from different localities; yet taken as a whole, the entire col-lection is of the highest interest and importance. As sisting of timbers used in house-building, and for pur-

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WOODS OF CEYLON.
1, Ahoo (19) -
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A soft, though fine, but not very close-grained, light wood,
A statler soft, come, opeo-grained, but not very light wood.
A very hard, fine, close, every agained, heavy wood.
An excredingly hard, line, close-grained, heavy wood, of a pale-reddish bue; with the hear and loadest closings to patche of an intense block. This specime is inscribed at 2. Aloobos (39) -3. Cahamilile (66) -4. Calamender (2) the back " Houmidina.

 Ceylon Teak (61) - A railier hard, flor, close-grained, and somewhat heavy wood.
 Cochio Teak (70) - A railier hard, though somewhat coarse and open-grained, moderately heavy wood, of a lighter loop, railier coarse texture, and ensaiderably more pooderous than the Monillighter loop, railier coarse texture, and ensaiderably more pooderous than the Monillighter loop. mein teak.

7. Cocos-nut (75). 8. Dombe (63) A soft, course, open-grained, light wood, bearing a strong resemblance to inferior Honduras mahogany, takes a good polish, and presents a pretty euriel pattern; but joing from this specimen, which is much worm-cateo, it cannot be a very durable wood, at all events in its native country.

9. Drapore (31) - -10. Ebony - - -- A hard, fise, rather close-grained, somewhat heavy wood.
- A beautiful specimen of a well-known wood. 11. Flower Batteo (76) -A very hard, fine, close-grained, heavy wood. Its polished surface shows a pleasing motified pattern.

 Galmendora (68)
 Godepere (25) A rather hard, very fine, but not close grained, heavy wood.
A rather hard, fine, close-grained, heavy wood.
A soft, fice, but open-grained, light wood.
A moderately bard, fine, close-grained, rather heavy wood.

14, Goorakieme (14) 15. Hadiwicke (26) =

WOODS OF CEYLON-continued,

16.	Hall (28) -	_	 A very soft, coarse, open-grained, light wood, evidently adapted only for very inferior
			work, and where durability is not required.
17.	Halmeodora (67))	 A hard, tine, close-grained, heavy wood.
	Halmilile (43) -	-	 A rather soft, though five, but not very close-graine I, heavy wood,
19.	Hompalede (36)		 A rather soft, fiae, though open-grained, heavy wood.
20,	Hick (57)		 A very hard, fine, close, very nonformly-gramed, heavy wood, in colour resembling pen-

21. Horre (74) -22. Hogokiertler (15) -

cilic-colar.
Ancid, though course, open-grained, heavy wood,
A only, thus, but open-grained, return leavy was
also also better the second of t 23, Kndoll (13) 24, Kadombairla (3) 25, Kadomba (42) -26, Kattukende (27)

. Kirepalle (23) 28, Koan (12)

29. Koesor Jack (6) tiful saffon yellow colour; emits a peculiar, but by no means unpleasant odour.
A band, fice, close-grained, heavy wood, 30. Kurctia (21) A very lard, fine, close-grained, heavy wood Probably specifically identical with Sapsomilile, with which it coincides in every respect.

31. Meenumillie (60) 32. Millele (5) -[1'ede No. 43.]

33. Moolmein Tesk (64). A very hard, fine, close-grained, an I very ponderous wood. Nas (72) A rather hard, very face, close-grained, heavy wood. 3). Namede (34)

Hard, though coarse, open-grained, heavy wood. Hard, rather fine, generally close-grained, presenting, bowever, many open cells; heavy. 36 Aandoon (48) 37. Obbairia (55) -38. Palmira (71) -A species of palm. A bard, fine, close-grained, heavy wood: heart-wood deep red-brown, recent layers red-33. Palno (65) -

dish yellow; its compact, even structure, indicates that it is admirably adapted for turnery work. A soft, coarse, open-grained, light wood. 40, Patta Dell (62) -

A very hard, fine, close-grainest, ugus wood. A very hard, fine, close-grainest, heavy wood. A soft, firm, but rather open, though even-grained, light wood. 41, Pelnu (54) - - - 42, Sapon (53) - - 43, Saponillie (77)

A soft, rather coarse, open-grained, light wood.

A hard, fine, close-grained, leavy wood.

A hard, fine, close-grained, leavy wood, and open-grained, beavy wood, of a deep chessul colour. 44. Sattin (61) -45, Sporive (73) A narra, mongh smewhit, fine, close-grained, very heavy wood.

A hard, fine, close-grained, rather heavy wood, much resembling English birch.

A rather hand, fine, close, even-grained, beavy wood. 46. Tamarind (4) = 47. Tarine (35) = 48. Wanedfle (37) =

WOODS OF CAPE OF GOOD HOPE, &c. Several interesting specimens of timber and other woods are contributed from South Africa and the Cape of Good Hope. One specimen in particular deserves special notice; it is called Red Ebony, from Natal, and is contributed by C. J. Bress (60, p. 952). It is a hard, heavy, very close-grained, red wood, admirably adapted for turning and the finer sorts of eabinet work; npproximating in fact, in character, somewhat to ivory. This wood appears to be new, and it is unquestionably a valuable addition to the hard ornamental woods already known; the Jury, accordingly, awarded a Prize Medal for it.

A valuable small collection of the woods of the Cupe of Good Hope, is exhibited from the Monayian Mussion at Gnathendal (44, p. 950); it consists of thirty speeimens, and was deemed worthy of Honourable Mention. The minexed table contains a list of these woods, their sizes, and the uses to which they are applied in the evolony.—(See Table I., p. 141.)

A second reries of Cape woods, including a number not in the Gnathendal Collection, and valuable because the specimens are shown in the bark, is exhibited by H.

DOWNLETON OF George District (47, p. 951.; this was likewise deensed worthy of Honourable Mention. (For list of this series, see Table II., pp. 141, 142.) A specimen of leak wood, from the Western Coast of Africa, a valuable timber, well known and valued by ship-huilders, is shown by Warwick Weston (1, p. 952).

WOODS OF CANADA

Very remarkable specimens of the chief varieties of Canadian timber are exhibited; especially the collection shown by the Central Commission of Montreal (80, p. 963), for which the Jury awarded n Prize Medal (see p. 7). It includes excellent specimens of the following woods:-1 Ash engled. 4. Bass wood. 5. Cedar, penell. 6. Eim. 7. Elm, red rock. 8. Iron wood. 9. Maple, soft. 2. Birch, white, 3. Butter-put.

283, 984, 2801; and 10 J. N. STUCHRITH (SSA, 116, 111, ac., pp. 982, and 985), for their collections of woods; and they deemed the specimens shown by A. BUTHANAN (86, 91, 93, 96, pp. 982, 983); T. B. D'GOINY (90g, 93, 100, 101, 102, p. 984); T. RACERY (93, 4p. 983); G. PONTIFEX, (102n, p. 984); T. BER (103, 105, 116, 117, &c., p. 118, p. 118 985), severally deserving of Honourable Mention. Mr. Bee also exhibits a numerous series of small sam

10. Maple, hard, 13. Oak, white.
11. ,, bird'seye. 15. ,, yellow 18. Tamarack. 19. Walnut, black. 15. ,, yellow, 16. ,, white. 12. Oak, red.

The butter-nut, and black walnut are excellent furni-Inre woods, and hardly seem to be so well known or appreciated as they deserve. Very fine specimens of butter-unt, birch, pine, cherry, eurled black walnut, and maple, both curled and bird's-eye, are exhibited by Messrs, REED and MEAKINS of Montreal (75, p. 963) these were also judged worthy of a Prize Medal by the Jury.

Fine specimens are also shown of curled black walnut

Fine specimens are also shown of curred ones wainin by — Fissiry, of Simceo (78, p. 963); of bird'seyer maple, by J. Ecan, of Ottawa (74, p. 963); of black wainin, by J. Hassoo, of Dawn (79, p. 963); and of soft imple and chestinit, by J. and F. Parinartin, of St. Martin (76 and 77, p. 963). The Jury deemed each of these deserving of Honourable Mentica. Small samples of a few woods from New Brunswick are

exhibited; namely, bird's-eye and curly maple, black birch, and the candleberry myrtle. A few woods are contributed from Nova Scotia; including curled and bird's-eye maple, hirch, and white and grey oak.

WOODS OF BRITISH GUIANA. A valuable and very interesting collection of timber

and other woods from British Guiann, is contributed by several independent exhibitors. The Jury nwarded Prize Medals to J. OUTRIDGE (84, 84A, 85, 85B, 85c, 87, 88, 89, 91, 92, 97, 98, 104 to 115, 1170, E, r, a, n, &c., pp. 982, 983, 984, 985); and to J, S, Stuennuny (85a, 116, 117n, ples of the chief woods of Guiana (156, p. 987).-See List, pp. 143-146.

courses throughout Cape

×	NAMES.		BOTANICAL NAMES.	2			- 12	Height William Stunder	Diameter.	QUALITY.	C3034
Abler, red	- Roode els -	- 17	Cunonia capensis	- 11	- 11		1.77	Fert. 15 to 25	2 2 2 2 2 2	Hard and tough	Waggon work.
Ash -		1	likebergia capensis	ŧ	,	,	- 5				
Assagay wood		1	Curtisia fagines	1	,	i	-	gi.	3	Very tough	Waggen work.
Beech -	7	١	Myrsine melanaphlees -	١	1	i	-	52	5	Tough	Waggou wheels.
Black bark	- Zwart bast -	•	Rovens villoss	1	ı	i	-2		_	Hard and very tough -	For poles; excellent for wooden screws.
Black wood	- Zivart hout -	1	Gardenia Rothmunala (?) -	١	ı	i	5		1 23	Hard and tough	Waggon work.
Candle wood	- Kaars bout -	١	Kiggelarla Africana	ı	ı	i	1	21		Close = = = = =	General work.
Comassic -	- Kamessie hout	١	Gonioros Kensassi, E. M	١	í	i		2	1 ft. 9 ln.	Hard and close	Venering and tools.
ron wood	- Zivante yzer hout	mt	Oles undulata	٠	ı	i	2 1	2 43	4.0	Very hard	Plought and axles.
Kear -			Virgilia capensis	١	ı	ı	4		. 1 to 14 ft.	Light and soft	Spars and rafters.
Olive wood	- Olyf bout -	•	Oles vermeosa	ı	ı	i	7	9	-	Very hard	For forniture.
Pear, red-	- Rood beer -	١		ì			ń	08 0	3	Hard and tough	Axles and waggon poles.
l'ear, white	- Wit peer -	1	- Imbricaria obevata (?) N. ah E.	è.	i	ı	i	200	21	1	Principally for fellors
Pear, hard	- Ilan peer -	•	Olinia cymosa, Th	1	ı		1	200	62		Axles and wagges poles.
Ked wood	- Rood bont -	١	- Diporidium arboreum -	١	ı		1	2	01		Not much used,
Saddle wood	- Irepel hout -	٠	Mystroxylon	ı	ı		1	6	24	Close and tough	Waggon work.
Sabree -	1 1			,			-	,	_	Light and soft	Coopers' work.
Saffron -	- Saffran hout	1	- Crocoxylon excelsum -	ı	ı	ı	-	0	24	Close	Fellow and general work; bark for tensing.
Silk bark -	- Zyde bast -		- Celastrus	1	ı	ï	Ť.	2	7 to 9 in.	Tough and close; the bark	Carriage polcs.
Smal blad			Hartogia capensis	1	ı	i	-	6	- P		Not much used, firewood,
22. Suceze wood - 3	- Niesbout -	1	Pracroxylon utile, E. and Z	١	ì	i	7	2	1 to 2 ft.	1	- Very handsome for furniture.
Spek wood	1		1				=	12		1	- Planks.
25. Stink wood	- Stink hout -		- Oreodaphne bullata	1		i	8	20 35	3 5	Hard and tough	- Furniture and waggen work.
26, 1 77, 17, one	- Press boom -		Acade homists	-			-	01			Com hard des temples descended
Lilor			Chilington arboton	į	- del				2		Chains and the fast
23. White wood -		1	١.	1			1	15 20	1 to 2 ft.	Light and soft	Spars, rafters, &c.
Yellow wood	- Geel hout -	1	Tuxus elongata	ì	ı	1	50 1	30 50	-1	Not unlike deal	Balks, beams, planks,

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LOCALITY.	1. Aber kip — Kip ets — — Peternents — — 10 to 3 1, 10 g ft. Herd and close — — Wagenopereck. 2. Ather, red — Recele ch — — Cusents expensis – 15 20 2 3 Hard and tough — — Phanks and fellose of wheels Revines and water-courses through	A. Marry white – Wite ch – Welmmuniatrifolian 10 19 2 3 Tough and self. – Prada, familiare – Most review to extern parts. 4. A.S. – Even have expense – Most represented to the event parts of the self property of the event parts of the self parts of the event p	double Autres.
ESES.	Waggon-work. Planks and felloes of when	Planks, familture Planks for furniture - Much preferred for wagge	Waggon-work.
	11	111	-
QUALITY.	Hard and close -	Tough and soft Bard and very tough	6. Bastard eafran Bastard S. bout - Mystroxylon Waggon-work.
Diameter.	1 to 2 ft.	000	•
Height without Branches	Perf. 10 to 15	22 S 22 S 23 S	
8	111	4 .	
BOTANICAL NAM	Plectronia - Cunonia capensis	Wehmannja trifol Ekehergia capens Curtista faginea =	Mystroxylon -
	11	111	1
zi	Klip els Rorde els -	Witte els - Essen hout - Hassagny hont	Bastard S. hout
KYM	Alder klip -	Alder, white -	Bastard eafran
	- 24	ಕ ಕನ	4

TABLE II .- Lay of Woons from Grouge Distract, Cape of Goon Hory-continued.

Merchant Market Diameter GUALITY. USBN. 1983. Smarten Market Mar	toogh - Waggon-poles, tools, &c	Thugh and hard - Purnture and tools. Light, short, and resiness. Copera vorst, water-wheels, Hi	Soft and light Beaus, planks, &c Ravines in forests of the eastern part of	oles, spars, &c R.	tanners.	d close For veneers, tools, &c Fr	Fine-grained, hard, and Very good for cabinet-work Grootvaders bosh, and eastern forests.	land and tough Waggon-work Eastern parts of Cape Colony.	::	Rathfing roof	gh Waggon-work; best-building		-	- Waggon-work, poles, &c	cavy - Wagges-work, &c	I I I I I I I I I I I I I I I I I I I	- Waggon-work; berries eatable	Cablact-work	W	11	h	Waggon-work, tools	rt-grained Much used in house-building Lastern parts of Cape Colony.	i , , , , Porests of George District.
Est. Height William Dameter. QUALITY. Benedict. 15 to 20 Gr. 4 in. Soft and tough = =	Hard and tough	Tough and hard Light, short, and resinous	- Beans, planks, &c	- Waggon-poles, spars, &c.	Furniture	For veneers, tools, &c	nined, hard, and Very good for cabinet-work	Waggon-work	::	Rullding roofs	gh Waggon-work; best-building	ary.	-	 Waggon-work, poles, &c. Waggon-work, roofs, &c. 	cavy - Wagges-work, &c	11	0	Cablact-work	Wagges-work;	Spars and poles Nuch used for furniture, gun-	y Used as an emetic	Waggos-work, tools		:
Est. Unserlie University Dameter. QUALITY. Bounches. 15 Perc. 15 Perc. 15 Perc. 15 Perc.	Hard and tough -		1	1.1	1	1	nined, hard, and	17				ary.		and darable	of heavy -	1 1	11	ì	1	1.1	1	11:	rt-grained	1
Es. Wheek Beauchea. Peec. 15 to 20	8 2 17 8	ď		2>	100	Hard at	Fine-gr	lard and tough	ten far	Hard and short-grain	Hard, white	Hard and close.	Very hard and tough	Very tough and durable	Very hard and heavy	non name name	Hard and short	Bard and beavy	Bard and close	Tough and close Bard and tough	Hard and beavy	Light and soft Hard and tough	Light and short-grained	Soft and light -
Es. Wheek Beauchea. Peec. 15 to 20		1 to 4 ft.	7 10	3 ft. 9 in.		1 9	10	120	1 00	10.2	10 3 ft.		18 ln.	1 3 7.	12 in.	2 22	6ft.10 la.	3 ft. 5 in.	1 to 2 ft.	7 ft. 9 in. 3 to 5 ft.	1	1 1 2 m	100 D	4
3		1 01	15 30	80	90	2 2	5 10	2 10	. 51	× 5		1 1		200				9 10	10 15	7 12 26 30	- 1	22		15 20
	Royena Incida (?)	Rayens Califris Ecklonii -	Calodendron capense -	Pleetronia ventosa Rbus tqmentosa	Chillanthus arboreus -	Gonioma Kamassi -	Burchellia capensis -	Hippobromus alatus -	Olea undulata	Myotroxylon Kuba -	Sideroxylou luerme -	Eucles	Georgia	Trichocladus orinitas	Celastrus rustratus -	ta est	Fueles undulata	Tarehonanthus cam-	Crocoxylon excelsum	Celastrus macronatus Orcodaphae bullata -		Celastrus (?)	Fodocarpus taxus lati-	Podocarpus taxus elon- gatus.
		11	1 0	11	1		-	1		11		-	bout	peat	11		11	1		11			,	
Beuken bout -		Zwart hout Sapru hout	Wilde kastanje	Kruls doorn Daay beech	Wilde vlier	Kornassie hout	Buffel hoorn -	Paarde pis		Koeboe -		- I POLITICA		Onderbesch	Kaars hout	White paer	Roode hout	Wilde saly	Safraan linut -	Sey bast -	1	Wolve doon	Cal bout -	:
NAMES.	Black bark -	Black wood	2. Chestaut, wild	13. Cross thorn -	-	fl. Gormsie	8. Granate, wild - Buffel hoors -	19. Horsepis		22. Kooboo	Wilk	Noen		Olive, white -	M. Pandle wood -		H. Redwood	Sage, wild -	96. Safran	37. Silk hark	33. Tambonkiewood		relion would	=

WOODS OF BRITISH GULANA.

 Biack greenheart. 85c.] 	[858,	Duramen deep hrown: recent layers narrow, pale-ochre vellow.
		The timber of this tree is used for ship-building, planks, &c., and is considered mare durable than the common green-heart. The specimens sent are from a tree supposed
- 70 11 -1 500 11		to be about 50 years old.

 Blackheart. [111, 111a.] - 8 This is a good wood for house frames, and for making furniture. It will square from 6 to 7 inches, from 20 to 30 feet-loog.

(Meanings Shows a diameter of 12 inches, Ia bark. A fine close-graland, moderately hard, and 3. Bully-tree, sp.?) [91, 91a.]

Shown a diameter of 12 isebes. Is bark. A fine close-gralacd, moderately hard, and rather heavy wood; from the likere Demersar. The tree yielding this wood is supposed to be a species of Missaspa. It is found through out the coloury, but most absumantly in the country of Berkliee. It is of green size, and squares From 20 to 20 isebes, and may be obtained from 20 to 30 feet long. The weather has little effect upon it, and It is employed for boase-frames, posts, floors, &c. The upper portion of the trunk and branches are manufactured into thingles, wheel-

4. Cahacalli, [112, 112a.] - Shows a diameter of 4j loches. In bark. A fin rather leavy wood; from the River Demerara. In bark. A fine close-grained, moderately hard, and This wood is impregnated with a hitter principle, which defends it against worms; it lasts well under sater, and is much used for planking colooy eraft. It must, however, be fastemed with exopper nails. It will square from 12 to 16 inches, or even more,

from 40 to 45 feet long. 5. Camara, or tonkin-bean Shows a diameter of 29 inches. In bark. A fine close-grained, hard, and very heavy word: from the River Essecuibo.

(Dipteryx odoro Willd), [95, 95a.] This wood is obtained from Dipteruz oderate, Willd, : the tree which produces the well-This wood is obtained from *Dispays chemia*, Willel: to there which produces the well-house makes here. It is acts, togeth, and charled in a meliant depres, and it is also flowers as the less than the contract of the contr

6. Coffee tree (Coffee biea). [116, 116a.]

hows a diameter of 5 inches. In bark. An exceedingly light and soft, though fine even-grained wood; from the River Berbice. 7. Cork-wood (Pterocarpus Shows a diameter of 5 inches. Draco, Linn.; P. suberoses, Pors.) [102, 102a.] 8. Cork-wood. [102b.]-A curious excrescence, styled in tho label "an abatment of the foregoing." In form, very like rough cock; about an inch in thickness throughout, caveloped in a thin hard

bark. The wood is much softer than in 102 and 102a, and would doubtless afford as excellent substitute for cork, for entomological purposes. From Troolis Island in the River Essequibo. As abutment from near the root of the tree. This wood is supposed to be obtained from Pterscorpus Drace, Linn., or P. subcrosss, Pers., and is chiefly used as floats for fish-

ing-nets Shows a diameter of 5½ laches. In bark. An open-grained, moderately soft, and rather light wood; from Plantation Woodhanis, Siver Mahaica. This wood is obtained from Ariesania aidea, Jacq., a tree of surprising rapidity of growth. These specimens are from a tree five years old. The wood is perishable when 9. Courida (Aricennia ni-tida, Jac.) [103, 103e.]

exposed to the atmosphere, but is very durable under ground, and is, therefore, used In foundations for haildings. 10. Coutaballi. [110, 110a.] - Shows a diameter of 5 inches. In bark. A very fine, close-grained, hard, heavy wood;

from the River Demerars.

The tree which yields this timber grows upon sand-bills; the wood is very hard and durable, if not exposed in the weather; it is pleutiful, and principally used for losser-frames, and will squared In lacks, from 30 to 40 feet long.

Shows a diameter of 7] huches, in hark. A tolerably hard, even-grained rather light wood. In great reputs, and largely used in the colony for interior work; from the wood. In great reputs, and largely used in the colony for interior work; from the from the River Demerara.

11. Crab-wood (Xylocarpus carapa, Spreng.; Co-raps Guinessis, Auhl.) River Deme

Note Description, Ann.)

[106, 1004.]

This word in behind from Xydecryse crops, byteres, or Groupe Giusevain, And., bytering crops, byteres, or Groupe Giusevain, And., but the second from t hows a diameter of 6 inches. In bark. A rather hard, but not very close or orea-grained wood. The most valuable of the British Guiana woods for ship-building pur-

grammen woos, ane most valoutho of the British Giusan wooms for ship-building pur-poses, where it is used chiefly for the bottoms of vessies; grows to a much larger size than represented in the present specimen; from the Biver Democram. This wood is used for musts, become, and planking for colonial craft; and as insecte do not infect it, it is well adapted for cheesty, wardrobes, &c. It will square from 14 to

13. Greenheart (Nectumera: Benth.) [85, Its inches, from 40 to 60 feet in length
Shows a diameter of 12 inches. In bark. A very hard, heavy, fine, but not even-grained
wood. Duramen deep hrown, recent layers broad pale yellow; from the River De-86a.] merara,

merans.
The Greenheart tree is very ajundant, and its timbers, squaring from 18 to 24 inches, can he procured from 60 to 70 feet long. It is a fine-grained hard wood, well adapted for the planking of venesis, isome-frames, whareve, hridges, and other purposes where great strength and durability are required. Mr. Manifold, engineer of the Demersen Railway, states, that this is the best timber for resisting tensile and compressive strains, and is therefore weil adapted for kolsous for skips, and bount.

14. Hackia, or Lignum vitee Diameter 15 inches; from the River Demerara. This wood, known in the colony as Ignum rule, is said to be obtained from Guriorem officinols, Litn.; but this seems doubtful, as the tree producing the wood attains a height of from 30 to 60 feet, and squares 16 to 18 inches, whilst the Guriorum officinols. (Guaiseum officinale, Linn.?) [98, 98a.] is described as a comparatively small tree, about 4 or 5 laches in diameter. It is used

WOODS OF BRITISH GUIANA-continued.

		for mill-eogs, and shafts.	The specime	us sent are from a tree supposed to be abo	at 40
15. Hoobobati	I. 189. 83a.1 =	years old. Shows a dismeler of 15 inche	e. In bork.	A fine close-eroined bard heavy wood	Do.

blows a summerer of 15 inches. In orr. A nine cross-grained, hairly heavy wood. Durameu deep-red chestuat; albarman nut brown; from the River Demerarias.
This wood is very close and fine-grained, is easily worked, takes a high polish, and le much used in the colony for furniture. It may be had from 15 to 20 inches square, 40 to 76 feet long. The specimens sent are from a tree supposed to be alsout 20 years old.

16, Hyawaballi, [1174, 1174.] Shows a diameter of S inches. In bark. A fine, close-grained, hard, heavy wood; from the River Demerara

This tree is scarce. This wood, known as zebra wood, is used for furniture. The spe-elineus sout or from a tree supposed to be about 25 years old. Shows a dismeter of 5 inches. In bank. A highl, though rather fine close-grained white 17. Hyawa (frica keptaphylla, Shows a diameter of 5 inches, Aubl.) [101, 101a.] wood; from the River Bert wood: from the River Berbice.

This wood is abtained from the Icica heptaphylla, Aubl., or lacense Irea, yielding the gum hyawa. 18. Itaballi (Tochgoia Gui-anennie, Aubl.) [117f; Shows a diameter of 11 inches. In bark. An open grained, light, and rather soft wood; from the River Demerara.

The tree which produces this wood is Porhysia Guignensis, Aubl., and is used by the Indians for making corials, 19. Itikiribouraballi. (Mar Shows a diameter of 12 luches. In bark. A close-grained, hard, heavy wood; duramen bright chestnut; alburaum broad, white; from River Demerara.

This wood is supposed to be obtained from Macheriem Schomberghii, Benth. The trunk charium Schowburghi Henth.?) [104, 104a.]

grows to the length of from 30 to 40 feet, and squares from 12 to 16 inches. It is used chiefly for eablact-work. chiefly for cannet-work.

Shows a diameter of D inches. In bark. A fine, close, even-grained wood, hard and heavy. Duramen deep red brown; alburnum broad, pale, dirty yellow; from the River Kakar Ally. [87, 87a.]

This wood is very plentiful, and it has been proved that it is more durable than greenanse room is very poentium, nou it mas teen proven tout it is more durable than green-hear! it is all water, as it possesses the quality of resisting the depredations of the sea-worm and barneele. It may be had from 6 to 14 inches square. The specimens sent are supposed to be about 20 years old. Shows a diameter of 6 inches. Centre inversed by a longitudinal cylindrical furrow,

are apposed to be about a year of the property Laua (Graipa Americana, Line.) [19, 93a.] moderately hard, rather heavy. Bark !

This wood is obtained from Genipa Americano, Linn.: the fruit of which yields the Indian plement known as Lana dyo. The tree is very high, and the trunk will frequently square from 14 to 16 inches. The wood is close-grained, and is not liable to split. 21ª Kosuerettaballi. Shows a diameter of 44 inches. In bark. A very close-grained, hard, heavy wood; from [102, 10Ja.] the River Demerars

This wood forms excellent rafters, and beams for cottages. It grows from 20 to 30 feet Illia wood forms exercisent maters, and occurs not consequent in grow-long, and is from 4 to 6 inches in diameter. Celled by the Indians, "Bourra Courra." 20 inches × 4 × 13. Fine, close-grained, hard, ond rather heavy; a beautiful wood, of a bright-red chestnat colour, with small rhom-22. Letter-wood (Brosimum
- Aubletii, Poep, Pira-tinera Guianensis Aubl.)

and rather heavy; a bountful wood, of a bright-rest electron colour, with small from-comment in the property of the property of the property of the colour colour, and the colour colour, are exhibited, red k.o. 184; unfortunately, it nevertinas heavy sizes. From the colour, are exhibited, red k.o. 184; unfortunately, it nevertinas heavy sizes. This is abstract from Emission Assisting, Crops, or Porturas Grissmond, Asid, and is with black spots, which have been compared to thereplyphics; the apprint part being with black spots, which have been compared to thereplyphics; the apprint part being received to the hour, which is selden more than 10 to 10 loads in detrametrone. If

is adapted for cabinet-work of small size, and for venecring only. From its extreme hardness it is difficult to work, and is therefore little used.

23. Marisibalii. [117r, 117s.] Shows a dismerer of 8 inches. In bark. An exceedingly close-grained, hard, heavy wood: from the liver Demorara.

This tree is picntiful, and is used chiefly for spars. It will square from 13 to 14 inches, from 30 to 40 feet in length. The specimens seot are from a tree supposed to be about 20 years old Shows a dismeter of 7 inebes. A wood very like that of the English pear tree. In bark; 24. Mammee

apple-tree AMERICANO from the River Berbice. (Mammer America Linn.) [100, 100er] This wood is obtained from the Manney Americana, Linn., which produces a Mammee apple, or wild apricot of South America. Shows a diameter of 12 inches. in bark. A hard, heavy, close, but not even-grained exectea,

25. Mora (Mora exe Benth.) [84, 84a.] wood; from the River Demerara. producing this wood frequently reaches a height of upwards of 100 feet. It he tree producing this wood frequently reaches a height of upwards of 100 feet. It grows abundantly on barren sandar-reft. It is tought, elois, and error-grained, and is peculiarly adapted for ships timbers and planks, for whird purpose It is extensively used. The trust of this tree, when of the include form 40 to 50 rest, will square from 18 to 20 inches, but when grown to that its, it is generally faulty. The specimens sert are from a tree supposed to be from 30 to 49 years old.

Purpleheart (Copajfrea publiflora or bractesto). [86, 86a.]

sent are from a tree supposed to be from 30 to 40 years old.

Shown a dismeter of 14 inches. In bear?. A hard and ponderous, though open-grained wood. Dermanen, in longitudiname of the policy of the sent of the shafis, rollers, and machine

what's, rollers, and metalizer's. In latt. A flor, else-gratical, latel, besty word, bown a dilument of 11 index latel, latel, besty word, bown a dilument of 11 index latel, latel, latel, latel, latel latel, late Saka, or Bastard Purple heart. [117d, 117e.] 28. Saouari (Carpacar tomen-tourn, Dec.; Peter

tuberculous, Aubl.) [96,

WOODS OF BRITISH GUIANA-continued

resembles in its properties the Mora, being excellent for ship-building, mill-timbers, and plank, and may be had from 16 to 20 inches square, from 20 to 40 teet long. 29. Silverballi, Yellow (Nec-tandra sp. ?) [92, 92a.]

and plank, and may be had from 16 to 29 inches square, from 20 to 40 teet long. A rather soft, open-grained, light wood; from the liter Demenra. This wood is supposed to be derived from a species of Nectandru. It is light, and floats, and contains a bitter principle, which protect it from the attacks of worms. Honce, it is much used for the outside planking of colony craft: it is also used for bosons and mark. It grows to o great size, but then it is often bollow. It will, however, square ound from 10 to 14 inches, from 40 to 50 feet long.

20. Silverball, Brown. (20.1.

samed from 10 to 1 is blocked, from 10 to 50 for long.

resident from 10 to 1 is blocked, from 10 to 50 for long.

Parties of the planking of a frequire. This spectrum enter part of the caudic planking of a frequire. This spectrum enter part of the caudic planking of a frequire. This spectrum enter part of the caudic planking of a frequire control of the caudic planking of a frequire control of the caudic planking of the cau

River Democrara This wood is used for furniture. The specimens sent are from a tree supposed to be about

20 years old. 32. Simiri, or Locust tree 20 years out.

Shows a diameter of 194 inches. In bark. A rather open-grained, though hard, heavy wood: from the River Demorars.

rnaa Courbaril, L.) (Hymenau C [117n, 1170,] The tree producing this wood is Hymenen Courbaril, Linn., and is plentiful in various parts of the colony. It often attains a height of from 60 to 80 feet, with a trunk from

pen as the course, it often attains a height of from 60 to 90 feet, within trends how to 8 feet in diameter. The world is lark and compete and its darkally correctioned in the millerellar and similar purposes. The lealinm make "woodskins" out of the 33. Surshami. [166, 106a.] - Shower a Gamerier of 9 inches. In such A. Anolecuristy highly fair he observed in the granted wood. Alburum not perceptly highter in colour than the durance; from the contract of the

It is much used for timbers, ralls, and covering boards for colony eraft, oud for naves

is much used for timoers, raiss, and covering boards for colony errat, out for naves and felloss of wheels; it is also made into cances by the Indians. It will square from 14 to 18 inches, from 30 to 40 feet long.

rem the River Berblec. This wood is the heart of the upper portion of the trunks of Wallaba trees which have been felled in the forests, and from which the sapawod has 34. Tacouba, or Heart of Wallaba. [906.] From the River Berblee. decayed. These are much used as paing-posts, and for other out-door purposes, being found to be so durable as to be almost imperishable. They are about to be used as

seleopers on the Demorara Railway, for which purpose it is supposed they will prove to be peculiarly well adapted. The defect of Waliaba and of its Tacouba, is its inability to bear great lateral strain; it should not, therefore, be used for beams longer than it. 35. Tiger-wood. [117, 117a.] 8] inch × 5 inch × 2 inch. Shows heart-wood only. A fine, close, even-grained, very hard, and ponderous wood, of a bright red chestnut colour, remarkable for its implated

lunate black spots, which, however, sometimes assume an irregular form; susceptible of a high polish; from the River Demerara.

of a high polish; from the Kiver Demerara.

In the printed Catisaque accompanying the collection, this wood is stated to be the

"heart-wood of the Itikiribournhabili;" an comparing it with the specimens of the lat
"ke, No. 104, and 104s, it is smallest that the two woods are to hady distinct. Mr. Bee,

to whom the circumstance was pointed out, confirmed this fact, observing that the

specimens of Tiger-wood now under consideration were ent from a tree unboubtedly

speciness of Tiger-wood now under consideration were cut from a tree annioubtedly specified by distinct from that which yields the hildridoursball, specified by the properties of pairs; from the bit for the cut of the properties of pairs; from the bit for the cut of the properties of pairs; from the bit for the cut of the properties o 36. Too Roo. [115, 115a.] 37. Torch-wood. [114.]

Shows a diameter of i0 inches. In bark. A fine, close, even-grained, hard, heavy wood; 38. Towraneroo, or Bustard from the River Denerars.
It is very plentiful, and is used for framing-timber, spokes, &c. It will square 25 inches, from 40 to 50 feet long. The specimens sent ore from a tree supposed to be about 50 Bully tree. [iiip, iiiq.]

years nld. 33. Wadaduri, or Monkeyhows a diameter of 10 inches. In bark. A close-grained, tolerably bard, and beavy pot tree (Lerythia gran-diffora, Aubl.) [117h,

Shows a diameter of 10 inches. In bark. A consegration, tolerably band, and beary consequent present properties of the consequence of the tree which produces this timber, is the Logadia promission seen are from a tree sup-ture to the consequence of the conseq

40. Wamars, or brown abouy. [88, 85a.]

4i. Wallaba (Eperso fo Aubl.) [90, 90a.]

wood. Henry wood of a besuffel deep x single scroom; reconsequence of the confirmation of the confirmation

WOODS OF BRITISH GUIANA-continued.

- 42. Warracert, or white Sons a illustric of Justice, in latel. An experience of high white wood; from the latel of fice of homes, and the presents and from Sitter Madales, and run tone. Heaternin.

 Analh.] [100, 100, 100, 100]. This wood is obtained from Irin alluming that the state on 6 his cases, 42 feet leng and 5 feet wide, was made from a tree of this species. It is used for ears and publics, and for bound for the latel of trailer water follows. During the American war it was used for states.
- test state, was made troon a free of this species. H is used for case and paddles, and goaldes, and goaldes, and goaldes and goaldes and goaldes and a variety for home. For the parties the American art is we used for states of the parties of the
- (Arylinoperial remains). The tentral colonization from Arylinoperial cerebon, Breath. The whole ten, from 5 to 6, the should be a first the should be a fi
- 44. Yarriyarri, or Jances Specimia ufficielling no rhue to diameter. A light, yet fine, eleos-grained, and tolerably avoid (Doppeting surius.

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- A table made of the ornamental woods of Guiana, and containing 82 different woods, is also exhibited; the specimens being of course small, and covered with varnish, it is not possible to identify more than a very few af them; the following is a list of them, and contains a large number not mentioned in the preceding list of larger specimens:—

men	being of course small,	and covered with varnish, it	is not possible to identify mor	re than a very few of them; t
follo	wing is a list of them, a	and contains a large number i	not mentioned in the precedit	ig list of larger specimens:-
1.	Armiesl.	22, Determa.	42, Kucahara,	63, Saka,
2.	Assepoca.	23. Ducalli.	43, Kimaasamasa.	64, Siridani,
3	Akaraki.	24. Gountrow.	44. Kurabara,	65, Silberdani,
4	Arawica.	25. Guaya.	45. Korncorara.	66, Turiballi.
	Acourib root.	25. Greenheart.	46. Kopassa,	67. Tatabo.
6	Brown silverballi.	97. Huwassi.	47. Lana.	68. Tabiecushi.
	Bannia.	28. ilymakusl.	48, Locust.	69. Tewrsperco.
	Bartaballi.	29. Hooboball.	49, Logwood,	70. White cedar.
9	Bangro, or ebouy,	 Hyawabalti. 	50. Letter wood.	71. Waiki.
	Bolly tree.	31. Hisballi.	51. Light silverballi,	73. Wamara.
11	Crab wood.	32. Hya hya,	52. Masaranuni.	73. Wadaduri.
	Contaballi.	53. Hackin.	53. Murwaana.	74. Wild orange.
	Coraharri.	31, Hikiribouraballi,	54. Mora.	75, Washiba,
14	Ceffre.	35, Kretti, ur bastard	55. Perpleheart.	76. Wara couri.
	Canuballi,	sliverballi.	56. Pritti-	77. Wallaba.
	Cabacalli.	36 Kurara,	57. Ited cedar.	78. Waremia.
	Curbacalli.	37. Kakaralli.	58. Hosewood,	79. Yellow silverballi.
	Calabash.	38. Kartaballi,	59. Sand Mora.	80. Youraballi.
	Cabbage tree.	39. Kamacusack.	60. Saouri.	81. Yerara.
	Canella.	40. Keria.	61, Simaruba.	82. Yarri yarri.
21.	Ducalaballi,	41. Kamakasa.	62. Suradauni.	

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	WOODS OF BAHAMA.
A fine series of the w- specimens contributed by	oods of Bahama is included in the collection of raw produce from that colony. The Messrs. Baines (p. 976) were deemed worthy of Honourable Mention,
1. Cedar = =	in used principally in house-building, for door and window framer, plozze-posts, silt, girslers, &c. It grows on several of the Balanan islands, but it found in greater alumnlance on Aniro Island; and its size, when foll-grown, is from 16 to 20 feet in length, and forts in douser's it is generally earl to 16 feet in length, and from a cost of its of the control of the cost of a first several cost of the local full distance. This is one of the most it was several the risk has one of the most resentant the risk has, and emitting the fragmant order of the consume pretril celar.
2, Cedar	 This wood is used principally for picture-frames and other ornamented articles of rubinet- work; there is no difference between it and No. I, except its curied and shaded appearance, which is said to be obtained by its growth in a very rocky roid.
3, Horseflesh mahogany	- Is principally need in house-building, the branches and crooked trees for aligh 'finders, it is a very durable wood, and grows on several of the Balana islands, but is found of large-size, and in greater quantities at Andros Island, where it grows to about 20 feet in learner; It is, however, seldon brought out of the woods of that size, from the want of proper means of conveyance. A hard, fine-grained wood, heavy, and cabilithm numerous own relis.
4. Dogwood	 The principal uses made of this wood are for felloes of wheels and ships' timbers; from its toughness and interproperties, it is better adapted to the former purpose than any other of the Bahamian woods. The tree does not attain any considerable size, and is generally erooked. A rather soft, open-grained, light, but evidently very tough wood.
5. Stapper wood	 I'sol principally for piles to wharfs, and for wheel-spokes; it is a very strong and durable word; if grows from 12 to 16 feet long, and from 6 to 8 feebes in diameter; it is found on all the Balamian islands. An exceedingly land, fine, close-grained, very heavy wood.
6. Lignum	This wood grows on several of the Bahama Islands, and is generally exported to Europe and America, where it is used for sheaves to blocks, ke. The principal use made of it in the Bahamas to for hinges and fastenings for houses vibunced by the sea-shore, or in the vicinity of sail-ponds on the oct-blands, where, from the quick corrosion of from, hinges, &c. of that metal are seldom used.

7. Bahassa Satin wood
This wood, commonly called yellow wood, grows shundantly on Andros Island, and others of the Bahassian groop: it grows to a large size. A sard, fine, close-grained wood, showing on its polished surface a beautifolly ripped pattern.

WOODS OF BAHAMA-continued,

Specimen of a deeper colour, showing a pretty mortied pattern.

This wood, commonly called "Madeira," grows abundantly on Andres Island, and others of the Bahamas group, is not exceeded in durability by any of the Bahamas woods: It grows of a large size, but is generally out of small dimensions, owing to the 8. Bebanus Satin wood - -9. Bahama mehogany want of proper roads, and other means of conveyance; it is principally used for bedwant of proper rouds, soon once means of conveyance; it is principally used for occurs steads, &e., and the crocked trees and branches for ships timbers. A hard, fine, and rather close-grained, moderately heavy wood, of a fine rich colour, equal to that of beanish mehogany, although probably too hard to be well adapted for the purposes to which this latter is usually applied.

10. Crab wood = Mostly used for picture-frames, walking-sticks, and small ornamented cabinet-work : it seldom grows larger than from 3 to 4 inches in diameter. A rather hard, fine, close-grained, moderately heavy wood; heart-wood of a beautiful velned Vandyke-brown, its external edge bright black, alburuum of a pure white,

A small collection of the woods of South America is ramwood, ebony, mahogany, sanden, green Heart, box, exhibited by — Dz.xcox. The specimens are very small, festie, rosewood, Brazillette, and various palms, &e. and amount to 39 in numbers; they include the callabah,

WOODS OF TRINIDAD.

Some very beautiful specimens of ornamental and other woods are shown in the excellent collection of the raw produce of Trinidad, contributed by His Excellency Lord Harris, the Governor (see p. 71). They are as follows:-1. Achras balata, L. (balata A timber extensively used and much esteemed; diameter from 2 to 6 feet.

or valate) Achres (zapotilla or zapodilla). 2 Achras, sp. (acoma or A timber held in high estimation, as indeed are all the woods derived from the present mastic).

family of trees. It varies in diameter from 2 to 4 feet, sclerocarpa Yields beautiful veneers. A palm. 4. Acrocomia (gru gru). 5. Astrocuryum aculeatum Also appertaining to the order "Palme," and affording excellent veneers for ornamental

(gri gri).

Broimum guianense (letter which yields this beautiful wood never attains a large size; its recent layers are of on uniform valuations. ter-rood).

7. Buclda Buceras (olivia) - A coarse-grained strong wood, principally employed for making shingles; its diamater ranges from 2 to 4 feet.

8. Campa guinnensis (cn- Bears a considerable resemblance to cedar, and is extensively used and much esteemed; rapa).

diameter from 2 to 3 feet.

9. Cedrela odorata (West InA very useful and oroamental timber, from 3 to 12 feet in diameter.

10. Cocos ouelfers (cocos- The cocos-nut palm.

11. Considers officinalis (en- A heautiful and durable wood

12. Cordia, sp. (sepc) — A light wood, recenbiling English elm, impregnated with a bitter principle, which preserve it from the attack of insects; it is much valued, diameter from 1 to 2 feet.

13. Crescentia Cujete (sale)

14. Crey strong tough wood; used in boat-ballsling, and for variens other purposes, where boatly.

14. Daibergia, sp. (roble).

15. Geoffroya inermis (l'an- A strong hard wood, extensively used for naves of wheels, &c. gelioe).

 Grey mangrove.
 Gniacum officinale (gula- Bois lizard. can).

18. Rematoxylon campechiannm (log-wood). 19. Hymenes courbaril West Jadia locust; an abundant and valuable timber; diameter 2 to 6 feet.

(courbaril) 20. Lecythis Idatimon (aguatagnro).

21. Mimosa juliflora (yoka A very hard and useful wood. savan). 22. Morus tinetoria (fustic, or bois d'orange).

23. Paltivia. 24. Purple-heart - An shundant and useful timber, 2 to 4 feet in diameter. Rhopala montana (agua-tapana)
 A very durable and curious wood, succeptible of a fine pollsh, 18 inches to 3 feet in diameter.

tapana) 26. Sideroxylon (sp. ?) (ironwood, or bois gri). 27. Swistenia mahogani (ma-

hogany). A very strong and tough wood, esteemed for fellors of wheels, 28. Twompons."

— A very strong ond tength wood, esteemed for teness of warran.

28. Twompons poul (green poul) Theet trees, belonging to the natural order "Bipmonalees," farnish the hardest an 30. Teeoma seravifolis (grey most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish, and has a peculiar colour most darable of woods; their (limber takes a fine polish). they furnish the favourite timbers of the colony, are very abundant, 3 to 4 feet

poul). 31, Tecoma sp. (black poul). 32, Yoka - . diameter, and proportionably lofty.

A bandsome wood, resembling malogany, usually 2 to 3 feet diameter.

A very fine large specimen of "exteries word," or West
Indian celar (Carter observed, from Trivibida, is exist in white by T. Y. C. Bennery; this was decemed worthy of
Honourable Honourab Amongst the specimens from New South Wales, must The collection of Australian and Van Diemen's Land be mentioned the samples of Briggalo or Bricklow, pro-. 9

bably a variety of Acacia, exhibited by J. G. Browell. nanty a variety of Action Contributed by were decased worthy of Honomrable Mention. It con-Mesers, Day (2, p. 989), and by W. Franceis, the latter tains:

Mr. W. FRANCIS's collection and that of Messrs, DAY

being intended as samples of woods suitable for railway	1. Australian box.	7. Flooded gum (Encalyp-
sleepers, and similar engineering purposes. Messrs. Day's	2. , turf-wood.	tus, sp.)
series consists of	3. mahogany	8. Iron bark, grey.
1. Black butt, 5. Colonial ash. 6, Iron back. 2. Box. 7. Myrtle, white. 4. Celar. 8. Syramore.	(Eoralyptus, sp.) 4. Blue gum. 5. Black butt. 6. Forest-oak (Casuarios, sp.)	9. red. 10. Swamp oak (Casuarina, sp.) 11. Stringy bark (Eucalyp- tus, sp.)

WOODS OF WESTERN AUSTRALIA.

In the interesting and valuable collection of the Colonization Assurance Company, already alluded to (rec p. 8), are some fine specimens of the woods of the country, including some remarkable pieces of Eucalyptus wood. It is however stated, that owing to the period of the year when they were collected, the short time which could be devoted to their preparation, and the want of proper saws, &c., the specimens sent are not to be considered as fairly representing the woods of this part of the country. The woods sent are-

1. Banksia, sp. - - - Abundant throughout the colony; a very ornamental wood; the specimen sent is from Guildford. 2. Cypress -3. Jam-wood -

Galletori. Abundant on Garden Island, Rottnest, and also in some places on the mainland. A species of Acacia, commonly called "napherry-jam wood," to consequence of its peculiar odour, reversabling rapphersize. It grows abundantly throughout the settled peculiar odour, resembling rasphermes. It grows assumantely incomposes the section districts; it is well a lapted for turning, and as it takes a very high polish, is suitable

for all outs of calastee-wisel, the for limitedly aboyed for ablp-haliding, and indeed for Thirt excellent words, considered to be a finished place of the calasteel in any quantity; it say be het is planks, a first wide. The short can be obtained in any quantity; it say be het in planks, a first wide. The short can be obtained in any quantity; it say be het in planks, a first wide. The short can be obtained in some parts, about 60 mine from the excellence; grows to a green beight, and extuding in some parts, about 60 mine from the sus-diment; grows to a green beight, and extudent and immerter of more than 3 feet. For the manufacture of spikes and other states of simulation of more than 3 feet. For the manufacture of spikes and other simulations. 4. Jorrak (Encatyptus, sp.)

5. Morrell (Eucalyptus, sp.)

wrights' work it is excellent. 6. Red ebony (?) - - id to be very abundant at Sharks' Bay, and along the sea-coast; this wood is very different from the red about exhibited from Port Naml.

7. Red gum (Eucalyptus The tree is very abundant throughout the colony, and the wood is admirably adapted for wheelwrights' work. resinifera) 8. Salmon bark (Eucalyptus

A good durable wood, much used for farming implements. It is tolerably abundant in York district, and grows to a considerable size. sp.). York district, and grows to a consummor size.

Abundant in the settled districts beyond the Darling range, at a distance of about 50 miles from the sea-coast. It has lately been discovered, of a very superior quality, on 9. Sandal-mond =

the coast at Sharks' Bay. 10. Satin-wood -Occurs in the island of Rottnest. 11. Shr-oak (Casuarina) = 12. Tourt (Eucalyptus, sp.)-Very sbundant.

Very summant.

A noble timber; tolerably abundant on the coast, and said to be well adapted for ship-building and general purposes. The plank exhibited is more than 3 feet wide, and is contributed by W. P. Ciliton, of Bunbury. Planks, some 10 feet wide, may be 13. York gum (Eucalyptus,

onsigned.

Keresenees formed on the stem of this and also of some other Encatypti, similar to the

"Kaya boku" of the Lingon wood, and like it, well adapted for faury cablact-work,

It is stated that the exhibitors had hoped to have procured and seur a pisuk of the

Blue gum (Encatyptus globalus) from the Deep river, it deet in width, but were onable sp.) to do so, for want of saws of sufficient size,

A very remarkable and interesting collection of the woods WHITESIDES, of Hobart Town,-Black-wood, myrtleof Van Diemen's Land, is formed by the contributions of His Excellency Sir W. T. Denison, Messes, Fowlers, Whitesides, McNaughten, Harden, Baowneige, and wood, and musk-wood (91-93, p. 994). A remarkably large section of iron-wood is exhibited by Eustron and Millian (105, p. 994); specimens of the Tokon tree, honeymekle, and she-oak, by H. Hull.

To each of these the Jury severally awarded a Prize Medal The specimeos showo are as follows :-(208, p. 996); of oak, myrtle, cherry, and honeysuckle, Baownatga,-Musk-wood (107, 108, p. 994). (208, p. 996); of onl., myrtle, cherry, and honeyauckle, by the Rev. E. Fareman, of Brown's River (210, p. 996); of blue gum and maple by — Qu'in, of Hobart Town 194, 95, p. 994); and in Norfolk Island pine, by Licot. Arran, R.E. (322, p. 998). Each of these was decined worthy of Honourable Mention.

BBOVWRIGG.—Musk-wood (107, 108, p. 994).
Sir W. T. Divrsov.—Hose gram, stringy bark, hack wood, assafras, myrthc, mask-wood, ecdar, eclery-pine, wood, assafras, myrthc, mask-wood, ender, eclery-pine, iron-wood, and maple (1, p. 992).
Fawats, of Maria Ishad.—Dog-wood, mask-wood, he-cak, and Tasminian iron-wood (108, 199, p. 94).
Capt. W. C. Hadders.—Musk-wood (104, 104, p. 94).
R. V. HOOD.—Sirve water, mask-wood, links-wood, links-wood These various woods are arranged in the following table. One of the most remarkable of the specimena shown is the blue gum exhibited by Sir W. DESISON; it consists of two pieces, one a section of the tree just

Huon pine, and myrtle (111-120, p. 994).

McNauonten, of Hobart Town,—Musk-wood (209. above the surface of the ground, and about 6 feet in dia-meter; the second a section of the same tree, 134 feet p. 996).

J. Milligan.-Richea-wood, piok-wood, and Oysterfrom the preceding one, and which measures about 24 foot across bay pine (341, 342, p. 999).

WOODS OF VAN DIEMEN'S LAND.

Black-wood (Acada me - A very hock, clemograined, thek, and rightly-related wood; it is well adapted for cabinet-wood in the state of all series, and may be had it no symmetry, and either this flac wood is minimably shown in some of the articles of fundamental which is dark bon is well occurred with the equility bounding light wood of the Bloom which is dark bon is well occurred with the equility bounding light wood of the Bloom which is dark bon is well occurred with the equility bounding light wood of the Bloom which is dark bon is well occurred with the equility bounding light wood of the Bloom which is the state of the state

WOODS OF VAN DIEMEN'S LAND-continued.

2. Illue gum (Escalyptus globulus).

An enormous tree; it is said to be equal to ook for sbip-building, and may be obtained in beams of any dimension up to 200 feet in length. It appears somewhat premature to speak very decidedly of the value of this romparatively new wood, but, or tical results already obtained, it certainly promises to be a most important material for the ship-builder. A blue gum tree near Tobosa, on the northern aspect of Mount Wellington range, measured upwards of 30 feet in diameter at the base; and this is by no means unusually large for the trees of this species. According to the Ray. Mr. Ewing, a swamp gun-tree has been measured 102 feet in circumference, at 3 feet from

the ground. 3. Colar, or Pencil pine (Arthrotaxis sciagi-It grows in the monutain ravines and gorges, and in the high table-land about 4000 feet above the level of the sea. noides?).

neides?).

A clery pine (Phyllocladus A handsome tree, which grows in the cold and moist parts of Yan Brenes's Land, and supersididus).

Statina's height of 150 feet. The word is close-grained, and besuitfully white; it is, Cherry (Excosupus on A small ground first with lively green follage; withly sattered on the enters is die of predictional).

Degwood (Beddeclas, pp. 7) This tree nations to considerable after Marits build; the word is very righly and maintain to considerable after Marits highed; the word is very righly and

besutifully marked, it is consequently an excellent cabinet wood, and well adapted for

beautifully marked, it is consequently an exercise cannot wood, any two sequences assurants.

7. Honeyruckia (Banka) and for of ornamental wood is handsome, and useful for cablest work not for rener-assurants).

8. Honey Them (Derrytion) I for facts is employed in taming.

8. Honey Them (Derrytion) A most remarkably beautiful light-changed wood, singularly marked with dark spots, per a first property of the term is indirable for ornamental furniture.

9. Ha-oak (Casuarina A low tree, of no great beauty or value, which grows upon the open grounds stricta)

10. Iron-wood (Notilia ligustrins).

A tree which rarely attains a greater diameter than 12 to 14 inches; the specimen
exhibited, however, is nearly 2 feet. The wood is very hard and dense, and has been
consequently made late shaves for ships blocks.

11. Iron-wood of Norfolk Said to be the most durable of all the Norfolk Island woods. island (Olea apetala).

12. Maple of Norfolk Island.

13. Musk-wood (Eury bia ar-

A comparatively small tree, which grows only in dense forests and close, damp situations. The wood is close-grained, very beautifully marked, especially at the lower part of the-butt, and takes a fine polish. It is most admirably adapted for venecring and other gophylla).

but, and takes a me pount. 11 or non-management of the page County Charles and takes a me pount. 12 me pount of the page County Charles are described for the page County Charles and the page County Charles are page County Charles and the page County Charles are page County Charles and the page County Charles are page County Charles and the page County Security Charles and the page County Charles are page County Security Security Charles and the page County Security Security Security Charles and the page County Security Security Security Charles and the page County Security tiful polish.

15. Pine, Ovster-hay (Calli- Gross only on the eastern coast. The wood is used for internal fittings in bouses, and

tris australis). inc. Norfolk for agricultural implements. 16. Pine, Norfolk zero. (Arnucaria excelsa). Island Very transparent in thin pieces; a good wood for turning.

17 Pinkwood (Carpodouts

Grown chiefly on the western side of the Island, in the dense myrtle forests. It attains a
height of 100 to 150 feet, with a clear straight stem. The wood is fine-grained, and
very hard; it has been used for the shewes of slop blocks.

Richea - wood (Richea Grows only in the deep moint forests on the western side of the Island; attains a height pandanifolia).
 Rose-wood or Zebra-wood Said to be plentiful in Lake country, and shoul Martborough.

(Acacia, sp.) (Athero- A moderate-sized tree; very abundant. The wood is soft, even, and close-grained; wall-hatum).

alagted for internal building, flooring-boards, cabin-fittings, &c.; it turns well.

Beef-wood A hard and beautifully-marked cabinet-wood; it takes a high polish. 20. Sassafras-wood sperma moschatum). 21. She-Oak, or Beef-wood

18. She'clak, or Berteroux A memberson.
(Chromicine squirityinhilida).
28. Stringy-bark (Encolypton A commons tree; very alundast. A stringy-bark tree, near the Cum river, on the robotts).

18. The trans alone 272 time of inher. The world a muber convers thin that of the common tree; the salest problems.

18. The trans alone 272 time of inher. The world a muber convers thin that of the converse than the conver

24. White-wood (Pittosporum beloim equires a greater diameter than a foot. The wood has a remarkably close even bicolor).

25. White Oak of Norfolk and might therefore, perhaps, be employed by wood-engravers. It is used by the natives for their "waddles," or war-club.

Island (Hibiscus Pa-tersonii).

A valuable little collection of the woods of New Zealand are cathibited by J. Junksox (21, p. 1001), and by W. Pox, these the Juny awarded a Prize Medal.

These were theremed worthy of thousarable Mention.

WOODS OF AMERICA.

The collection of American woods is by nn means numerous. It consists of two separate series, and a few isolated specimens; the series contributed by R. J. Pell, of New York (115, p. 1446), consists of 167 specimens; unfortunately, however, many of these are cut from small branches or young trees, and do not therefore well show the characters of the wood; it was, nevertheless, deemed worthy of Hanourable Mention.

1. Acer striatum - -- Moose wood. 8. Betula populifolia White birch Bird's-eye maple, Hemlock spruce. White maple, 9. Cupressus juniperus - -10. Castanea vesca - - -11. Cerasus virginiana - -Cypress cedar.
American chestant. Wild cherry. Common hickory. - Sugar maple. 12. Carva tementosa - - -6. Berwood, 7. Blue degwood. 13. Diospyros - -Persimon

WOODS OF AMERICA-continued.

14. Fagus ferrugines	61. Larix ruhra — Red larch. 62. Liquidambar styraciftas — Gum tree. 63. Liriodaedron tullipfera — Tulip tree. 64. Morus nibs — — White mulberry. 65. Morus nigra — — Black mulberry.
15. Gi-kitan triscanthan	63. Liriodendron tulipifera — Tulip tree. 64. Morus niba — — — White mulberry. 65. Morus nigra — — Black mulberry.
16. Horseffesh-wood. 17. Hax opea — — Holly. 18. Juniperus Sabina — Creix ellist. 18. Juniperus Sabina — Creix ellist. 20. Jugliens synamosa — Red eedur. 21. Juniperus vitgininna — Red eedur. 22. Laurus susasfras — Gun tree. 23. Liquidumbar elyravifinar — Gun tree. 24. Crruar vendificial — Manna adı.	64. Morus niba White mulberry. 65. Morus nigm Black mulberry.
17. Hex opeca — Holty B. Juniperus Sabinn — Cedar, 19. Jugians nigras — Black walnut, 21. Juniperus virginina — Red eedor, 21. Juniperus virginina — Red eedor, 22. Laurus saborism meditata, 23. Lirikekondron tulipidera — Tulip tree, 24. Lirikekondron tulipidera — Tulip tree, 26. Ormas redundifolia — Manna ash,	65. Morus nigra Black mulberry.
19. Juglans nigra — Hack watnik. 21. Juniperus vigrininna — Stell-bark hickory. 21. Lauros sussafar meditar — Red cedar. 22. Lauros sussafar meditar — Gum tree. 24. Lirjaskendron talipifera — Manus ash.	65. Morus nigra Black mulberry.
19. Juglans nigra — Hack watnik. 21. Juniperus vigrininna — Stell-bark hickory. 21. Lauros sussafar meditar — Red cedar. 22. Lauros sussafar meditar — Gum tree. 24. Lirjaskendron talipifera — Manus ash.	
21. Juniperus virgininna	66. Morus rubra Red mulburry.
Juniperus virgininna — Red cedur. Laurus sassafras — Sassafras. Liquidambar styracifluar — Gum tree. Lirisokeadron tultpifera — Tulip tree. Ornus rotundificia — Manus ash.	67. Morus Mulberry.
Liquidaeabar styrneiftuar — Gum tree. Lirisokendron tulipifera — Tulip tree. Comus rotundifelia — Manus ash.	68. Maeiura nurantiaca Osage orange.
24. Liriodendron tulipifera - Tulip tree, 25. Ornus rotundifolia - Manus ash.	69. Magnolla glauca.
24. Liriodendron tulipifera - Tulip tree, 25. Ornus rotundifolia - Manus ash.	70. Megnelia grandiflora.
25. Ornus rotundifolia Manus ash	71. Magnotin acuminata - Cncunaber magnolin. 72. Malus Apple.
	72. Malus Apple.
26. Pinus mitis Yellow pine.	73. Nyssa biflora Pepperidge.
27. Pinus Strobus.	74. Nyssa capitatn Sour tupelo. 75. Orous rotundifelin Manna ash.
28. Plnus rubrs Red pine.	75. Ornus rotundifella - Manna ash.
23. Platanus occidentalis - Plane tree.	76. Punica granatum Pomegranate.
30. Quercus palustris Piuc oak.	77. Populus argentea - Cotton tree.
	78. Populus tremuloides - Aspen poplar. 79. Populus angulata - Common poplar.
32. Quercus Prinos monticolo Rock chestuut oak.	
33. Quereus Prinos acuminata Yellow oak.	80. Populus balsamifera - Balsum poplar.
34. Quercus virens Livo oak,	82. Platenus occidentalis - Plane tree,
35, Swietenia,	
36 Thuin occidentalls - White cedar.	
	84. Pinus mitis 1 ellow pine. 85. Pinus Strohus White pine.
38. Ulmus rubra Red olm.	86. Pinus ruspestus Grey pine.
SPECIMENS IN BASE.	86. Pinus ruspestus Grey pine. 87. Pinus nustralis Long-leaved pine.
1. Ailanthus.	88. Prums americann - Wild plum.
9 Acor saccharinum Sugar moplo.	89. Prunus domestica Plum.
3. Acer rulerum Scarlet maple.	90. Prunus Armeninca - Apricot.
4. Alnus serrulata Common alder.	91. Prunus cerasus Cherry plum.
5. Acer Negundo Box elder.	92. Pyrus vivulans Crab apple.
6. Amyodnius Persica Peach.	53. Pyrus communis Pear.
7. Acer grandidentatum - Mountain maple.	94 Pyrus Cydonia Quince.
	95 Philadelphus syrings - Lilac.
9. Æsculus rubicunda Red flowering chesinut.	96. Quereus ferruginea - Black oak.
 Alnus serrulata Hazel-leaved nider. 	97. Quercus Prinos monticoln Rock-chestnut oak.
12. Acer eriocarpum White maple.	90 Ouerous Phellos Willow oak.
13. Alpus gingen Binck nider.	100 Oueress Prince acuminate. Yellow cok.
 Ahies nigra Black spruce. 	101. Quereus Prinos discolar - Swamp white oak.
15. Acaela.	102. Opercus palustris Pine oak.
16. Betula lentn Black birch.	103. Quereus rubra Red oak.
17. Betula papyracea - Canoe birch. 18. Betula robra - Red birch.	104. Quercus Phellos Willow oak.
18. Betula robra Red birch.	105. Quereus ambigua - Grey oak.
 Betula populifolia - White birch. 	106. Quercus Banisteri - Bean cak.
20. Blue dogwood. 21. Carva microcarps - Nutmeg hickory.	107. Quercus alba White oak.
	10), Rhus Sumach.
23. Cerasus virgininna Wild cherry. 24. Cornus alba White dogwood.	110. Rhamnus maritima Buckthorn.
25. Caryn pecan Pecan-nut hickory. 26. Caryn porcina Bitter-nut hickory.	112. Robinia Pseudacacin - Yellow locust.
	114. Salix lucida Shining willow.
	115, Salix Intea Yellow willow.
27. Carpinus Hornocam. 28. Castanea ninifolia Dwarf chestnut.	
27. Carpinus — — Hornocam. 28. Castanea ninifolia — Dwarf chestnut. 29. Corylus avellana — Hazle.	116. Salix triandra Baskot willow.
27. Carpinus	117. Salix nigra Black willow.
27. Carpinus - Hornoean. 28. Castanea ninifolia - Dwarf chestmpt. 29. Corylus avellana - Ilazle. 30. Carya pecaa - Pecan-aut hickory. 31. Cratagua coccinea - Scarlet thorn.	117. Salix nigra Black willow.
27. Carpinus	117. Salix nigra — — — Black willow. 118. Sorbas Aucuparia — Mountain ash. 119. Salix vitellina — — Common willow.
27. Carpinus	117. Salix nigra Black willow. 118. Sorbus Aucuparia - Mountain ash. 119. Salix vitellina Common willow. 120. Summer queen apple.
27. Carpinus — Horncetas. 28. Castanea Indifola — Bwarf chestrupt. 29. Corylus aveilana — Hazle. 30. Carya pecena — Fecan-aut hickory. 31. Crategua coccinen — Seath Morn. 32. Castanea salafolin — Seath Morn. 33. Crategua populfolia — Seath Carya interventaria. 34. Carya mirretoraya — Small-fruited hickory. 150 m bood.	117. Salix nigra — Black willow. 118. Sorbas Aucuparia — Mountain ash. 119. Salix vitellina — Common willow. 120. Summer queen npple. 121. Sijver abeillo. 122. Seltzenburgh pople.
27. Carpinus — Horniceaa. 28. Castanea Indioda — Desarf chestrupt. 29. Corylus evolus — Pean—sut hickory. 31. Cratiegus soccisen — Read Howering — Pige — P	117. Salix nigra — Black willow. 118. Sorbas Aucuparia — Mountain ash. 119. Salix vitellina — Common willow. 120. Summer queen npple. 121. Sijver abeillo. 122. Seltzenburgh pople.
27. Carpinos — Indraedas — Ind	117. Salix nigra - Black willow. 118. Sorbus Ameuparia - Mountain soh. 119. Salix vitellina - Cotamon willow. 120. Summer queen npple. 121. Silver abeillo. 122. Spitzenburgh npple. 123. Sambuesa - Ekder.
27. Carpinan halfelia - Hornevan	117. Salix nigra — Black willow.
27. Carpinas — Internetas. 27. Carpinas — Internetas. 27. Carpinas antifetitis — Internetas. 28. Carpina pecías — Pecan-ant history. 28. Carpin pecías — Real thorn. 28. Carpina contient — Internetas. 28. Carpina periodia — Real thorn. 28. Carpinas Carpinal — Real Territor Internetas. 28. Carpinas Carpinal — Piego utilación; 28. Carpinas Carpinas — Piego utilación; 28. Carpinas — Piego utilación; 28. Carpinas — Piego utilación; 28. Carpinas — Piego utilación; 29. Carpinas manes — Butter-anti history.	117. Salix nigra
77. Carpinas michia. 78. Carpinas fortura. 78. Carpinas forturas. 78. Carp	117. Soliz nigra
27. Carpines middle a literatura. 28. Carpines Mid	117. Salix nigra
77. Carpines middle and proceedings. 28. Corpine services and the services are services and the services and the services and the services ar	117. Soils: nigren;
70. Carpina shelfda 1 Hwarf chantens. 1 Hwarf chantens. 1 Line 1 Hwarf chantens. 1 Line 1 Hwarf chantens. 1 Corpina writing a Hwarf chantens. 1 Carpina writing a Hwarf chantens. 1 Carpina writing a Hwarf chantens. 2 Carpina incrempts small-frinted hidewy. 2 Carpina incrempts small-frinted hidewy. 2 Carpina incrempts a Small-frinted hidewy. 2 Carpina incrempts a Hwarf chantens. 3 Carpina incrempts a Hwarf chan	117. Solits nigra — Black willow: 118. Sorbus Ameragaria Common willow: 120. Summer queen npple. 120. Summer queen npple. 120. Strengthers — Edder, Common willow: 120. Strengthers — Edder, Common willow: 120. Thain occidentalis — White codar. 120. Thain occidentalis — White codar. 121. Thum with — Wed cind. 122. Thum with — Grape wine. 123. Thum with — Grape wine. 124. Viburanum.
10	117. Solts nigra — Black willow:
27. Carpina buffula — Heart Casterny, 2. Carpina within a — Harle — Ha	117. Solts nigra — Black willow:
27. Carpina shiftida	117, Salta signs ————————————————————————————————————
10	117, Salar signs Black efflow.
19. Carpina shiftida — Hade Carpina — H	117. Salix aign — Black eillow. 118. Salix vitellim — Common villow. 120. Sammer spren nygle. 120. Sammer spren nygle. 120. Sammer spren nygle. 120. Samheras — White lime tree. 120. Samheras — White lime tree. 120. Thain occidentalia — White cedar. 120. Thain occidentalia — White cedar. 121. Thain occidentalia — White cedar. 122. Vitavania — Grap vin Perina (122. Vitavania — Grap vin Perina (122. Vitavania) — Comparison of the control of Vermont.
27. Carpina whitea	117. Solit signs more and solit signs of the solit
10 1 1 1 1 1 1 1 1 1	117. Salix signs ————————————————————————————————————
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27. Carpinas diedia — Hadre Casterus I. Service distrust. 28. Corpina writinas — Hadre Casterus I. Service distrust. 38. Carpina writinas — Hadre Casterus distrust. 38. Carpina service — India distrust. 38. Carpina incrempta — Small-frintial hiberty — Small-frintial hibe	117, Salex signs—grade — Black of sline. 119, Salex virilles — Common willow. 120, Salex virilles — Common willow. 121, Salex virilles — Common willow. 122, Salex virilles spele. 123, Salex virilles spele. 124, Tita alia — He White fine tree. 124, Tita alia — Red sine. 125, Tita alia — Red sine. 125, Tita alia — Red sine. 126, Limos repulsa — Red sine. 127, Tita willow — Grape vine. 127, Tita willow — Grape vine. 128, Tita willow — Grape vine. 129, Tita willow — Grape vine. 121, Tita willow — Grape vine. 121, Tita willow — Grape vine. 121, Tita willow — Grape vine. 122, Tita willow — Grape vine. 123, Tita willow — Grape vine. 124, Tita willow — Grape vine. 125, Tita willow — Grape vine. 126, Tita willow — Grape vine. 127, Tita willow — Grape vine. 128, Tita willow — Grape vine. 129, Tita willow — Grape vine. 120, Tita willow — Grape vine. 120, Tita willow — Grape vine. 120, Tita willow — Grape vine. 121, Tita willow — Grape vine. 122, Tita willow — Grape vine. 123, Tita willow — Grape vine. 124, Tita willow — Grape vine. 125, Tita willow — Grape vine. 126, Tita willow — Grape vine. 126, Tita willow — Grape vine. 127, Tita willow — Grape vine. 128, Tita willow — Grape vine. 129, Tita willow — Grape vine. 129, Tita willow — Grape vine. 120, Tita willow — Grape vine. 120, Tita willow — Grape vine. 120, Tita willow — Grape vine. 121, Tita willow — Grape vine. 121, Tita willow — Grape vine. 122, Tita willow — Grape vine. 123, Tita willow — Grape vine. 124, Tita willow — Grape vine. 125, Tita willow — Grape vine. 126, Tita willow — Grape vine. 127, Tita willow — Grape vine. 128, Tita willow — Grape vine. 129, Tita willow — Grape vine. 129, Tita willow — Grape vine. 120, Tita willow — Grape vine. 120, Tita willow — Grape vine. 120, Tita willow
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19. Carpina shiftida — Hade Corpina weithan — Hade Corpina weithan — Hade Francisco — Hade Francis	117. Solit signs more and the sellow. Illustration of the sellow is a companied by a good series of descriptor had been a sellow illustration of the sellow in a companied by a good series of searchiptor had been a sellow illustration of the sellow in a companied by a good series of descriptor had been a sellow illustration of the sellow in a companied by a good series of descriptor had been a very date settlettle information: for this collect he lary avaried of Prize Medal. We one or Yazaroz. 1. Acer microm — — Red mephy.
72. Carpina shedia a libaric dastroni. 2. Corpina williana libaric dastroni. 2. Corpina williana libaric dastroni. 3. Carpina williana libaric dastroni. 3. Carpina dastroni. 3. Carpina dastroni. 3. Carpina la dastroni. 4. Carpina dastroni. 5. Carpina dastroni. 6. Carpina dastroni. 6. Carpina dastroni. 6. Carpina dastroni. 8. Carpina dastroni. 9. Carpina dastro	117. Safet signs — Black of those 11 stars of the 12 stars of
10	117. Salix signs ————————————————————————————————————
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10	117. Salix signs ————————————————————————————————————

WOODS OF AMERICA-continued.

			HOODS OF AM	ERIC A - tontoneed.	
7. Fraxinus acuminata	-	-	White ash.	1. Acer eriocarputa	White maple.
8. Fraxiaus pubesceus	-	-	Red asia,	2. Acer saecharinum	Sugar maple.
9. Fraxinus sambucifoli			Black ash.	3. Carva tomeutosa	Common bickery,
10. Juglans ciacrea -	-	-	Butter-nut.	4. Diespyros, sp	Persimon.
11. Juniperus virgiuiana	-		Red cedar.	5. Fagus ferroginea	Red beech.
 Ostrya virginica – 	_	-	Iron-wood.	6. Gleditschia triacanthos -	Sweet lorust.
13. Pinus balsamen -	_	-	Silver or balsam for.	7. Horse-flesh.	
 Pinus casadensis – 	-	-	Hemlock.	8, Hex opuca,	
15. Pinus nigra	-	-	Double spruce,	9. Juglans nigra	Black walout.
 Pinus resinosa — 	-	-	Norway pine.	10. Juniperus Sabina	Cedar.
17. Pinus Strobus -	-	-	White pine,	11. Juniperus virginiana	Red cedar.
18. Platanus occidentalla	-	-	Button wood, or syca-	12. Pinus Strolous	White pine.
			more	13, Quercus alba	White onk.
19. Robinia pseadacacia	-	-	Locust wood.	14. Quercus Prinos acuminata	Yellow oak.
20. Thuja occidentalis	-	-	White cedar, or arbor	15. Quereus Prinos monticoln -	Rock chestnut oak
21. Tilia americana -	_	_	Bass-wood, or lime-tree.		
22. Ulmus americana -	-	-	White elm.	A sample of sweet gnm-wood	is contributed by

23. Ulmas salvia — — Red or slippery elm.

A few good specimens of the chief woods of Maryland are also exhibited by the MANYLAND COMMITTEE
(371, p. 1459), consisting of ash, beech, cedar, cherry,
hickory, holly, locust, maple, mulberry, cak, pine, poplar,
and walnut; these were deemed worthy of Honourable

Mention. (See p. 71.)
Specimens of Palmetto cedar, live oak, and a few other
woods, are exhibited by E. B. Brat, of Charleston, South
Carolina (176, p. 1448*); these also were deemed worthy

Garolina (176, p. 1448³); these also were deemed worthy of Honourable Mention. It is hardly necessary to advert to the importance of the wood of the live only. Quereus vivus, its value as a ship timber being universally known and recognized.

A sample of sweet gam-wood is contributed by J. It.

or Naverna, of Charleston (1984, p. 148). Ph. Austria.

Collection are a cries of pine planks, Ables factifies, as prepared for the use of manifold-internment nakers, propared for the use of manifold-internment nakers, as the propared for the use of manifold-internment nakers, in the production of the propared for the propare

have been nearly five centuries old. These specimens

were deemed worthy of Honourable Mention.

WOODS OF CHINA.

A numerous collection of the woods of China is exhibited by the Ber. Dr. Parkkin (12, p. 1422). It is much to be regretted that these specimens are so and in a scarcely to show the characters of the woods; many of the specimens have no labels, and of those which have, a considerable number are evidently incorrectly named; the following is a list of the labels:—

	1	
1. Canton resewood		
2. Chan muh		
3. Chang muh -	Camphor-wood.	
4. Chan muh		
5. Chung tu		An inferior kind of pine.
6. Elsony.		
7. Hwang jung muh	Yellow Dryandra.	
8. " muh		
9. Ilwa Nien	Averrhos Carambols.	
10. Isz King muh -	Thorn-wood.	
II. Kan muh		Wood of the Coolie orange.
12. Knu muh.		
13. Kuin tien kuh -		A fine wood for cabinet-work.
14. Kih now mnh.		
15. Kung mph	Tailow tree (?)	
16. Kwang lang -		Used for rhills of sedans.
17. Lew muh		
18. Lung ven muh -	Dimocarpus inngven.	
19. Lan muh	Canarium Pimela	Wood of the Chinese plive.
20. Ma me muh -		A resinous pine.
21. Mango-tree wood.		it tessassas Inner
22. Mel muh	Apricot-wood.	
23. Muh mien	Bombas Ceiba	Wood of the cotton-wood tree.
24. Nan-chi-muh -	Dominar Crim	A fine wood from Cochin China.
25. Oil-wood.		is and stood from Cotinia Chana.
26. Pah-muh	Cedar (?)	
27. Plum-wood = =	Cross (1)	Used for cutting blocks for books.
27. Fluid-wood = =		(rather coarse.)
28. Pride of India -	Melia Azadernehta	(tanter coarse.)
29. Red-wood.	Mens Assuciación.	
		From Siam.
		From Stum,
31. Sandal-wood.	NC 11	
32. Sang muh	Mulberry.	
	Wild ten	A lofty tree.
34. Shan cha	Wild tea	A lotty tree.
35. " ehe.	W 41 -4 D	
36. , muh	Pride of India.	A kind of willow.
37. Sha tea muh -		A kind of willow.
38. Shul sha muh -		Used for comus,
30. Siang lz muh -	Maple.	
40. Sung muh	Fir.	
41. Tan hiang mub -	Sandal-wood,	
42. Tau kwa san -	Peach flower. Pride of India -	Called " China mahogany," at Canton.

Sycamorus.

2. Alizier wood 3. Azaderak.

WOODS OF CHINA-continued

	43. Tsung muh – 44. Tu muh – 45. Yarnish-wood 46. Woo tung – 47. Wu tung muh 48. Ying muh – 49. Ying – 50. Yung muh –	Ξ	Canasium a Dryandra c	dha. ordifo	in –	-	_	Faced for fuel and boxes. Used for fractiture. Wood used for musical instruments. Sapawood of a kind of beech. Wood of the bastard banins.	
				W00	DS O	F E	(Y	PT.	١
are very g and other appears lik	good, and their inter	rest rom he	is still furth them. Th Acacia wood Date.	er inc	rensed sis de rems t	Nal o be	the h,	ollection of Egyptian raw produce; the specimens ir being necompanied by some of the agricultural a hard, dark-coloured wood, resembling elony, seefal durable wood. The woods show are:— Chony of Sennar. 8. Sycamore. Ficus	П

. Ebony of Sennar 7. Sweet palm.

WOODS OF ALGERIA

A highly-valuable collection of the woods of Algeria is shown to the Algerian Department of the French Col-ctions. These specimens are remarkable for their beauty, and for the skilfal and instructive manner in which lections. ted.

they are exhibited. Some of them Some of the woods are comparatively	are rather small, but io all cases they are characteristic and well selected, sew to this country. They are as follows:—
1. Thuys-articulé; an evergreen tree	Thuja articulata, Desf.? 6 × 5 × 2. Close grain, hard, heart-wood (duramen) bright chestnut-coloured, resinous; recent layers (albumum) cream-yellow. This wood is supnosed by some to be the "sandal-wood" of the ascients.
 Pin ploier; an evergreen tree - Grand cypres d'Italie; an evergreen tree. 	Pinus Piuen, $6 \times 2\frac{1}{2} \times 1\frac{1}{2}$. Specimen from a young tree, in bark; a resinous wood. Cupressus, sp. (?) 6×3 ; $\times 2\frac{1}{2}$; in bark; a resinous wood.
4. Ricin; a dociduous type	Paliurus. (?) 6 × 4 × 2½; an exceedingly soft, light, weak wood; in bark. (Palma Christi, or Christ's thoru).
5. Jujuhler sative	Ziziphus, ap. 6 × 5 × 2. An exceedingly close, fine-grained wood, heavy; heart bright-red chestnut, recent layers, pale ochreous; in bark.
6. Aune; a declduous tree	Alaus, 6 x 9 x 2; a light, though fine, and close-grained, soft weak wood, of an uniform reddish-yellow throughout; in bark,
7. Pln maritime; an evergreen tree -	Pirus maritima, (?) 6 × 8 × 2, in bark; a resinous wood.
8. Sanle fragile; a deciduous tree -	Sally fracilis, (1) 6 × 11 × 11, in bark : a soft and weak wood.
9. Génévrier Phénicien	Juniperus Phornices, (?) 8 × 5 × 2. This specimen was cut from a portion of a
	tree having a diameter of about 9 inches only; in bark; from Zeraida.
10. Grand eyprès	Cupressus, sp., 94 × 4 × 2, from a tree 1 metra in diameter; from the environs of Riedah
11. Summe Therèza	Rbus, sp., 9\frac{1}{2} \times 4 \times 2. Wood heavy; its longitudinal section exhibits numerous open cells: in bark.
 Jnjubier des lotophages; a decidu- ous tree. 	
13. Phillyres : a decidnous tree	Phillyres, sp., 6 × 54 × 2; a close-grained, hard, and heavy wood.
14. Lentisque commun	Pistacja, sp., 8×5×21; a hard, heavy wood.
15. Chène-zeen	8 × 54 × 2; a tree, a metre in dismeter, from Edough.
16. Grand bruyère arborescente, over-	- 61 × 2 × 2. Wood fine, close-grained, hard. (Tree-like heath.)
green trec.	-,,
17. Cedre ; an evergreen tree	Cupressus, sp., 6 × 6 × 2; in bark; resinous wood.
18. Figuier sauvage,-bols tendre à	Figure Carica, 6 × 6 × 2: a soft and weak wood,
fenilles caduques ; a deciduous tree.	
 Platachier-térébinthe; a deciduous tree. 	$Pistacia\ lereb in thus, 8\times 6 \}\times 2. Wood close-grained, hard, heavy, and resinous.$
20. Cytise	Cytlens, sp., 9 × 23 × 14. Wood fine and close-grained, hard, heavy; heart chestmut; recent layers narrowly white.
21. Temeris; evergreen tree	Tamariz, 6 × 6 1 × 2 1, in bark; a resinous wood.
22. Saule-marceau; a deciduous tree -	Salix., sp., 6 × 6 × 2; a fine-grained, soft, and weak wood; light wood, in bark.
23. Térébinthe, ou le faux pistachier -	a large tree, 1.3 metre in diameter.
24. Carcubier	Cercle sillquastrum, 8 × 7 × 1, in bark; a tree, 9 ln. in diameter, from Monzaia.
25. Olivier souvage	Olea, sp , 6 × 6 × 2, in bark : a tree, 10 Inches in diameter, from Monzaia,
26. Sorbier cormier; a decidnous tree.	Sorbus terminals, 6 × 64 × 24; shows a diameter of about 11 inches; in bark; a hard wood.
27. Arbousier; an evergreen tree -	Arbutus, sp., 6 × 7 × 2; shows a diameter of about 12 inches; in bark; a hard- wood.
an Astronomy	Arbutus on 12 VSI VI : bark on both longitudinal odges; a tree 10 longer in

28. Arbousier - - -Arbutus, sp., 13 × 8] × 1; bark on both longitudinal edges; a tree, 10 lnches in diameter, from Monzaia.

Prunus, sp, 6×6×2, in bark.

Acc., sp, 6×6×4×2, in bark; shows a diameter of about 5 inches only; a hard 2). Cerisler sauvage; a deckluous tree 30. Erable Napolitaje; a deciduous wood 31. Laurier-rose; a deciduous tree -Nerium Oleander, 8×31×2; fine and close grain, hard, though light; shows a

vicinian viciniaux, c A 31 A 2; nine and close grain, hard, though light; shows a silameter of about 6 inches; in bark.

Heddra, sp., showing diameter of about 3] inches; a very light, soft, weak, opengrained weed. 32. Llerre; overgreep tree -Pinus, sp., 6 × 5 × 2]; shows a diameter of about 8 inches; in bark; a resinous 33. Pin d'Alep ; evergreen tree -

wood wood. Myrtus, sp., $6 \times 3 \times 2$; a fine, close, even-grained wood, hard and ponderous; in bark. 34. Myrthe; evergreen tree -

35. Prunelier sauvage; a deciduous Prunus, sp., 6 × 3 × 11; a fine, close-grained, hard, and rather heavy wood; in bark.

WOODS OF ALGERIA - continued.

37.	Genevrier-à-feuilles de cedre; au	
	evergreen tree.	
	Houx; an evergreen tree	
39.	Laurier-sauce ; an evergreen tree	
40.	Sumno des corroyeurs; an ever-	
	green tree.	

- 41. Anbepine; a deciduous tree -42. Nerprun alaterne; an evergreen
- 43. Citronnier; an evergreen tree
- 44 Oranger; an evergroen tree -
- 45. Blane d'Hollande, a decidnous Iree 46. Chêne à cland doux -47. Chène liège -
- 48. Chêne vert -49. Micoconlier 50. Frène - -
- 52. Murier blane Morus alba. _ 53. Juiubier domestique - Ziziphus. --
- Fraxinus. 51, Orme -
- A numerous series of small specimens of the woods of the Upper Pyrenees, suitable for cahinel-work, is also exhibited (St. Unexy, 1495, p. 1248). They are valuable chiefly as showing the grain and character of the different woods, when polished and varnished, and as employed

Celtia.

- by cabinet-makers. The Jury awarded a Prize Medal for this collection. Specimens of acueia wood, as employed for muchine are exhibited by Moussillac-Amand, of La Réole (933, 1224); these were deemed worthy of Honourable
- p. 1224; Mention. Some very interesting specimens of preserved wood are shown by I. A. Botchernens in preserved wood are shown by I. A. Botchernens (1104, p. 1230), in illustration of his process of protecting timber from decay, dry-rot, and the attacks of insects.
- The remarkable experiments of Dr. Boucherie, on the absorption of saline and other solutions by trees, are well known, and excited very general interest about ten years since. He has, for a long time, been engaged in an extended and minute series of experiments on wood, the object of which was to ascertain the substance best fitted to preserve timber from decay, and to discover the most economical mode of practically applying it on the large scale. The peculiar feature of Dr. Boncherie's original process consisted in the mode in which he availed himself of the vital power of the tree; for, fullowing up the suggestions of flales, Duhamel, and others, he arrived at the conclusion that it is far easier to impregnate wood with any desired solution when the plant is still full of its own natural juices, and when fresbly cut down, than it is when the vessels have begun to contract, and a considerable portion of the natural humidity of the wood has evaporated. In the first instance, indeed, he endeavoured to impregnate the wood of the tree whilst still in a growing state, causing it to suck up various solutions, by means of the absorbing power of the leaves themselves; a process which, bowever, for various practical reasons, he subsequently abundoned; and, at the present time he adopts a chenp, simple, and effective process for impreg-nating the felled timber with the preserving liquid, preserving liquid, designated in France, "trait de scie, et la cuisse fonlante The trank of the newly-felled tree is cut into a length snitable for two railway sleepers; it is then very nearly divided across, just in the centre, by means of a saw, so as to form a channel, or small reservoir, in the very centre of the log, hy means of which the preserving liquid may pars, right and left, towards either end; the opening of the saw-cut is then carefully closed all round, and a small flexible tube being introduced into the upper part, serves to convey into the cut the preserving liquid, which, as it is laid on through the flexible tubes, under the pressureof a column of some feet in height, is rapidly disseminated throughout the entire substance of the wood. The pre-serving liquid which Dr. Boncherie emplays, and which

- Juniperus, 6 × 31 × 2; shows a diameter of about 4 inches. Alburnum pura white, duramen dark chestaut; in bark; a resinous wood,
- Hex, sp., 6 × 3 × 2, in bark; slows a diameter of about 4 inches; a hard wood. Laurus, sp., 6 × 5 × 2; a light, soft, weak, open-grained wood; in bark. ———6 × 2 × 1 ½; moderately hard, though light, weak, and open-grained; in bark. Crategus, sp., 6 × 6 × 2; a fine, close-grained, hard, and rather heavy wood; in
- Rhammas Alaternus, 6×5×2. A hard, and heavy, though open-grained wood; alburnum fine citron-yellow; duramen dark red-brown; in back; shows a diameter of about 6 inches
- Citrus Limunium, 6 × 21 × 15; shows a diameter of about 35 inches; in bark; Citrus Aurantium, 6 × 5 × 2; shows a diameter of about 10 inches; in bark; a
 - hard wood. diameter of about 11 inches; in bark. a light, soft, weak, and open-grained wood; shows a
- Quereus, sp. Quercus llex.
 - a solution of sulphate of copper. When he desires to increase the hardness of the wood, he uses a solution of pyrolignite of iron; and when his object is to render it flexible, elastic, and at the same time incombustible, he employs a solution of chloride of calcium. By the abovementioned process, Dr. Boucherie has prepared many thousands of railway sleepers with sulphate of copper, and some which have been down on the Great Northern Railway of France, for five years, are at the present time perfectly sound; whilst similar ones, not prepared, which
 - have been on the same line, are completely destroyed. The Jury, appreciating the very long and laborious series of experiments made by Dr. Boncheric, and satisfied with the successful issue to which he has now tished with the succession pane to what he process, brought them, awarded him a Prize Medal far the process, considered of wood for sounding-beards of musical instruments are exhibited by J. HENSTER, of Lindberg, near Liusel, in Bavaria (76, p. 1101); these were deemed worthy of Honographe Mention.
 - A enlication of woods, extremely well-selected and arranged, is exhibited by Professor Nondanassa, of Ilnhenheim, Stuttgard (4, 11, pp. 114, 115). These specimens are exceedingly well prepared, so as to show all the chief characters of each wood; though small, each sample is left in the bark, and good microscupic sections accompany each wood. As a small collection, it is accompany each wood. As a small collection, it is admirable, and the Jury accordingly awarded a Prize
 - A comparatively small number only of Portuguese woods are exhibited; and with one exception, none of them are of very great importance. The Marquis de Louis (553-578, p. 1314), contributes a small collection of 24 specimeus, consisting of pine, plum, filbert, wild olive, chestnut, wild pine, elm, numberry, olive, beech, ash, eherry, cypress, carib-wood, cork-tree, holm, poplar, onk, Pilantain, white scaeia, walnut, orange, box, and erategus. For these the Jury awarded a Prize Medal.

Medal for it

- Other specimens of the ordinary woods are contributed from the Rayal Arsenal, from the Ceim Forests, by A. P. F. Vaz (380, p. 1314), and by the Marquis of ICALRO (552, p. 1314).
- Three specimens of wood from Angola and Gen are shown, namely, Tacula-wood from Angola, and teak-wood and sico-wood from Goa. The former, exhibited by the Governor of Angola (590, 1850, p. 1340), is a very remarkably beautiful wood, and which may fairly be called one of the most handsome enbinet-woods known. The Jury accordingly awarded a Prize Medal for this
- specimen.

 A very small number only of Russian woods are shown; n good series of the chief timber lives of the Governments of Grodon, Minsk, and Volkynia are exhibited by A. KALTMANN (117, p. 1370). For these the Jarry awarded a Prize Medal.
- from his oumerous experiments he considers the best, is Specimens of Rhododendron-wood, and plane-tree wood

are shown from Ozoorgethy the GOVERNMENT OF COOTAIS
[134]; the specimens are all cut into the form of
(118, p. 1370), and of walkun and beech-wood, from
books, so as to show the structure of the wood in different
Djarobelecoan by the GOVERNMENT OF TITLES (119, p.) sections, and varnished so as to bring out the colour and open-company by the totyranceper or 1174.5 (15), p. sections, and variabled so as to bring out the colour and Mexicine.

As Spatish words are catalistic; but in the popular of the totyranceper of the word, readers it rather above the colour and t

WOODS OF CUBA.

1. Abey macho	Jacarouda Sagraena. D. C	A hard wood, the leaves esten by cattle.
2. Abev hembra	Poppigia excelsa, Rich	A hard wood, the leaves eaten by cattle.
3, Acaus	Sideroxylum palfidum. Spr	Very dense wood, the fruit eaten by animals, espe-
		cially by pigs.
4. Agracejo	Ardisia cubana. Alph. D. C	
5. Agracejo carbonero	Executorio(i)	Hard wood.
6. Aguedita	Pieramnia pentandra, Sw	Hard wood,
7. Almendro 8. Almendro silvestre	Luplacea Curtyana, Rich Dipholis salicifolia, Alph. D. C	Hard wood.
9. Araria	Bucida Buceras, Lin,	Dard wood.
IO. Arbol del cuerno	Acadia cornigera, Lln.	
II. Ateje hembra	Cordia Volenzuelana. Rich	A hard wood; the fruit esten by animals, especially
II. thige manner	C-Table Tolk about animal Bridge -	by pigs.
12. Avus amarilla	Zanthoxylam bombacifolium, Rleh.	-7 1-8
13. Ayua mucho	Z. lanecolatum. Poiret	Yields gum or resin.
14. Ayus hembrs	Z, juglandifollum, D, C,	Yields gum or resin.
I5. Azucarero de montaña —	leira Edwigia. Rich	Yields gum or resin.
16. Baca	Annan pelustris. Lin	Fruit eaten by animals, especially by pigs.
17. Baria	Cordin gernseanthoides, Kunth	Hard wood.
18. Bijagnara	Colubrino ferrugines, Brong, -	Hord wood.
19. Bouisto smarillo	Nectandra boninto, Rich	Both leaves and fruit eaten by cattle.
20. Boninto hlanco	Oreodaphne? alba. Rich	Both leaves and fruit cateo hy cattle.
21. Brasii {	Carsalpinia hijuga. Sw }	A dye-wood.
	C. horrida. Rich 3	
22. Brasilete colorado	Cosalpius crista. Lin	A dye-wood.
23. Bucare	Erythrina umbrosa. Kunth	Leaves enten by entitle.
	Trichilia spondioides. Jacq Schmidelia nervosa. Rich	Hard wood.
25. Caja	Schmidelia nervosa. Rich	Hard wood.
26. Calmito	Chrysophyllum Cainito, Liu C. microphyllum. D.C	Very dense wood; fruit entable. Very dense wood; fruit entable.
27. Camitillo 28. Canela blanca	Canelia alba. Murray.	very deuse wood; fruit entiable.
29. Caoba	Swietenia mahorani Lio	Hard wood.
30). Carne de doncella	Swietenia mahogani, Lio Byrsonema lucida. Kunth Cedrela odorata. Lin.	Very dense wood.
31. Cedro	Cydrole edorate 1 le	reij diak koosi
32. Criba	Eriodendron anfractuosum, D.C.	
33. Ceibon de arrogo	Pachira emarginata. Rich.	
31. Chicharron	Chlcharronia intermedia, Rich	Very deose wood,
35, Cigua	Nectandra cigua. Rich	Fruit enten by animals.
36. Cignarayo	Trichilia havanensis. Jacq	Hard wood.
37. Ciruelo	Spondiss purpures. Lin	Yields a gum or resin; fruit eaten by animals.
38. Cocuyo	Bumelin nigra. Sw	Very denso wood.
39. Copal	Icica copal. Rich	Yields a gum or resin.
40. Copey		A dye wood.
41. Cordoban		
42. Cuaba amarilla	Amyris maritima, Jacq.	
43. Cualm blanca	A. sylvatica. Jacq.	
44. Cuajani	Cerasus occidentalis. Loiseleur -	Very dense wood.
Corbana, V. Canella blanca		
45, Dagame	Calycophyllum candidissimum -	Very dense wood.
46. Daguilla {	Lagetta lintearia. Juss }	Bark yields a fibre.
	L. Valenzuelana. Rich 5	
47. Ebano		Very dense wood.
48. Encina		Hard wood; fruit eaten by animals.
	Lonchocarpus latifolius, Knuth - Broussonstin tinctoria, Kunth, -	Very dense wood; fruit catable. Dye wood,
	Canada alla Pish	aye mood,
51. Gia blanca	Casearia alba. Rich. C. ramiflora. Vahl.	
52. Gia brava	Commocladia dentata. Jacq	Very dense wood.
54. Goso de costa	Rhus Metopium, Lin	Very dense wood.
55, Granadillo	Brya Ebenus. D. C	Very dense wood.
56, Guacima amarilla	Luhea platypetals. Rich	Hard wood.
57. Guacima baria	Xylopia Cubensis. Rich	Dense wood; fruit eaten by animals.
	Celtis macrophylla, Kunth 1	
58. Guscimilla {	Celtis macrophylla. Kunth } C. beviguta, Wild }	Fruit caten by animals, especially by pigs.
50. Guacimilla de costa	Prockie Crucis, Lin.	
	Lotia spetola, Jacq, 1	
60. Guaguard {	Letia spetola. Jacq }	Hard wood; yields a gum or resin.
oc. Gungusci 1	L. crenota. Rich	
6i. Gunnia	Lonchocarpus serleeus. Kunth	Bark used for tanning.
62. Guama de costa	Malvacese (?)	Bark used for taoning.
63. Gnusa	Malvacore (?)	

WOODS OF CUBA-continued,

	Cupanin glabra, Sw 1	
64. Guara	C. tomentosa. Sw	Hard wood; fruit eaten by animals.
65. Guara celorada 66. Guavico	Cupania macrophylla. Rich Xylopia obtusitolia. Rich	Hard wood; fruit eaten by animals. Very dense wood,
67. Guayabo agrio - Guayabo silvestre -	Psidium pomiferum, Lin	Hard wood; bark used for tanning; fruit eaten by
Guayabo cotorrero 68. Guayabillo	Eugenin guayabillo. Rich.	
69. Guayacan	Guaincum otheinale. Lin	Very dense wood,
70. Guayacancillo	Guaiacum verticaic. Ortega	Very dense wood.
71. Guimba, V. Guavicu - 72. Guira cimarrena	Crescentia acuminata, Kunth,	Very dense wood.
73. Guira eriolia	Crescentla cujete. Lin.	
74. Hueso	Drypetes alba. Polt	Very deese wood; Icaves eaten by animals.
75. Japus	Sapindus saponaria, Lin Genipa americana, Lin	Fruit eaten by animals.
77. Jaguey bembra		Bark used for tanning.
78. Jaguey mache	Figus populnes. Wild	Bark used for tanning.
	Erythroxyiom brevlpes D. C. E. obtusum. D. C.	
79. Jitia {	E havanense. Jaco.	
	E. havanense. Jacq. E. aisternifolium, E. rufum. Rieb.	
79°. Jiqui, V. Cocuye		Very dense wood.
80. Jobo 81. Jocumn	Spondlas lutea, Lin, Dipbolis salicifelia. Alph. D. C	Yields a gum or resin. Very dense wood; fruit eaten by animals.
82. Jiscaro	Bucida capitata. Vahl	Very dense wood.
83. Laurel amarillo. V. Bo-		
niate amarille.	Orendanhae (2) alba Rich	Hard wood.
85. Laurel de cuabal	Oreedsphne (?) alba. Rich	Fruit eaten by animals, .
86. Lengua de vaca	Ægipbyla martlnicensis. Lin.	
Leviza, V. Laurel blaueo 87. 1.loron	Malanea lecida. Ricb.	Bard wood.
88. Maboa		Very dense wood.
89. Macurige	Cupania eppositifolia. Rich	Hard wood; fruit eaten by animals.
90. Mare	Cupania eppositifolia. Rieh Drypetes glauca. Vahl Paritium clatum. Rich	Hard wood. Hard wood: bark used for tanning.
91. Majagun - Majagua de Ceba. V.	Paritium ciatium, kien	Bark used for tanning.
92. Majagua macho	Belotin grewin folin. Rich Eugenla pimenta. D. C.	Bark used for tasning.
93. Malagueta {		
94. Manaju 95. Mangle blance		Hard wood; yields a coleured resin. Bark used for tanning.
96. Mangle celorade	Avicennia tumentosa. Jacq Rbizophora Mangie. Lin.	
	Acacla arborea. Wild	Very done wood; leaves esten by cattle. * Very done wood; bark used for tunning.
98. Moruro de costa	Morus selt difedia (2) Kunth	very done wood; oark used for tunning.
100. Nocai	Morus celtidifolia (?). Kunth. Jugians einerea. Lin	Hard wood; fruit eaten by animals.
101. Ocuje	Calophyllum Calaba, Jacq	Hard wood; yields a gum or resin; fruit estable.
Palo blanco Palo cachimba. V. VI- bona.	Simaruba glauca. D. C.	
Palo de Caja. V. Ceja.		
Agraceje carbonero. Palo sante. V. Guayacau		
103. Peralejo	Malpighia (?)	Hard wood; bark used for tanning; fruit eaten by
		animals,
04. Pico de gallo	Cynometra cubensis, Rich	Very dense wood,
Pimienta. V. Malagueta. 05, Pino	Pinus necklentalis, Sw	Fruit caten by animals,
06. Quiebra hacha	Copatfera hymcumfolia. Morie	Very dense wood; fruit eaten by animals.
07. Ramon	Trophis americana. Lin Coscaria hirsuta. Sw	Leaves eaten by animals. Hard wood; both leaves and fruit eaten by animals
108. Raspa lengua	Cytharexylum caudatum, Lin	
10. Roble blanco	Tecoma leucoxvion, Mart	Hard wood; leaves eaten by animals. Hard wood; leaves eaten by animals.
	Ehretia bourreria. Lin	
12. Roble negro }	Ehretla tinifolia. Lin	Hard wood.
	Acacia fermosa, Kunth	Very dense wood; leaves eaten by animals.
Sangre de dencella. V.		
Carne de dencella.	Sapeta Achras. Mill	Very dense wood ; fruit caten by animals.
116. Sapote de culebra	Lucuma serpentaria, Knnth	
117. Sapote negro	Diospyros laurifolia, Rieb	Very dense wood; fruit eaten by animals.
		The leaves eaten by animals.
Tengue. V. Moruro - 119. Obero de playa	Cocceloba uvifera, Jacq.	THE METER CANCEL BY MINISTER.
120. Vscs-buey	Curatella americana, Lin.	
191 Vibona	Erithalis pentagonia. D. C	The leaves caten by animals. Hard wood.
122. Vigueta de Naranjo -		Hard wood
123. Viriji =	Andira Inermia. Kunth	Fruit eaten by animals, especially by pigs.

134. Yayajableo - -

Mention.

WOODS OF CURA continued

```
125. Yagruma mocho - - Panax undulata. Aub. - - - Both leaves and fruit caten by naimals.
126. Yaimiqoi, V. Carne de
      doncella
127. Yaicuage -
                                Hypelate paniculata. Cambes. - Hard wood.
128. Yaiti - -
                   - - Excretaria lucida, Sw. - - Very dense wood,
- - Guarca trichiloides, Lin. - Hard wood; both leaves and fruit estable.
129. Yamao -
                               Ximenia americana. Lin.
Conocarpus creeta. Kunth,
130. Yana - - -
131. Yanilla - -
                               -consideta Cominia. Sw. -

I'varia neglecta. Rich. - -

Oxandra virgata. Rich. - -
                                                                  - Hard wood; leaves esten by animals,
132. Yaya - - - -
                                                                    Hard wood.
                               Oxandra virgata.
133. Yaya cimarrona -
                                Mouriria myrtileides, Poiret,
                                Columbrian reclinata.
                                                         Brong.
                                                                 _ | Hard wood.
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The series of woods of the Philippine Islands, exhibited by the Economica Sector of Manual 187, p. 1341, are entitleded by Sin B. Senosenson, (122), H. M. (Chand by Sin B. Senosenson, (122), H. M. (Chand by Sin B. Senosenson, Sin Series and Sin Senosenson, Sin B. Senosenson, Sin consists of 213 specimens. It is very such to be regretted; Constit to me committees required in the collection is nanceompanied by any list, or the series of raw produce or that country, for which the catalogue, which would have very greatly increased its Jury awarded a Prize Medal (see p. 71), when the water of the control of the product of the control of the product of the pr

Erithelis fraticosa, Lia,

the collection of Tunis raw produce.

WOODS OF TERKEY.

A valuable series of some of the chief woods of Turkey are exhibited; the specimena are large and capital, but they are shown in the rough, so that the nature and characters of each wood can scarcely be distinguished the following are the chief woods shown:—

```
. Ardij amdji
                                Fagus sylvatica - - Used for ship-huilding and for wheels.
                                Pyrus communis -
                                                            - Cromes furniture wood.
 2. Armood aradil
                          - Carpiaus betulus - - Fire-wood; rough work
 3. Bear guargang
4. Djinnak aradji
5. Djinnar aradji
6. Djumaar aradji
7. Ehklasi aradji
                                Acer pseudo-platanus -
Fraxinus excelsior - -
                                                                  Furniture wood.
                                                                 Purniture and house work.
Used for furniture.
                                Acer, sp. - - -
                                Sorbus demestica -
                                                            - I sed for grafting.
7. Fakthel arsayı — cerons utanayan — Fagus, sp. — Fagus, sp. — Fagus, sp. — — Tilis vulgaris — — Jugians regis — — Populus nagra — — Populus nagra — —
                                                                 I sed for carving and fine work.
10. Jeevia aradji -
                                                            - Furniture wood.
- Used for house-building.
                                                            -
12. Karrar aradji - - Ulmus excelsa - -
                                                                 Used for common carpentry.
13. Keerasje -
                          - Prunus cerasus -
                                                            - Furniture wood.
14. Maatsche aradji – Quereus rubra –
15. Pfundook aradji – Corylus Avellana –

    Useful timber.
    Used for pipe-atems.

                                Taxus baccata.
    Tezham aradji
                          - Pinus Plees - -

    Timber for general purposes.
    Used for light house-work.

18, Zugunt -
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Besides these, specimens of Pinus orientalis, from Damnscus; Quereus regilops, from Litekoftcha and Walla-chis; Juniperus communis, from Smyrren; Juglans regia, from Damnscus; Quereus coccines, from Rhodes, Morus alba, from Damascus, &c., are also exhibited.

WOODS OF TESCANY

A valuable and excellent collection of Italian woods is exhibited by the ROYAL TECHNOLOGICAL INSTITUTE of TUSANY (47, p. 1294), forming part of the series of Tusacan raw produce, for which the Jury awarded a Prize Medal (see p. 71). The collection consists of two series; the one being of furniture or ornamental woods, the other of timber trees, or woods of construction so out as to show the character of the wood in the best and most instructive manuer; several of the woods are scarce and highly interesting. The collection comprises panel and block specimens.

muneri; severili of the secon are recent and agany interesting. In the collections compress puner asso uses a presume a president in width, quarterelect labels, consisting it must go inches in width, quarterelect labels, consisting it must be a second of the second of

 Acacia Julibrissia Gag 	rgia alborea. 25. Ilhus typhina Somacco,
2. Acer pegundo Neg	
3. Escullus bippocastanum - Cast	ingno d'India.
4. Aijanthus glandulosus Aila	
5. Alnus cordifolia Onto	ano Napoletano. eut in half, showing bark, longitudinal section, and oblique
6. Betula alba Betu	nie. transperse section:
 Response tia pasy rifera - More 	ro maje lfero.
8. Cercis canadeusts Silio	mastro del Canada. 27. Acacia lophantha.
9. Cercis viligonstrum Nilig	nuastro. 28. Acer campestre Loppa.
O. Cotisus laboroum Mag	egio ciondolo. 29. Acer negundo Negundo.
I. Disapyrus lotus Lote	 Acer pseudo-platanus Acero fico.
2. Elmagnus bortensla Oliv	ro di Boemia. 31. Allanthus g'andulosus Allanto.
3. Fraxipus americanus Fras	seine Americano. 32. Amyris polygama.
4. Fraxipus sambucifolia.	33. Betula niba = Betnia.
5. Gymnociadus canadensia - Albe	ero morio. 34. Buxus sempervirens Bossolo.
6. Joglans nigra Noce	a nero. 35. Carpinus betulus Carpine.
7 Kodemiteria paniculata.	36. Castanea vesca Castagno.

WOODS OF "	resc	A	Y-continued.
37. Celtis australis -	_	_	Girncolo.
38. Citres aucantium -	-		Arnocio,
39. Coryius avellana -	_		Nocciolo,
40. Crategus coccinea			
41. Cupressus pyrami-lalis	-	_	Cipresso,
42. Ekengnus hortensis	-		Olivo di Boemia.
43. Encalyptus populifolla			
44. Fagus sylvatica -	-	_	Faggio.
45. Fraxinus excelsior -	-	-	Frassino.
46. Gleditschia trineantho		-	Gledischia,
47. Gymnocladus canadeo	sis	_	Albreo morto.
48. Hex nouifelium -	-	-	Agrifoglio,
49. Jugians nigra	-	-	Noce nero,
49. Juglans nigra 50. Juglans regia	**	-	Noce.
51. Juniperus virginiana	-	-	Ginebro di Virginia.
52. Kælreuterin paniculat	n,		
53. Laurus camphora -	-	-	Albero della confora.
54. Leurus nobilis	-		Alloro.
 Melia Azedirachta – 	-		Albero di Zacebro.
56, Morus alba 57, Olea europea	-	-	More.
57. Olea europæa	-		Olivo.
58, Pinus Abies	-		Abeto.
59. Pinus Cedrus		-	Cedro del Libano.
 Pinus halepensis — 	-	-	Pino d'Aleppo.
6t. Pinus Pioes	-	-	Pine domestico.
62. Pistacia Lentiscus -	-	-	Sondro.
	-		Piatano d'Oceldente.
64. Populus aiba			Gallice.
65. Populus nigra	-	-	Albero,
66. Prunus canadensis -	-	-	Clliegio del Canada.
67. Prunus cerasus -	-	-	Cillegio.
68. Puulea granatum -	-	-	Melagrano.
63. Pyrus Malus			Melo.
70. Quercus Cerals - 71. Quercus criuita -	-		Cerro,
11. Quercus criuita -	-	-	Cerro.
72. Quereus Ilex			Leccio,
73. Quercus pedimentata			Querce.
74. Quercus meemosa -	-	-	Quorela farnia.
75. Quercus Robur -	-	-	Quereis Isehin.
76. Querous Suber -	-		Sughera.
77. Khamnus alternus -	-	-	Alaterno.
78. Rhus Cotinus 79. Rhus typhina	-	-	Scotano. Somacco.
19. Khus Iypama	-	-	Somacco.
80. Salix babylonica – 81. Salix vitellinn – 82. Sterculia platanifolia 83. Styrax officinalis – 84. Tamarix africana – 85. Taxus baccata –	-	-	Satero piagento.
er, caux vitellinh	-	-	Sairio.
ea. oteremia platanitotia	-	-	otercuis.
83. Styrex omethans -	-	-	Storace.
04. I smart africum -	-	-	Tamarigio.
86, Ulmus campostris -	-	-	Olmo.
87. Vitex again castus	=		Agno easto.
or. Thex agains castas	-	-	Agno casto.

Some very excellent veneers of walnut wood, cut in a peculiar manner, invented by the exhibitor, are shown by A. Divert, of Florence (99, p. 1298). The Jury nunrded a Prize Medal for these.

VIII, MISCELLANEOUS SUBSTANCES,

Under this head are classed those vegetable substances not properly coming under any of the preceding divisions. It would have been easy to have included in it a very large number of new and little-known products, and of anbstances chiefly interesting as curiosities; the Jury, however, considered that in so doing they would merely increase the lougth of their Report, without leading to any practical result; they have therefore entirely omitted all meution of these substances, and simply here refor to

one or two articles especially deserving of notice.

A very beautiful collection of anatomised plants, flowers, and leaves, is exhibited by E. King (2, p. 195). In these remarkable dissections, the whole of the soft and In these remarkable dissections, the whole of the soft and pulps matter of the plants is removed, and may the plaps in termoved, and may be pulpy matter of the plants in removed, and may of woody times. This effect is produced by steeping the plants in rais-water, in which they are suffered to remain until the whole of the soft parts are decomposed; they make the plants in the plants in rais-water, in which they are suffered to remain until the whole of the soft parts are decomposed; they matter carefully removed with a braith; after this the remaining filtenes part is blueched in a week solution of the plants thiorard of index and itself and the weeks to several months, and its success essentially depends on the minute that the parties of the success essentially depends on the minute that the parties are bestowed in the braising a way of the deposition of the parties are better than the staple, and of fineness and elasticity

composed pulpy matter. The specimens exhibited by E. King are remarkable for their beauty and the very perfect manner in which the whole of the woody skeleton of the plauts has been preserved; the Jury accordingly awarded a Prize Medal far them,

Some excellent specimens of similar anatomised plants are likewise contributed by Lieut. Tellev (5a, p. 195*). These were deemed deserving of Honourable Mention.

Various small collections of dried or preserved plants and flowers are shown by different exhibitors; namely, preserved flowers intended as botanical illustrations, by W. Stevens (3, p. 195*); preserved pitcher plants, by E. W. (Cooke (2a, p. 195*); dried mosses, by M. Rock (3, p. 195*); and dried mosses and sea-weeds by E. Holler (128, p. 205*)

A series of well-prepared and enrefully-dried ferms from Madeirs is contributed by Genoveya Gonsalves (218, p. 1319); this was deemed warthy of Hommrable

Finally, the Jury would specify in this department, as deserving of Honourable Mention, the specimen of selected teazles for the use of wool-dressers, exhibited by ROTSCH and REICHEL, in the Austrian Department (98, p. 1012).

EDWARD SOLLY, REPORTER London, February 1852,

PART II .-- ANIMAL KINGDOM. A .- FOR TEXTILE FABRICS AND CLOTHING.

Woor.

The raw material of most importance and in most general use for the above purposes is Woot. This is a peculiar modification of hair, presenting, when viewed under the mieroscope, fine transverse or ablique lines, from 2,000 to 4,000 in the extent of an inch, indicative of an imbricated scaly surface, on which, and on its curved or twisted form, depends its remarkable felting property and its consequent value in manufactures,

Most quadrupeds possess the woolly variety of hair as

an under-clothing, but in a small proportion, and hidden by the smooth, exterior, coarser, and straighter kind of the woolly variety of hair is developed in excess; and in the wild sheep (Oris answar and Oris musimon) the woolly variety of hair is developed in excess; and in the domesticated breeds the fleece has been modified and improved, in various degrees, by crossing the breeds, choice of climate and pasture, and careful attention and defence during its growth, until not only has the original coarse character of the product disappeared, but quolities of wool of different kinds and of different degrees of of wood of different kness and superiority have been obtained, which are generally divi-sible into two classes—the one better adapted for "carding," the other for "combing," and both available for a great variety of useful and elegant textile fabrics.

In judging of these qualities in the wools exhibited, the Jury have tested the fineness and elasticity of the fibre; the degrees of imbrication of the scaled surface of the fibre as shown by the microscope; the quantity of fibre developed in a given space of the florce; the comparative freedom of the fleece from extraneous matters; and the skill and care employed in preparatory processes; such for example, as that termed "scouring" the fleece, upon which depends its liability, or otherwise, to mut ut the bottom af the stuple.

In these examinations the Jury have to acknowledge the valuable aid of well-versed English and Poreign Experts. After the comparison of the wools exhibited by the growers of different nations, the Jury are unanimous in making the first mention of those transmitted from Germany, as being pre-eminent in the qualities of highest value

Under "German Wools" are included those from Austria and Austrian Silesia, Hangary, Prussia, Saxony, and Polish Silesia,

Austria

of the compouent fibres, the spiral curves of which are close and regular, and are immediately resumed after being obliterated by stretching the fibre, -the length of which is also complerable for wool of this "carding quality, the most valuable for the finest descriptions of eloth. One of the Experts in wool characterises the apecimens, exhibited by Messrs. Figdor and Sons "as a superior and high-bred wool-the fuest and most legitimate specimen in the whole Exhibition." The degree of superiority over some of the wools in the same depart-ment, which was contested by another Expert, was admitted by the first to be slight; whilst opinions were unacimous as to the superior character of the wools, generally, from Austrian Silesia and Hungary, The Jury, therefore, appreciating the difficulty of arriving at a co rect judgment of the degrees of individual merit, especirect judgment of the degrees of individual merit, especi-ally from samples giving on innectain indication of the average value of the produce of flocks, came to the con-clasion of recommending the award of the Consell Medal, as notified in the Second Section of the Report, so as to signify their appreciation of the highest elses of words, and to distinguish the manifestly superior qualities of the wools exhibited by individuals by the award of the Prize Medal; and they place first on the list the firm of MM. ISAAC France and Sons, of Vienna.

ISAAC FIGDOR and SONS, of Vienna,
COUNT H. LARISHM MONINGER (92, p. 1012).—The
product of a flue and well-known flock, from Niksia, exhibited by four fleeces, which present similar exclude
qualities to those of No. 90, the difference, on the whole,
being so slight that the Jury also award the Prize Medal

to Covy II, Laussen Modynten, of Silesia.

CONYA TAYON YON MITTANOWN (9), p. 10127.—These
fine and high-bred fleeces of a pure merino flock, from
Silesia, exhibit the valuable qualities of fineness and
elasticity of fibre in so eminent a degree that the Jury
award the Prize Medal to their exhibits.

COUNT JORGH HEYADAY VON KETHILKEY (89, p. 1012).

—The fleece, from a fleec in Hungary, is an unwashed specimen, but of a very fine quality of fibre; it is a little inferror to the lest Silvain examples only in being some what thinner or poorer in substance. The fine inheration and elastic properties of the fibre are, however, so remarkably characteristic of this freece, that the Jury navard to its exhibitor the Prize Medal.

The washed and unwashed wools exhibited by COUNT O. von Wallis (93, p. 1012) (Bohemia), and by Messen. PANNA and Alexis, (94, p. 1012) (Transylvania), present qualities which entitle them to Honocarable Men-

Zollverein.

W. Geart (803, p. 1094).—The fleece of wool exhibited on a stuffed sheep from the merion fleek of this exhibitor, at Minchenhoff, merits, from the flueness and eloseness of the flue and its excellent "carding" qualities, the award of the Prize Medal.

LEGATIONS-RATH KUEFFER (29, p. 1049).—The merino fleeces of two-year old ewes, from thromberg, here exhibited, are remarkable for the fluences and regularity of the staple, and illustrate favourably the advance of the improvement of wool in the Prussian districts of the Middle Visitula: the Jury deem them to merit the award of the Prize Medal.

B. LTERNIE (24), p. 1049).—The fleeces transmitted by this exhibitor from Zeveptodi, nor livedu, are very remarkable for those qualities which, like the Austrian-Sitesian woods, adapt them for the flabrication of the finest eloths, and the Jury award to Mr. LCHREAT the Prize Medal.

G. L. NORDMANN (30, p. 1049).—The fleeces from Liszkowy, near Mowraelaw, are also fine specimens of Pransian wooks, remarkable for the great regularity in the staple, and meriting the award of the Prize Medal to M. Noarmann.

ORTHIGAGE AT YOU BRUNNER, (45 and 46, p. 1050). clothing — The Secces of a run and a ewe from a merino flock at Bellschwitz, and the specimens of wool indiscriminately taken from a merino flock at Roesuberg, though rather inferior in quality to the fluest Silesian wools, manifest a fineness, otheres, and elasticity of fibre (Class XII.

and a regularity of staple which, in the opinion of the Jury, merit answard to the exhibitor of the Prize Medal. The Belleshwitz flock was procured by the Oberburggraf in Syain in 1814, and afterwards improved by additions of the finest Naxon and Silesian races in 1820 nod 1824.

M. Ockel, for the Royal Administration of Frank-Entring (27, p. 1049).—The fleece of a rain and of ewes shorn in the spring of 1850, and the samples of wools from the flock kept at Wrieten on the Oder, under the above Administration, manifest qualities which the Jury have considered to entitle the Administration to the

awaind of the Print Modal.

Of other children in the Zadaveria, Baron Of the other children in the Zadaveria, Baron Of the other children in the Company of the staple in two examples of weal in florent (Ceru Normania (S.), 1943), for the florency (Ceru Normania (S.), 1943), for the florency of the staple in two examples of weal in the Company of the

United States of America.

Mr. Cockerll, The wool transmitted by this exhibitor from Northville is well got np, and exhibits, like the preceding specimens, a quality of fiber, indicative of care and skill in the development and improvement of the force which selfs for the present of the present of the force which selfs for the present of the pre

fleece, which calls for the award of the Prize Medal, Mr. J. II. Eversc (18s. p. 1449).—The wool, transmitted from Washington, Pennsylvania, by this exhibitor, is remarkable for the good substance of the fleece, as well as for the quality of the fibre, and the Jury award to birn the Prize Medal.

Messrs, Kismen and Co. (500, p. 1466).—The specimens of fine clothing wool, exhibited by this firm, also develop qualities which merit, in the opinion of the Jury, an award of the Prize Medal.

Messrs Powers and Brown (201, p. 1440).—The

Messrs. Pseuctss and Brown (201, p. 1449).—The samples of fine combing wool transmitted from Ohin exhibit qualities which merit the award of the Prize Medal.

Russ

N. N. SCHLOSS-TAIKATEN (128, p. 1370).—The specimens of wool from Livonia here exhibited appear to be derived from a flock of Silesian origin, and manifest all those characters of the fibre which adapt it for good clothing purposes; and the Jury award to the exhibitor an Honourable Mention.

Ansong other examples of wool of a good and valuable

 This Firm's name is inserted in the Award List of ass Xtt. quality in the Russian Department, the Jury select, as deserving Honourable Mention-T. Gamalet, of Bessarabia, district of Ackerman (123, p. 1370), samples of the merino breed; - VASSAL, of Tauride, district of the Dnieper (122, p. 1370), specimens of meriuo wool;-L. & F. PUILIBERT, Tauride, district of Melitopol (124. p. 1370), specimens of merino wool;—A. Aknoonporr shah Mirza, of Stavropol, district of Pintigersk (126, p. 1370), specimens of white and black wool, unwashed; -8. Groolo, of Gork (130, p. 1370), for specimens of black wool, nawashed;—The Farm or Gontowartza, of Mohileff (121, p. 1370), for specimens of merino wool; Mahomet Khan Yorznasu, of Derbent, in the Khanate of Kinrin (129, p. 1370), for specimens of white wool, unwashed: -J. ABRANOFE, of Eksterinoslaff (131, p. 1370), for his examples of fine unwashed Cashmere goats' hair;
—and L. K. Nanissikin, Saratoff, district of Balasheffsk.

J. L. GRAUX (245, p. 1188).-Council Medal. The specimens of the new variety of wool exhibited by M. Graus and which have been deemed worthy of the recommenda-tion of the Council Medal, have already been noticed in

the Second Section of the Report.

LE GENERAL GROD (OR L'AIN: (1249, p. 1237).—The fleeces of merino wool, from the exhibitor's flock at Nut. although of a thin staple, and apparently not full-grown, display the qualities adapting it for the finer descriptions of cloth in so excellent a degree, that the Jury award to Général Girod (de l'Ain) the Prize Medal.

NATIONAL SHEEP-toLo of RAMBOULLET (1986, p. 1230),—The qualities of the four fleeces of the true merinos, exhibited by this valuable institution, have also been considered such as to merit the award of the Prize

E. Lerevae (345, p. 1239).—The specimens of wool in tufts transmitted by this exhibitor from Gevrolles (Coté d'Or) are long in the staple and very sound, forming a very superior description of combing wool, and, as such, deserve the award of a Prize Medal. F. RICHER (354, p. 1194).—The two fleeces of rams,

of pure meriuo breed, two years old, transmitted from Gonvix, Calvados, have also appeared to the Jury to merit, in the comparison of the wools from France, the award to M. Richer of the Prize Medal. The exhibitors of wools in the French Department

whom the Jury would distinguish by Honourable Mention are-Eggarage and Sox (142, p. 1178); Majorte and Son (900, p. 1223); MM, Baungara and Son (38, p. 1173); for the specimens of combed wool, spun by an apparatus of the exhibitor's construction, M. Malingie 22, p. 1192), for the fine combed wool, the produce of a flock reared at the Agricultural School of La Charmoise, Pont Leroy (Loire et Cher); MM. LAROQUE and JAQUEMET (901, p. 1223), for their assortment of spun wool for knitting blankets; G. RIVAUE, of Petit Rochefort (987, p. 1226), for his good fleeces of merino wool; V. E. Waamont (1048, p. 1229), for his specimens of wood in skeins; MM, PATURLE-LUPIN SEYDOUR, SKINER, and Co. (1381, p. 1242), for their samples of cleansed wools; J. A. Lenasson DE MONTLEAU (1498, p. 1248). for his fleeces of merino wool; and MM, BERNOVILLE, LABSONNIER, and CHENEST (1548, p. 1250), for their eaamples of cotaled wool and woollen varu.

Spain.

D. JUSTO HERNANDEZ (230, p. 1344).—Of black and white wool from Salamanca four samples have been transmitted by this exhibitor:—1. Unwashed wool for elothing purposes; 2, Unwashed wool for worsted; 3, Wool washed before shearing, in the Saxon manner; 4. Wool sheared in Pebruary, 1851. M. Justo Hernandez has introduced into Spain the custom of clothing the sheep from the beginning of December to the end of May; and amongst the specimens transmitted to the Enhibition is a fleece which has been so defended, and one that has been exposed to the direct influence of the utmospheric been exposed to the difference in the quality is remarkable, and speaks decidedly in favour of a temporary protection of the fleece. The good qualities of most of these

specimens of Spanish wool have appeared to the Jury to merit for D. Hernandez the award of the Prize Medal.
Of other samples of wool traismitted from Spain the
Jury select as deserving Honourable Meation — (225,
(p. 1345), S. MONLERO, of Seville, for his samples of fine unwashed merino wool; and (226, p. 1343), the Province of HUELA, for the good quality of wool exhibited from the flocks fed on the Sierra de Audevalo,

United Kingdom of Great Britain and Ireland, C. DORRIEN (11, p. 201*) .- The samples of wool transmitted from Chichester, by this exhibitor, give evidence of a very high-bred flock, and manifest qualities of fibre, for which the Jury award the Prize Medal.

for which the Jury award the Prize Medal.

R. Millarse (85, p. 201¹).—The fleevest, showing a long staple, grown in the consider of Meath and Galey, support in the consider of Meath and Galey, county of Wicklow, exhibit qualities of fibre for which the Jury award the Prize Medal.

J. G. Rizon (84, p. 201¹).—The specimens of wool from the Southdown breed also exhibit qualities of and excellence as to call for the award of the Prize Medal.

The fleeces of Cheviot wool, grown at an elevation of .600 feet above the level of the sea, cabibited by Mr. HENDERSON, of Wooler, Northumberland (80, p. 201*), are remarkable for the fine silky quality of the fibre, which is well adapted for the blanket unnufactory. The Jury regard these specimens as deserving Hononrable Mention. The Jury also desire to record Honourable Mention of the fleeces of fine German wools, exhibited by Mr. C. Lappert, of Leeds, under 97, (p. 2017); and the series of wools shown by Mr. Chersenorous, of

An object of curiosity is shown in the English Depart-An object of curiosity is sawwith to be suggested as ment, being a Sonthdown ewe, stuffed, seven years old, which had never been shorn. The weight of the accumulated annual fleeces was 36 lbs. This specimen is exhibited by Mr. J. Moong, of Littlecott Farm, Pewsey, Wilts (78, p. 201).

Australia.

Lieut.-Col. E. Macanthen (13. p. 989, 990).-The case, containing 132 speciatens of merino wool, exhibits very favourable examples of the condition of the fleeces of that valuable variety of the sheep in New South Wales, The Jury regret that the quantities transmitted are too small to afford the requisite means of judging of the uverage qualities of the flocks; but, taking into consi-deration the important services readered by Lieut, Col, Macarthur to the colony by his persevering and successful endeavours to develop a sonree of wealth from the merino breed of sheep, the Jury award to him the Prize

Medal. The first importation of wool from New South Wales into England in 1807 was 245 lbs. In the year 1848 the quantity from New South Wales, glone, amounted to 23,000,000 Bs., valued at more than 1,200,000/.

The Jury desire to enpress, by Honournble Mention, their opinion of the good qualities of the wools exhibited by Mr. T. Learnonth (6, p. 989), marked (T); by

Messrs, Stevens and Thomson (347, p. 999) (47); and

by Mr. GRANT, of Tasmania Cape of Good Hope,

With regard to the wools exhibited from this colou Nos, 31 and 32 are fine samples, but are too small in quantity to sopport a judgment us to the average value of the fleece from the flock. The Jury, however, regard the samples transmitted by RETZ, BREDA, and CO. (30, 950), and by D. G. Van Breda (32, p. 950), as de-erving Honourable Mention. p. 950),

The specimens of wool, the production of Cachemere goats kept by His Royal Highness Paince Albert, at Windsor, and cabibited by His Royal Highness, are examples of an additional staple new to England, and give encouragement by their quality to the repetition of similar efforts to multiply and preserve that remarkable variety of the genus Capra. This staple includes, besides the closer and finer hairs answering to the wool of sheep and the far of other quadrupeds, a coarser or stronger kind of white hairs. Both kinds are of value in manufactures—the stronger hairs, which require to be picked out prior to attempting to manufacture; the five portions being afterwards used in the fabrication of coarse woollen cloths. This example of Enropean Cachemere wool would have received a Medal from Jury IV had not one been already awarded in it by the Jury of Class XII.

HAIR AND BRISTLES.

Russia

The best developed and most valuable examples of these productions are exhibited in the Russian Department, in which the Jury select-

HASILE KOUDRIAFIZERY JAMESOFFSKY (340, p. 1382), for the award of the Prize Medal, merited by the sa-perior qualities of the horse-hair exhibited by him under that number. In the sample of white hair from the tail, the hairs are 40 inches in length, and of the first quality for evenness, elasticity, and shining surface. In the sample of black tails, the hairs are 42 inches in length. Fire specimens of white hair from the mane, of length. from 28 to 30 inches in length, both transparent and opaque, and good samples of horse-hair for firmitare, both drawn and curied, black, grey, and white, are also

shown by the above Exhibitor.
Of the samples of bristles exhibited in the Russian Department, the Jury select—
SEMESOF and FALEYER (135, p. 1370), as deserving, from the superiority of the combined qualities of strength, elasticity, and flueness of surface, the Prize Medal. These qualities are particularly shown in the packets of the sorted variety called "okatka."

The Jury regard as deserving Honourable Mention the fine-textured and well-formed bristles shown by the pensants Koriakin and Monoikoff, of Vologda, under (134, p. 1370); and the selected bristles, of different qua-lities, shown by J. Zolotorest, of Kalonga, under 136 (p. 1370); the prepared horse-hair for nuttresses, shown by A. Beznoukavnikorr-Sokolorr, under 248, (p. 1374); and the plames of horse-tails, and black bufffalo tails, exhibited by P. Ivanorr, of St. Petersburgh, under 159, (p. 1375).

Belgiam

Among the examples of hair and bristles transmitted from Belgium, the Jury deem worthy of Honourable Mention samples of hogs' bristles, prepared and bleached for painting-brushes, exhibited by H. HAUSSENS-HAP, of Villoorde (257, p. 1159); and the samples of horse-hair, horse-tails and manes, and pigs' bristles, shown by II. SOMZE-MAHEY, of Liège* (265, p. 1159).

MM, CATZ and Co. (30, p. 1144).-Specimens of drawn horse-hair for fiddle-sticks, and horse-hair for stuffing fur-niture, show qualities deserving Hanourable Mention.

Zollverein.

H. Fudikar, of Elberfeld (596, p. 1083). Specimes H. PEDBAR, of Elberfeld (2008, p. 1083). Speclineous of horse-bair for upholstery purposes, deserver, for their fine and equal texture and elastic qualities, Honomable Mention; and the Jury also award the same distinction to GOTTLIER FORSET (813, p. 1095) for his well-selected series of hogs? bristles and peleked hogs? hair from Halle.

Spain.

D. D. DELGADO, of Saragossa (231, p. 1344).—This exhibitor has transmitted some interesting examples of the hair of the rabbit and hare, shaved off the skin by a mechanical process. The vast numbers of those prolific

* These exhibitors receive Medals in Classes XVI. and XXVIII., in whose Award Lists their names appear.
† This exhibitor receives a Prize Medal in Class XXVIII., In whose Award List his name appears,

rodents in Spain would ufford a large supply of this kind of hair; and the Jury desire to signify their encourage-ment and approbation of D. Delgado's industry by making Hoseurable Mention of these specimens,

WHALEBONE.

The substance so called is closely analogous, in its chemical and physical properties and mode of growth, to hair and bristles, but is developed in compact plates which resolve into stiff bristles, at their free margin, from the thick gum at the circumference and palatal surface of the apper jaw of the animals of the whale tribe. The most valuable kind of whalebone is obtained from the great Arctic whale (Bulean systicatus), in which the platte or 'blades' are arranged in several rows, the outer-most consisting of the longest plates, attaining, in a full grown whale, the length of from 8 to 12 feet.

England,

Mr. HENSY HORAN (103, p. 201, 202). - This exhihitor shows well-selected examples of whalebone plates from the Arctic whale (Balana mysticeius), which yields the largest and best kind; from the Antarctic whale (Balana australis), which uffords the second best kind; and from the great finner whale (Bulamoptern Boops), which allows the shortest and coarsest plates. With these examples of the raw material, Mr. Haran exhibits specimens in various states of preparation, and numerous and ingenious applications of the prepared whalebone, of and ingestious apparations of the prepared understood, in different colonis, as, e.g., for covering whip-handles, walking-sticks, and telescopes, and in the form of shavings for plaining, like straw, in the construction of light lasts and bonnets. The Jury, taking into consi-deration the illustrative collection of this new material is connexion with its various applications, adjudge to Mr. Horan the Prize Medal

Horan the Prize Media W Ext.AL and Co.* (104, p. 202*),—The same grounds which are specified in relation to No. 103, sustain the ward of the Prize Medial to Mr. Westall, in whose col-lection the Jury have to specify more especially the great variety of filamentary modifications of the whaleone material for numerous useful applications

The fine blades of whalebone from the Balana mysticetas, exhibited in the United States Department, under 537, (pp. 1467, 1468), by Mr. L. Gondann, deserve Ho-nourable Mention, as do likewise the specimens of Balen plates from the Bulana australis, exhibited by Mr. S. Mosss, under Nn. 237 (p. 997), from Van Diemen's Land.

The most valuable kind of Silk, and that which is the subject of the most extensive and pains-taking culture, is a secretion of the larva of a species of moth, indigenous a secretion of the larva of a species of moth, indigenous to China, called, par excellence, the "silk moth," and by entomologists, Bondyx mori, from its native and favourite food, the leaves of the mulberry tree. The species was first introduced into Enrope in the reign of the Euperor Justitulan, by two Nestorian monks who had travelled in China, and who succeeded in hrighing a quantity of eggs, secured in a hollow cane, to Constantinople, where they were hatched, and the larvæ fed and reured on the leaves of the white mulberry. The breed-ing of silkworms in Europe was confined for six centuries to the Greeks of the Lower Empire. In the twelfth century the rearing of silkworms and the manufacture of silk were introduced into Sicily; in the thirteenth cen-tury into Ituly; whence this important branch of in-dustry has been successively established in Spain, France, England, and most of the colonies with a suitable cli-

site. Silk is a secretion of a pair of long glandular tubes which terminate in a prominent pore or spinsaret on the under lip. Before their termination they receive the secretion of a smaller gland, which serves to glue together the fine filaments from the two 'serieteria,' the apparently single thread being in reality double, and its ounbity being affected by the quality or difference between

* These exhibitors receive their Medals in Class XXVIII... in whose Award List their names appear.

the secreting power of the twn serieteria. worm commences spinning when it is full grown, in some convenient spot affording points of attachment for the first-formed thread, which is drawn from one part to the other until the body of the larva becomes loosely en-elosed by the thread. The work is then continued from one thread to another, the silkworm moving its head and spiuning in a zigzag way, in all directions within reach, and shifting the body only to cover the part which was beneath it. During the period of spinning the cocoon, which usually takes five days for its completion, the silkworm decreases in size and length considerably; then casts its skin, becomes torpid, and assumes the form of the chry-

The main object of the silkworm breeder is to obtain cocoons of a large size, composed of a long, strong, very fine, even, and lustrous thread. These properties of the silk have been realised in the highest degree in the speeimens transmitted from France, in which country the development of the silkworm has for a long period exerdevelopment of the silkworm has for a long period exer-ised the care and pains of many able breeders, and of late years has been the object of systematic advancement by the Courts Society of Serticienture of France. The Bombys word, having been bred and reared under the special care and management of man during a long suc-

cession of ages, may be regarded as a domesticated species of insect; and it has become the subject, as in the higher domesticated races of varieties—of which those called 'Sina,' 'Syric,' and 'Novi,' in France, are examples. The 'Sina' variety of the silkworm is known and

esteemed for the pure whiteness of its silk, the thread of which is fine, but weak, and not very lustrous. "Syrie' variety is of large size, produces a cocoon abundant in silk, but the thread is rather coarse, and inclines to a greenish tint. The 'Novi' race is small, but the to a greenish tint. The 'Novi' race is small, but the cocoons are firm and well made, and the silk is lustrous, but has a vellowish tipt,

The specimens of silk exhibited in the French Department are numerous, and the degrees of excellence hardly ment are numerous, and the degrees of excellence hardly to be discriminated in the fluset examples selected for the award of the Prize Medal. In specifying the names of the exhibitors so distinguished, the Jury propose, therefore, to limit themselves to the mention of the more remarkable eircumstances which they have found to be associated with certain examples. The Jury select, as the first in order of merit-

Major Court DE Baonno Baonsez (782, p. 1218), exhibitor of unbleached silk and silk eccoons from the Chiteau de St. Selves, near Bordeaux, Department de la Gironde. The eocoors are remarkable for their large size and regularity of form, and the silk for the unusual size and regularity of form, and the silk for the unnasan length of the thread, its natural pure white colour, its fineness and fustre. The circumstances under which this superior quality of silk is obtained are certified—in a Report by a *Committee of the Agricultural Society of the Girosoft, signed Philippar, and dated 28th April

1847-to be as follows:-

in 1836, Major Bronski reared separately the eggs of the three varieties, 'Sina,' 'Syrie,' and 'Novi,' Is and 'Novi;' and on the exclusion of the image, or per-fect insect, he associated the males of the 'Novi' with feet insect, he associated the manes of the front with the finalise of the 'Syrie; and the hybrid ova were hatched at the ordinary period in 1838, the same opera-tions being repeated in 1839 and 1840. With regard to the race 'Sins,' M. Bronski, in 1857, separated the white from the black worms as soon as they were hatched. He then selected the largest and best-shaped cocoons, and made a special collection of the eggs from the moths excluded from those cocoons. This procedure was repeated in 1838 and 1839; hat in 1840 be associated the males ex-1838 and 1859; not in 1840 he associated the issues ex-cluded from the large ecocons of the black worms with the females excluded from the largest ecocons of the white worms. In 1841 he associated the make of the 'Sina' race with the hybrid females obtained from the abovedescribed crossings of the 'Novi' and 'Syrie' hreeds,

By these and similar experiments M. Bronski at length appears to have succeeded in obtaining a race of silk-

worms not subject to disease, producing a large and equal sized ecoous of a pure white colour, the silk of which is equal in all its length, strong and lustrous, and which is certified to present an average length of thread of 1057

metres (1154 yards English). The Jury, in awarding the Prize Medal to Major Count Bronski, desire, at the same time, to give expression to their unanimous opinion as to the importance of the resumption, by the highest administrative and scientific authorities in France, of those investigations which had been entered upon with a view to determine the stability and commercial value of the results of M. Bronski's experiments and discoveries in the amelioration

of the breed of silkworms. The French exhibitors of silks of fice qualities are merous: and amonest these the Jury award the Prize

Medal to-MM. ALCAN and LIMET (1050, p. 1229); in regard to whom the Jury desire to express their approval of the new mode of 'filature à froid,' and of the mode of diworm (Tussar), both of which insprovements are due to

MM. Alcan and Limet. MM, ARDUN and CHANCEL (S. p. 1170). C. Brauvats (1076, p. 1229), to whom the silk-ounn-factors in France owes much, for his establishment of a school of sericiculture, for diffusing the true principles on which the development, breeding, and improvement of

the silkworm should be carried on, L. Boudon (1105, p. 1230), C. Chanbon* (113, p. 1196)

J. CRANFANHET SARGEAS (114, pp. 1176, 1177), MM. COUDERC and SOUCABET® (96, p. 1176), MM. DROUIN and BROSSIER (169, 1181).

JAME, BIANCHI, and DESEIONEUS (1275, p. 1238).

JAME, BIANCHI, and DESEIONEUS (1275, p. 1238).

With this series of cocoons and of raw and thrown silks are associated twenty-five ingenious daguerreotype figures, of the silk-thread as viewed by the solar microscope, in illustration of a valuable memoir by M. Duseigneur, in course of publication at the charge of the Chamber of Commerce and of the Agricultural Society of Lyons.

E. DE TILLANCOURT (697, p. 1212). A. DUVAL (189, p. 1183)

GUERIN, MENEVILLE, and ROBERT (784, p. 1218). LAPEYRE and DOLBEAU (1292, p. 1238).

J. MENET[®] (1657, p. 1256).L. MOLINES (647, p. 1209). MM, REGARD BROTHERS (1426, p. 1244), MM, RUAS and Co. (1464, p. 1246).

L. SOUBEVERND® (1490, p. 1248).

TEISSIES DU CROS, L. and E. (1031, p. 1223).

TEISSIES OF CROS, L. and E. (1031, p. 1223).

Tele Jury, in restimony of their admiration of the qualities of the silk exhibited in the French Department,

unanimously voted a recommendation of the award of a Conneil Medal to the CENTRAL SOCIETY OF SCREEKUL-TURE OF FRANCE (see page 69). The Jury desire also to express their estimation of the highly promising qualities of the silk exhibited by the colonists in Algeria; and to specify as deserving Houourable Mention the following exhibitors of raw silk in the

French Department: M. A. HARDET (17, p. 1172). M. Moris (Algeria) (39, p. 1261)

M. MORIN (Algeria) (39, p. 1261).
M. G. L. AFFOURTIT (149, p. 1216).
M. C. Harbat (410, p. 1197).
M. Barries Brottelers (41, p. 1173).
L. DE BARTHELATS (757, p. 1216.)
Madame BÉNOVILLE (760, p. 1216.)
MM. V. BONNAL RAIG CO. (429, p. 1199).

M. Bonnetont (771, p. 1270). MM. Cannit and Roux (81, p. 1175).

CARRIERE (1136, p. 1232). MM. Causse and Garion* (1137, p. 1232). M. N. Champoiseau (794, p. 1218).

MM. CHARTRON and Sonst (796, p. 1218).

^{*} These exhibitors' names are inserted in the Award List of Class XIII.-W.

[†] These exhibitors receive Medals in Clars XIII.

M. P. Darras (470, p. 1200).
MM. Darvier, Valenale, and Co. (1169, p. 1233).
M. V. Delanmet (1176, p. 1234).
M. A. Delocus (1178, p. 1234).
M. A. Desous (150, p. 1181).
M. Desou (150, p. 1178).
M. Desou (150, p. 1178).
M. Evenice and Sox* (e31, p. 1220).

MM, Farrique-Nourry, Barnoun, and Co. * (832, p.

M. H. Farion (1217, p. 1236). M. Hermer (537, p. 1204). M. Lavernhe and Maturey, dit Verger* (1298, p.

M. Meiran* (1353, p. 1241). MM. Movanue and Borsquet (1363, p. 1341). M. J. L. Nogarede (937, p. 1225). M. J. PRADIER (1406, p. 1243).

M. E. REIDON (1430, p. 1244).

M. L. ROECK (1446, p. 1245). M. P. SAMBUC, (1470, p. 1246). M. VERDET and Co. (1519, p. 1246). M. J. VINCENT (1526, p. 1250).

Spain.

Good examples of Silk, commendable for their length, elasticity, strength, and brilliancy of the thread, are shown in the Spanish Department; amongst which the Jury select the following as deserving the award of the Prize Medal:-

The AGRICULTURAL BOARD, Valencia (209, p. 1342).

MM. Dorness and Co. (215, pp. 1342, 1343).

M.F. Monrour (202, p. 1342), who ex bibits cocoous from
the variety of Spanish silkworm called 'Trevoltino,'
from that called 'Raicbo,' and from the Turkey silk-

M. Rey and Cn. (207, p. 1342). The Jury also award the Prize Medal to the Pao-

The Jury also award the Prize Medal to the Prac-VINCE of MURICA (199, p. 1342), for the excellence of the specimens of 'Sanza,' or silkworm gut. The Jury have selected for Honoranble Mention from the Spanish exhibitors of Raw Silk,—T. Thanon, of Va-lencia (210, p. 1342); J. Calderson, of Granda (220), p. 1343), and the specimens exhibited by Rindrickee Leal. (220).

Belgium, From the Raw Silks exhibited in Belgium the Jury select for Honourable Mention :-A. DE CONINCE (112, p. 1154). C. DE MEVIUS (86, p. 1154). A. DE POTTER (111, p. 1154).

Timeany. Among the Italian Silks the first mention is due to those exhibited in Tuscany, which show well the desirable qua-lities of the cocoons and thread. From these the Jury

select for the award of the Prize Medal,-

elect for the award of the Prize M G, Francischini (56, p. 1295). T. Lepost (60, p. 1295). N. Poiderarn^a (51, p. 1295). P. Ravagli (61, p. 1295). Scott Brothers (49, p. 1294). P. Zavagli (62, p. 1295).

And as deserving Hanourable Mention:-

C. F. CASUCCINI (63, p. 1295).

С. F. Савессии (63, р. 1293). L. Davitti (59, р. 1295). L. Della Ripa (50, р. 1295). R. Lambauschini (48, р. 1294). C. G. Moadini (58, р. 1295). C. Petraucci (52, 1295).

mulberry.

Chunt G. Piest (53, p. 1295).

Prop. Savi (64, p. 1295), for the specimens of raw silk from silkworms fed upon leaves of the Philippine

Switzerland. The specimens of Raw Silk exhibited by T. B. Fou-Liand, of Milano (54, p. 1279), are considered by the Jury as deserving of Honourable Mention.

* These exhibitors' names are inserted in the Award List 158 XIII. - W.

of Class XIII.-W.
† These exhibitors receive Medals in Class XIII.

Sardinia.

to the Department of Sardinia, the Jury have selected deserving, for their excellent qualities, the Prize

CLASS I

Medal, the silks exhibited by,—
Cassaa and Soots (27, p. 1303); II. Jacquer and Co.
(28, p. 1308); Rioson and Co. (30, p. 1305). And the
Jury repard as deserving 'Honourable Mention' the exam-

ples shown by :--BORZONE, J. (45, p. 1304), MICHAEL BRAVD (24, p. 1303) IMPERATORI BROTHERS (38, 1303)

Sinigaglia Brothers (25, p. 1303). Austria.

In the Department of Austria are exhibited some fine examples of Italiau silks, from which the Jury select for the award of the Prize Medal :-

G. QCERINI, Venice (84, p. 1012), SCHERULER and Co.,* of Milan (80, pp. 1011, 1012). VEREA BROTHERS, of Milan (87A, p. 1012).

YERAM HIGGERICA, OT DILLING (87A, P. 1012).
From Austria Proper the Jury also consider the Silambor Remains Association of Gratz, Styria, as highly deserving the Prize Medal, for the specimens exhibited by them noder No. 75, p. 1011.
The exhibitors of raw silk deserving Hosourable Men-

tion are:-BOZZONI BROTHERS, of Riva. G. B. MATTIUZZI, of Varmo, Friuli (77, p. 1011).

A. Scola, af Upper Austria (72, pp. 1010, 1011). F. Seccui, of Milan (81, p. 1012). SENIGAGLIA and CARMINATI, of Parma, Friuli (78, p.

G. STRINER and Sons, of Bergamo (87, p. 1012). Prussia

The Jury wish to distinguish by 'Honourable Meution' the specimens of raw, white, and spinning-silk, protion the specimens of raw, white, and spuning-silk, pro-duced in Berlin, by means of a banging spinning-hive, no the principle of bec-hives, invented by the exhibitor, A. M. Bolzaki (38, p. 1080), by the use in which no double occooss can be produced. And also the specimens of silk exhibited by Kiszkwski (39, p. 1050).

Russin

From the examples of silk transmitted from Russia, the From the examples is size transmitted from massia, the Jary select: Riyan (138, p. 1370), from Tauride, district of Molosuchansk, as exhibiting the finest quality of the thread, and as meriting the award of the Prize Medal, And as deserving 'Honomable Mention' !--

A. REPROFF, of Stavropol (159, p. 1370); and M. RAYKO, of Odessa (140, p. 1370).

Turkey.

The silks exhibited in this Department arc, many of them, of a very fine character, exhibiting a good length of thread, with the qualities of fineness, strength, elas-ticity, and hastre. The Jury select, as meriting the Prize Medal, the following exhibitors: MOUSTAPHA NOURI PACHA, of Broussa (1764, p. 1387),

J. PAULARY, of Brousen (1711, p. 1388). Scott of Schemlan, Mount Lebanon (60, p. 1387

THE SCHOOL OF SERICICULTURE AT BROUSSA (1388). The Jury desire, in same manner, to distinguish the excellent specimens of raw silk and of cocoons exhibited by Michigatra Diezairolov (159, p. 1387), and by Morour and of Co., Beyrout (191, p. 1387).

A Prize Medal is awarded to-Prilove, BRENTANI, and Co., of Augsburg (36, p. 1100).

The specimens of raw silk exhibited by W. JAKGER

and Co., of Messina, exhibit the best qualities, and merit the award of the Prize Medal.

 These exhibitors receive Medals in Class XIII., in whose Award List their names appear.

Sweden,

Among the specimens of raw produce transmitted at a late period of the Exhibition from Sweden, the Jury desire to particularize, as meriting Houourable Mention, the fine examples of raw silk exhibited by Her Majesty the Quexa of Sweden (1348).

India.

Very fine examples of silk are shown in the Indian Department, from which the Jury select, as meriting the Prize Medal, the following exhibitors:—

D. Jardine, of Calcutta (p. 891). C. R. Jennikos, of Commercelly (p. 892). Mackenzie Brothers, of Bergal (p. 892). W. McNath, of Sardah, Bergal (p. 891).

Warson, of Nardah, Bengal p. 93).

Warson, of Nardah, Bengal p. 93).

En special Mention.

The raw silk from Persia exhibited by Mr. Thomson, Che raw silk from Persia exhibited by Mr. Thomson, Che raw silk from Persia exhibited by Mr. Thomson, The raw silk from Persia exhibited by Mr. Thomson, The raw silk from Persia exhibited by Mr. Thomson, The raw silk from Persia exhibited by Mr. Thomson, The Research of Persia exhibited by Mr. The Re

China

China.

In the Chinese Department, the quality of the silk developed in the native country of the silk worm is worthly illustrated by the specimens exhibited by YUN-KEZ, of Shang-hac (p. 1418), to whom the Jury, therefore, adjudge the Prize Medal.

The Jary regard the specimeus of silk, exhibited in this Department, by Messer, Astral, and Co. (p. 1422), Mr. C. J. Beaute (p. 1424), Mr. Hammon (p. 1425), and Mr. Lindsax (1422), as severally meriting Honourable Mention.

Mauritius.

In this colony the cultivation of the silkworm has been greatly promoted by the company formed by the exercions of M. E. Duvovr, of Port Louis (2, 986), and the Jury award to him the Prize Medal, for the excellent qualities of the white silk which he has transmitted. Amongst the specimens of raw silk from the Roman States the Jury fluid worthy of Homorable Mention:—

States the Jury had worthy of Honourable Mention:— D. Bernetta (6, p. 1285), and M. Bolgain (38). In those from Malta the Jury award Honourable Men-

G. Pulis (4, p. 944).

England. The specimens of silk, from silkworms reared on leaves

of the white nulberry, at Goldnoing, Surrey, and exhibited by Mrs. Carrisans Doma (32, p. 197*), possess qualities which, considering the unfavourable conditions of climate, have deserved, in the opinion of the Jury, Honourable Mention.

The Jury regard the raw silk exhibited in the Cam-

The Jury regard the raw siik exhibited in the Canndian Department, by Messrs. MacKay and Co. (144, p. 966), as deserving Honunrable Mention.

FEATHERS AND DOWN.

An instructive and comprobasive eatlicetion of feathers and down, in different sates of preparation for bed-string, including English goose feathers, first goose and and one, and the sate of the sat

Mesars. Blyth, Hamilton, and Blyth (60, p. 199*), exhibit excellent examples of purified English white goose feathers and of Irish white feathers, for which also the Jury award Honoumble Mention.

In the Russian Department good specimens of white Bejotsk bed-feathers, grey feathers, and goose-down are

exhibited by J. Larsmy (145, p. 1371), of St. Peters-

burgh.

Madame Laddonin, of Tamboff (283, p. 1375), exhibits
a fine quality of down from the breast of the goose; together with articles made of goose-down.
A. Power, of Mescow (144, p. 1371), also shows down

of the first quality.

Each of these exhibitors deserves, in the opinion of the Jury, Honourable Mention.

B.-FOR DOMESTIC OR ORNAMENTAL PUR-POSES; OR FOR THE MANUFACTURE OF IMPLEMENTS.

Otla, Wax, &c.

A class of substances was exhibited under the head of 'cids,' which are likely to prove of great commercial importance, as they possess properties differing from the finest vegetable oils, and some of them e.g., it appears, be supplied, in large quantities, and its moderate costs. The surgical in large quantities, and its moderate costs. The class, awarded as Price Media for, Lanaczec, Cape of Good. Hope (13, p. 390), for oil obtained from sheep's talls, and 'Honourable Medical' to (5, Domasce (21, p. 144); T. Essouri (18, p. 1449); F. Passay (19, p. 143); T. Good (18, p. 1449); T. Good (18, p. 1449); T. Arabino (18, p. 1449); T. Arab

pernuture.

Honourable Mention was also awarded to C. A. Jarry,
Canada (100, p. 965), for oil obtained from peopoies, and
which is used largely for lighting parpose; to C. Kounn,
Prussia (337, p. 1070), for a sample of oil exhibited by
him.

A Medal was awarded to Mosze, Soe, and DAVIS, New South Wales (15, p. 999), for tallow, Some fine white waz was exhibited in the Portuguese Department by M. F. Barray (60x, p. 1314); both were awarded M. L. De Carvanto (617, p. 1314); both were awarded to wise awarded to M. Cittus Martin Bestions were likewise awarded to M. Cittus Martin Bestions were likewise awarded to M. Cittus Martin (1981, p. 998), and P. R. W. Borr, Van Diemen's Land (1981, p. 998), and P. R. Vissan, Nebrethinds (17, p. 1143), for the samples of wax

HORNS AND ANTEERS.

exhibited by them.

Of these productions a great variety of fine and illusstrative sperimes are exhibited, amongst which the cutlection in the Indian Disparament (p. 802) merits the first at the control of the 'barn sinha' ('Ferna Dismonthi'), of the 'Samber' Cerea highespleas, of the 'harder' is builting dee 'Cerea programs, of the 'Barn,' and other species,' laters,' of the 'mar' ('Oppriornia behalfun' of the 'bagder' ('Cerea premiss, of the 'Barn,' and other species of 'Cerea premiss, of the 'Barn,' and other species ("Ber abdoha", of the 'gour' ('Ber curif'you,') of the 'spat', and of either kinds at Tollan halfalls, or, and

(1942 observed), or the good (1966 confirms), of the good of other kinds of Indian huffato, ox, and antelope, were also exhibited.

Cisaoda.—A pair of fine moose-horns (Alces Americano) are shown in No. 99, and a second pair, Nu. 237.

canoun.—A pair of the moose-horns (Alees Assertion) are shown in Nn. 99, and a second pair, Nn. 237, p. 963, hy Mr. J. Thomrsox, of Three Rivers.
From the Cape of Good Hope fine buffalo horns are shown in No. 16, p. 250, hy Mr. Merssen; and rhimoceros horns, in No. 28, p. 390, by Mr. Harneray.

norms, in No. 2e, p. 930, by SIT. HANDERY.

From Egypt have been transmitted horns of the bull and buffalo, uf antelopes, and of the two-horned rhinoceros.

It does not appear that any of the specimene achilies improvements or size or texture as the consequence of modifications in the food or habits of the species, super-induced to that end by the art of mass. The functions of the consequence of human ingenuity and skill, find no exercise in regard to the present class of ms materials, and the Jary therefore infait themselves to the above sections of the materials of the materials of the section of the sec

The same considerations necessarily limit the functions of the Jury with regard to the tusks of animals presenting the modification of dental substance to which the term is applied. Fine tvory, distinguished by the decresating curved lines on the surfaces of transverse fractures or sections of the tusk, is peculiar to the African and Asiatic elephant, among existing quadru-peds, and the best is obtained from the wild individuals; domestication of the elephant, in India at least, having been usually attended by deterioration of the length and

quality of the tusks. The finest specimens of elephants' tusks are a pair The most specimens of explanats tracks are a pair weighing 325 lbs. of the Elephas Africanes, obtained from an animal killed near Lake Ngami, in South Africa; each tusk measures 8 feet 6 inches in length, and 22 inches in basal circumference. A single task, weighing 110 lbs., from the same locality, is associated with them. These specimens are exhibited by Mr.

JOSEPH CAWOOD (p. 952), to whom the Jury award Honourable Mention

Messrs. FAUNTLESON and SONS, Potter's Fields, Tooley Street, exhibit an instructive collection of elephants tasks in No. 135, pp. 205*, 206*. The largest of these is from the African clephant, and weighs 139 lbs. Varicties of tusks are also exhibited from the Gold Coast, the Gabson River, Zamibar, the Cape of Good Hope, Angola, Alexandria, Ceylon, and the East Indies. The mode of implantation of the tasks is illustrated by the skall of the African elephant. Of the tusks which exhibit a deuse texture, but have not the engine-turn markings of true ivory, Mesura. Fanntleroy exhibit those of the 'narwhal,' the 'walrus,' and the 'hippopotamus;' and the Jury regard this instructive collection as deserving Honograble Mention

Fine tusks of the Ceylon variety of elephant are shown in the collection from that country; and several example of the continental Asiatie kinds are exhibited in the Indian Department, among which may be noticed some Indian Department, among which may be noticed state tasks of the Siamese elephants, one of which weights 100 lbs., and shows a fine white compact kind of ivery. Mesars. Buchanan and Law (p. 952) exhibit, from the

Cape, an elephants' tusk weighing 103 lbs.; and Messrs. HUTTON and Sons (p. 954), show every from Dahomy. TORTOISE-SHELL

The substance, so called, consists of certain large hornlike epidermoid plates, which cover, in an imbricated or overlapping manner, the campace or back-shell of the marine tortoises or turtles (Cheloss). The species which afford the most valuable of these plates are—the 'Karet' tortones or imbricated turtles (Chelone imbricata, Chelone caretta), from which are obtained 5 large plates off the middle of the carapace, and 4 large ones off each side madate of the carapace, an innuber, are technically called 'hlades;' 25 smaller plates are obtained from the margin of the carapace, which are called the 'feet' or 'noses,' in commerce. The other plates, collectively, are called the 'head' of the turtle.

Fine specimens of 'tortoise-shell' have been sent for rine specimens of tortone-serial may be been sent for exhibition from Trinidad by Lord Hanns (p. 973); of which, as well as of those sent from Labana by Mesors. Ilamsoon and Co. (p. 988), and from Ceylon (p. 938), the Jury desire to make Especial Mention.

PEARLS.

These precious substances are the result of an excretion in superimposed concentric lamina, of a peculiarly fine and dense mercons substance, which consists of membrane and carbonate of lime. The finest quality of pearl is produced by the hivalve of the Indian Seas, called 'por excellence' the 'pearl-oyster' (Meleagrisa margaritifera), fine specimens of which are exhibited in the Indian and Ceylon collections,

Pearls of an inferior description, formed in a fresh-water hivalve (Unio margaritifera), are exhibited under No. 15, p. 122, Class L by John Nells, of Omagh, county Tyrone, from specimens obtained from the deepest parts of the river Strole, near Omagh. Similar pearls, also found in the Unio margaritifera, from the

river Ythan, Aberdeenshire, are shown under No. 16, p. 122, Class I, by Messra Cowie and Rae, of Ellon, Scotland. It is probable that the pearls from this source, land. It is probable that the pearls from this source, collected by the ancient Britans, may have given rise to the interment by Tacitus in his 'Life of Agricola, 'of pearls 'mot very orient, but pole and wan,' being among the indugenous products of Great Hiriata. Pearls, similar to those from the Unio margarityfera, are exhibited under No. 41, p. 1352, Sweden and Norway, by Torstruer, from Christians.

MOTHER-OF-PEABL, OR NACEE.

In the Indian Collection are shown most of the shells which yield the manufacturer the finest kinds of macre; these are the Melengrina margaritifera, Haliotis gigas, Haliotis iris, and a large species of Turbo, which shells are known in commerce as flat-shells, sur-shells, green sasil-shells, buffako-shells, Bombay shells. The motherof-pearl is the internal or nacreous layer of such shells. Fine specimens of some of these shells, from Singapore

and Manilla, especially the great Metagrino and Halistis, are exhibited by Messrs. FAUNTLEROY, under No. 135, pp. 205, 206; and by Mr. BARER, nuder No. 287, p. 626, Class XXII. in connexion with the manufacture of mother-of-pearl hattons. As no specimens, however, of this raw naterial exhibit inproved qualities as the result of human skill or ingenuty, the Jury limit them-selves to the Homourshle Mention of the Isrgest and most instructive collection-which will be found in the Indian Department,

CAMEO-SHELLS AND CORALS.

Specimens of cameo-shells (Cassis rufa), species of Cypraca, and of shells used as ornaments by certain natives of India, with the rude but efficient instruments for cutting them, are shown in the Indian Collection Shells adapted for cameo-cutting are dense, thick, and

consist of three layers of differently-coloured shell material. In the Custis rufa each layer is composed of many very thin plates—in other words, is "laminated"
—the lamina being perpendicular to the plane of the main layer: each lamina consists of a series of elongated prismatie cells, adherent by their long sides. The laprismate cells, adherent by their long sides. The is-mine of the onter and inner layers are parallel to the Bres of growth, while those of the middle layer are at right angles to them. In the cowrise (\$\frac{V}{yprou}\$) there is an additional layer, which is a duplicature of the ascross-layer formed when the suimal has attained its full growth. One of the finest examples of the red coral (Corallism One of the Buest examples of the red corn (Covallian radown) is exhibited by Messrs. ParaAyou's and Casella, under No. 84, p. 683, Class XXXIII., in connexion with cameowork and caving in coral. The Jury desire to award to these exhibitors Honourable Mention for the

ranch of natural rough coral above referred to. The Jury desire, also, to make Hononrable Mention of the coral exhibited under No. 1, p. 949, MATTLAND MINEA, from the Cape of Good Ilope; and of the specimens of coral shown by Messrs. REFFAELIA and Son, under No. 69, p. 1297, Tuscany. Specimens of red corni are exhibited in the collection from Algiers. A fine collection of both corals and madrepores, including the black flexible coral (Gorgowia) is shown by R. TUCKER and Co. (Bermuda), for which the Jury award Honourable Mention.

Specimens of cameo-shells, of shells used as ornament by certain natives of India, with the rude but efficient instruments for cutting the shells, and several kinds of eoral and madrepore, are shown in the Indian collection.

Of the numerous varieties of the common flexible sponge (Spongia officiaolis), shown in different departsponge (Spongar operators), shown in unevert separation ments of the Great Exhibition, the Jury select first, for Honourable Mention, the specimens exhibited in Tunis, by SOLYMAN ESSADDY, under the Nos, 73, 74, and 75, p. 1415. They likewise desire to distinguish, in the p. 1415. They likewise desire to distinguish, in the same manner, the samples of sponges shown by B. PAY-LIDES, No. 12, p. 1402, Greece, from the Gulf of Namplis; the sponges shown by MM. THERE-WITTMEAKERS and PUPSEUPLA, Saxony, No. 4, p. 1104; and those shown by F. Winkley, Primsa, No. 31, p. 1649.

SPONGIO-PILINE.

The substance so called, of which the patent 'epithemas' for medical, surgical, and veterinary parports are fabricated, in exhibited under a great variety of ingenious and uneful forms, especially for applying heatef fluids to the ledy in them of positives and formentations; fluids to the ledy in them of positives and formentations; manufacturer, and exhibitor, M. Mankestek (114, pp. 203, 204), the Prize Medial.

GOLDBEATERS' SKIN.

This substance is the peritorical or secons membrane separated from the intestinal tube of the ox, and semitimes of other animals; it is attenuated by being bears with a hanner, and subsequently prepared so no to revise purtrefiction. The Jury desire tu make Honorardial Medical of the instructive series of this material in Rection of the instructive series of this material Rection of the instructive series of this material Pereparate: Pereparate; and also in No. 104, p. 620, Class XXIII, by E. S. Markhaul,

C.-- AS AGENTS IN THE MANUFACTURE OF VARIOUS ARTICLES.

GELATINES AND ISINGLASS.

The raw materials chiefly used in manufactures derived from the gelatinous texture of animal bodies, may be divided, as regards their commorrial value and appli-

divides, as regards over townserver.

104. The gelatines and plues, properly to called, de-rived from the dissolution of certain animal tissoes, and especially from the water residue of parts of animal manager of the fiber of the property is placed to the property of the property is placed to the property of the property is placed to the property is property in the property is placed to the proper

2nd. The cleansed and dried membranes of different species of fish, more especially of the sturgeon family (Acipsasside's, preserving a peculiar texture, on which their value in the refining of fermenting liquors more especially depends; such membranes are called 'initialisms.'

GELATINES AND GLUES.

The most remarkable progress in the extraction and preparation of pelatities and quies, from the waster remanties of hijkes and kins, bones, tendons, ligaments, and other gelatinosa sissues, has been made in France, in which the country the well-arranged and systematic establishments of for the shanghering of the cuttle, sheep, and horses in the large towns, give great facilities for the economical application of all the parts of animal boties.

Errore

L. F. GRENET (247, p. 1188).—Among the most beautiful productions of this bodustry in Pruces are the specimens exhibited under the above number, which have been specially noticed in the Section of the Report on the awards of the Council Medal:—that distinction having been recommended by the Jury to their ingenious invector.

Many manufacturers in France bave risen to great eminence in this line by fullowing the processes of M. GRENET.

II. CAPTELLE, of Paris, eshibits (107, p. 1156) a still mure varied sostroment of the modifications of gelatine, among which are particularly deserving of notice the very large sheets of transparent gelatine, colourless, white, of various well-defined colours, and embossed or white, of various well-defined colours, and embossed or the colour of the colour of the colour of the colour to the variety and perfection of these modifications of gelatine, the Jury award to M. CAPTELLE the Prize Medal.

Medal.

D'ENTERT BROTHERS (496, p. 1201); V. PITOCK (960, p. 1225); N. Let CLERCQ (1392, p. 1239); J. C. A. ROYER (1461, p. 1245); HERNE BROTHERS (1624, p. 1275); BOGASSE, LEBER, and Co. (774, p. 1217), have exbibited beautiful collections of glues and gelatines similar to the foregoing, and applicable to all the pur-

poses for which a pare, colourless, incolorous gelatine is adapted. Mn. Cottoxer and Sox, of Lyons, fishicate, from bones and various other animal remains, considerable quantities of glues a old gelatines, good specimeos of which are exhibited, together with other chemical products of animal bodies, in No. 1132, p. 1233. The Jury regard the above-named exhibitors of gelatines and glues as worthy of Homorable Mention.

MM. REISS DE DERCEE, of Meurthe (355, p. 1194), and M. FAUSSINGAGNE, of Lyons (1599, p. 1253), merit notice for their excellent gelatines from bones and isinglass for the purpose of dressing various stuffs and

The Cowaste or Bornetizen (Bas-Bhib) (376, pp. 1955, exhibit pectative in small plates, much extended for various preparations or dressings; it is extracted from the boose from which the same Company obtains phosphorus and phosphates of line. This Company—MM. CO. (127p. 1839)—who exhibit excellent speciment of glass—are severally, in the opinion of the Jury, deserting off Boonable Mention.

England.

The greater part of the gelatinous products exhibited by the English manufacturers is prepared from singless, and chiefly applied to articles of food. The commercial qualities of isingless are instructively shown in the collection exhibited under Nos. 117, 118, and 144, p. 204. Some exhibitors, however, show excellent glues and geluites, obtained from urious residues of animal bodies,

and destined for manufacturing purposes.

Mr. NULLIAC (125.), p. 2047, has exhibited a fine assortment of glues and gelatines, analogous to the products of M. Greest; but a part of his fine gelatine in threads, for confectionery purposes, appears to have been obtained from insignals. This is deserving of Honourable Men-

tion.

The systems (1985, 2007), above a boundful sample of mather-coloured introduced of mather coloured of

Canada. Mr. A. MacFarlane (124, p. 966) exhibits good specimens of glue of the deep brown semi-transparent kind, adapted for cabinet-work, and deserving Honourable

ndapted for cabinet-work, and deserving Honourable Meution.

Zollverein.

Three manufacturers here exhibit specimens of the

reme manufactures nere Examin specimens of the present elass of raw materials. One of these, J. G. Loosex, of Cologne (335, p. 1070), shows a fine specimen of an estermed and long-known article called "Cologne glae" (Colle de Cologne), which was the best kind of glue prior to the recent advance to the manufacture of the manufacture of

* This exhibitor was awarded a Prize Medal in Class til

ture of gelatine, and which is still highly esteemed by the joiner and eabiset-maker. The Jury decm it de-serving of Honourable Mentins.

M. A. FEIGENSPAN, of Mühlhansen, Saxony (688, p. 1088), exhibits specimens of gelatines of the Dutch and

Givet kinds, of the ordinary qualities.

The samples from Begian—H. Bitter, of Liege (93, p. 1154), and H. G. Harsotte Dellove, of Liege (94, p. 1154), consist of glues in thick, reddish, transparent plates, presenting the characters of good "Givet glue," and deserving Hononrable Mention

From Portugal have been seut (No. 627) specimens of glues of an inferior quality and putrescent odonr. specimens (Nos, 625 and 626) present qualities of the best productions of a gelatinous nature; but the deno-mination of 'grenetine' under which they are exposed, indicates their French origin.

The specimens (No. 7) from Sardinia of glue, in thin

plates, betray an inferior quality and putrescent odour.

ISINGLASS,

This raw material owes the greater part of its com-mercial value to its special organization, which permits its separation into extremely delicate fibres, capable of operating, mechanically, in the clarification of white wines and malt liquors. In order to obtain the best isinglass, care must be taken to choose the most suitable membranes of the proper species of 5th, and to avoid altering their peculiar tissue in the process of drying and preparing them.

Russia. Under these two relations the products of Russia hold

their first rank, MARIMANOFF and ARMAROONA (81, p. 1369), display specimens of the best quality of isinglass, consisting of the tissues of the air-bladdees of the storgeon (Acipenser

Han), well elemed, and removed and dried without the texture being affected. The Jury select this exhibitor as deserving Honourable Mention. No. 116 presents a variety of isinglass obtained from No. 110 presents a variety of isingiass obtained from the intestinal membranes in the form of alongated stripes, made into bundles. This substance, like the gelatines from the tendrus, bones, and bides of cattle, serves well for different culinary purposes, and for the same uses in manufactures as fine gelatine from other sources.

India. Among the specimens from India there are different kinds of isinglass in the raw state, from species of fishes distinct from those of Europe which commonly afford distinct from times of Europe which commonly anomality in this substance. The principal of these are from a siluroid fish, the Polyaemes pictorius, the dried air-bladders of which are exhibited by Dr. M'CLELLAND (p. 891). (A Prize Medal has been given to this exhibitor in Class III.) They possess the fine fibrous tunic which imparts the clarifying qualities that render isinglass so valuable in the manufactore of white wines and beers; and they are also well adapted for the fabrication of fine gelatines used in

manufactures and confectionery, In the same Collection from India are examples of dried sharks' fins, such as are prepared for culinary purposes for the Chinese market; but this raw material doubtless applicable to the preparation of gelatine for economical and judastrial purposes,

ALBUMEN.

Some excellent examples of this substance obtained from eggs, dried and manufactured, are exhibited in France (1538, p. 1250), by M. H. ALLEON, of Annonay, Ardoche, of whom the Jury desire to make Honourable Mention

ANIMAL CHARCOAL, BONE BLACK, IVORY BLACK, The Jury have examined and compared many specitoens of these substances, cxhibited by different nations, and propose to distinguish, by a Prize Medal, the charcoal, exhibited by J. H. M. VIOLETTE, France, (1528, p. , and by Hononrable Mention the following :-

1230°, and by romontane arctiton the following. —

MM. KULLMANN BROTHERS (555, p. 1205), for the speeimens of granulated and polyorised animal charcoal,
included in their instructivo samples of different chemical products,

L. RAUCHER, Jun. (1422, p. 1244), for his samples of animal charcoal

M. Tordeux (699, p. 1212), for his examples of boneblack, granulated, pulverised, and of various qualities. Portwoal.

J. F. Pinto Basto (629, p. 1314), for his specimens of animal charcoal, in powder. Netherlande

P. SEITS (20, p. 1143), for his specimen of animal charcoal.

Zellverein J. WARCHTER (434, p. 1075), for his granulated and powdered animal charcoal, obtained from the seum of sugar in the process of refining.

Mecklesburgh-Schwerin. M. MEYER (6, p. 1134), for his samples of charcoal.

Belgium. B. Segurna (110, p. 1154), for his animal-black, bone-

black, and ivory-black.
E. Verstrakten (108, p. 1154), for his specimens of animal-black. Exglord,

D. CHAN (65, p. 541, Class XVII,), for his bone-black and ivory-black,

D. FOR PIGMENTS AND DYES.

COCHINEAL AND CARMINE. The beautiful red dve called 'cochineal' is obtained from the dried body of an insect (Cocus carti), which feeds chiefly on the Cocus corcivelifer and the Cutus Opanito. The female insects, which are wingless, are alone collected, and the different degrees of value attached to them depend chiefly on the different methods employed to kill and dry the insects. Analyses of the cochineal have yielded chitine, farty matter, phosphates of lime and potash, chloride of potassium and carbonate of lime, and the colouring matter to which the name of 'carmi-nium' or carmine is given. The chief use of cochineal is the dyeing of scarlet: the fine colour which it yields is converted to that tint by means of eliloride of tin, called by the dyer 'tin spirits.

The following are the specimens of eochineal which, in the opinion of the Jury, demand Special and Honourable Mention. England

JEWESBURY and Co. (66, p. 200°).—Varieties of cochineal from Honduras, Mexico, Teneriffe, Java, and the West Indies.

I. SAOLER (76A, p. 200*). Spain.

D. J. B. Benenoues (192a, p. 1341). D. M. Gonez Alcaide (151, p. 1338).

D. E. MERON (150, p. 1338). The culture of cochineal, in Spain, has extended itself of late years along the sandy and barren coasts of the Mediterraneau, and with good success.

Another red dyeing substance, called Grana kernes, is obtained in some abundance from the shrubs of the province of Huelva, which is sold at Valencia at eight reals per 1b. The GOVERNOR of the PROVINCE of HUELVA (937, p. 1334), has transmitted a specimen of this kernics, of which the Jury desire to make Honourable Mention.

Algeria. M. Hasov (28, p. 1261).—The Jury award Hononrable Mention to this exhibitor for his very promising specimens of cochineal from that young colony.

Finally, amongst the animal raw products the Jury desire to select for Honnurable Mention the specimens of guano from the Cape of Good Hope, exhibited under No. 37, p. 950, by J. Seastuure; No. 50, p. 952, by A. De Pass, and that from Van Diemen's Land, No. 255, p. 997, by J. MILLIGAN.

RICHARD OWEN, REPORTER. London, November 1851.

CLASS V

REPORT ON MACHINES FOR DIRECT USE, INCLUDING CARRIAGES, AND RAILWAY AND NAVAL MECHANISM.

[The figures after the Names (between purentheses), refer to the Exhibitors' Numbers and to the Pages lo the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.]

Jery.

Rev. Henny Moneley, M.A., F.R.S., Chairman and Reporter, Education Office. Privy Council; Corresponding Member of the Institute of France, and formerly Professor of Natural Philosophy and Astronomy in King's College, London.

ANYONOMY IN AIMS 2. OSEGN, LOMGON.

CHOSEN MORE, D'PRINT (CARENDE, FRUSE), Homber of the Institute of Fraces and of the Central Jury, and Director of the Museum of Arts and Sciences.

Let the Society of Arts and Masufestures, & the Imperial Polytechnie Institute, Vice-President of the Society of Arts and Masufestures, & the

the Society of Arts and Manufactures, &c.
Levil CAPPELATEVA, Austria, Mechanical Engineer.
Frofessor Williams Essuarra, Austria,
Loyaler Manufactures, Captria,
Josephanes, Captria, Captria,
Josephanes, Captria, Captria,
Josephanes, Captria, Captria,
Loyaler, Landerbi, Mechanical Engineer.
Just Hick, Bolton-le-Moors; Mechanical Engineer,
Josephanes, Captria, Captria, Landerbi, Mechanical Engineer. ROBERT McCARTY, United States; Machinist.

ROBERT NATIES, Glasgow; Mechanical Engineer and Ship Builder.
C. Dr. Rosses-Onnas, Belgium; Vice-President of the Chamber of Commerce of Llege.

EDWARD COWPER, Professor of Manufacturing Art and Machinery, King's College, London. W. H. HATCHER, 22 Hawley Road, Camden Town : Engineer.

THE machines on which the Jury of Class V. has had to adjudicate are generally of the class called "Prime Movers," being those more directly connected with the development of power than with its application. Where, how ever, the application of the power to the result to be accomplished is direct and immediate, the mechanical expedients by which it is made were also assigned to the consideration of this Jury. Where the application is indirect, being made through a series of mechanical elements intervening between the prime mover and the point where the result is accomplished, such intervening machinery was reserved for the consideration of the Jury of Class VI.

It is obvious that in the consideration of this class of machines, the Jury must be chiefly guided by the principles of mechanics as distinguished from those of mechanism. The machines referred to the Jury were divided by the Commissioners into six classes, as Collows :-

V. Machines for direct use, including Carriages, and Railway and Naval Mechanism,

A. STEAM ENGINES AND BOILERS, WATER AND WIND-MILLS, AND VARIOUS OTHER PRIME MOVERS.

1. Boilers 2. Land Engines. 3. Marino Engines. 4. Wind-milis.

5. Water-wheels and Turbines. 6. Water-pressure Engines, as Richenbach's, and Armstrong's, 7. Vacuum Power Engines.

8. Electro-Magnetie Engines, &c. &c. 9 Miscellaneous

B. SETABATE PARTS OF MACHINES, SPECIMENS OF WORKERS-SHIP. (See also WATER and GAS-WORKS in Class VII.) Heavy Castings or Forgings in the rough; Cast-logs or Forgings, plain, intricate, or beautiful, in the rough. 2. Specimens of Turning in Metals. Specimens in filing and finished Work is Metals, such as Surfaces, Irregular Figures, &c.
 Valves, Cocks, Pistons, Governors, &c.

C. PREUMATIC MACHINES Air-pumps.
 Blowing Fans.
 Blast Engines for Furnaces, &c.

D. HYDRAULIC MACHINES, CRANES, &c., PILE DRIVERS, &c., (See also Class VII.)

1. Hydrunlle Machin Pumps and Fire Eogines. Water Rams, Hydranlic Presses, &c.

Water Meters, &c. Any sort of Crane motion and contrivances, Jacks of all sorts. (For Windlesses, Cap-tans, and Blocks, see Class VIII. E.)

 Piling Engines.—(See also Ciass VII. A.)
 By hand power, or steam. Prie Sawing Machines Pile Extractors, &c.

 Railway Locomotives— Inside Cylinder. Outside Cylinder. Enside Cylinder Tank. Outside Cylinder Tank. Models. Compressed and Hot Air. Hydraulie

Common Road Locomotives. 2. Common nove so., Waggons-Trucks and Waggons. Carriage Models. Waggon Models.

- 4. Rallway Velocipedes Atmospheric Rallway Apparatus.
 - 6. Brenks -Full Size.
 - 7. Buffers, Couplings, &c. Buffers.
 - Couplings Wheels, Tires, Axles, Bearings. Miscellaneou
- F. BAILWAY MACHINERY AND PERMANENT WAYS.
- 1. Permanent Ways complete,
 - 2. Sleepers. 3. Chairs, &c.
 - 4. Rails. 5, Switches.
 - 6. Turn-tables. 7. Station Arrangements.
 - Signals. 9 Missellan
- G. Weighino, Measuring, and Registering Machines for COMMERCIAL, AND NOT FOR PHILOSOPHICAL PURPOSES.
 - Commercial Weighing Instruments.
 Instruments of Measures. 3. Registering Instruments, Gauges, Indicators, and
- The total number of these objects exhibited was 537, distributed through the seven subdivisions as follows :-

NUMBERS of Objects in the Subdivisions of Class V. D. Ε. F. g.

The following are the proportions in which they were contributed by different countries:-

112 40

Austria.	Belgiam.	Chios.	Denmark.	Egypt.	England and the Colonies.	France.	Netherlanda.	Portugal	Sardinis-	Tarkey.	Tossay.	United States.	Zoliwecin.
5	21	2	ı	2	424	63	6	1	1	1	1	16	4

- The Jury beld its first meeting on the 12th May, when it formed itself into three Sab-Juries, which respectively undertook to examine and report upon the objects included under the several subdivisions,
- The number of objects referred to the first Sab-Jary (A, B) was 184, to the second (C, D), 128, and to the third (E, F, G), 224. The reports of the Sah-Juries were made to the whole
- Jury, which met twice a-week for that purpose, and the Jury visited and examined collectively all those objects which were considered by the Sab-Juries to claim such further examination, including all those recommended for prizes, Its awards were made on that examination, No other objects were examined by the Jury, in the
- English Department, than those placed by the Royal Com-nissioners in Class V. of the Catalogue, except such as were referred to them from other Juries. In the several foreign departments the objects were not classed in the Catalogue. The Jury had, therefore, to select those objects in these foreign departments which, in accordance with the instructions of the Commissioners, appeared to belong to their adjudicatio
- The number of meetings of the Jury was 18: they were all attended by Colonel Linyd, special Commissioner,
- and minutes were kept of their proceedings by that gentleman and by the Secretary.

 The Sub-Juries assembled, with few exceptions, daily, until their work was completed. The final awards were made on the 20th of June; they
- were confirmed by the Group B, of which the Jury formed part, on the 30th of June, and by the Council of Chairmen in the 14th July,

 The following table contains a general statement of the numbers of these awards in the several countries which have contributed to the Exhibition, together with the
- numbers of Exhibitors, and exhibits in each country, and the proportions which these bear to the Medals awarded. As, for ohvious reasons, the machines, so difficult of transport as those of Class V., sent from foreign countries, could not be expected adequately to represent the mechanical capabilities of those countries in respect to such
- machines, so the Jury are of opinion that the machines referred to their examination from Great Britain, however numerous and in many respects remarkable, do not, in the aggregate, for reasons which it is unnecessary to specify, duly represent the engineering resources and skill of Great Britain, and that any future exhibition would afford conclusive evidence of this fact.

LIST of COUNTRIES and PRIZES awarded or recommended for the three Subdivisions,

			A, !	BL.			C, I),			E, F,	G.			Tur.	i.See	
				Mee	late.			Ме	date.			Мо	dala.			Me	lals.
		Exhibitors.	Exhibits.	Council.	Prine.	Exhibitors	Exhibits.	Council.	Prine.	Exhibitors	Exhibits.	Overnoil,	Pries.	Exhibitors	Exhibits.	Council	Prise.
1. England and Colonies 2. United States 3. United States 4. Beiglum 5. China 6. China 6. China 7. Egypt 8. Franca 9. German Zollverein 10. Netherlands 11. Porrugal 22. Sardinia 13. Tankey 14. Tuxeny 15. Tuxeny 16. Tuxeny		104 2 2 2 9 1 1	141 4 2 5 - - 30 1 1 - -	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	16	63 3 1 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	88 3 1 9 2 1 - 22 - 1	1,11111111111	15	154 7 2 3 - 1 8 3 2 1	195 9 2 7 - 9 10 3 4 1 1	911111111111111111111111111111111111111	23	321 14 5 12 1 1 1 32 4 4 1 1	424 16 5 21 2 1 2 63 4 6 1 1	911-111-1111	54
Total	-	123	184	4	19	92	128	1	19	182	234	2	28	392	548	7	66

List of Countries and Prizes awarded or recommended for the three Subdivisions-continued.

	Ra	Toos.	
-	Council Council Medal to to to Frise Medal, Exhibits.	Prize Medal to Exhibits.	lat & 2nd Medale to Exhibits.
1. England and Colonies 2. United States 2. United States 3. Austria 4. Belgium 4. Belgium 5. Belgium 6. Denmark 7. Egypt 8. France 9. German Zollveria 10. Netherlanda 11. Portugal 12. Sardinia 13. Turkey 14. Tutesay 15. United States 15. Turkey 16. Turkey 17. United States 17. Turkey 18. Turkey 19. United States 19.	1 to 11	1 to 7·8 1 to 2·5 1 to 21 1 to 8 1 to 4	1 to 7 1 to 2:5 1 to 10 1 to 7 1 to 7 1 to 4
Total	1 to 9-6 1 to 76-7	1 to 8	1 to 7:3

hibited.

The contributions in the Exhibition of the following eminent engineers who were members of the Jury, or represented in it by gentlemen connected with their respective firms, were excluded from the competition for

No. t542, p. 1250. M. C. ARNOUX, coachmaker, 23, Rue du Mont Parmasse, Paris. Articulated railway carriages. No. 13, p. 242. Hire, R. and Sox, Bolton. Steamengine driving Hibbert and Platt's machinery. Portable forges. Expanding mandriles. No. 130, p. 1014 (Austria). A Dynamograph, by the

Forges, Expanding misseason, No. 130, p. 1014 (Austria). A Dynamograph, hy the CHEVALIER DE BERO, No. 26, p. 214. FAIRBAIRN, W., and Soxs, Manchester. Six home-power steam-engine. No. 417. Wrought iron tubular crane. No. 522. Inside cylinder task (oconsuitive engine. No. 732, Model of task

lécomotive engine.

No. 38, pp. 215-217. See Illustrations, 215, 216.

MAUBLAY, SONS, and PILLIN, Leadon. A 16 harse-power double eyilinder direct acting high-pressare engine. Connecting rod for an 800 horse-power marine engine. A sace of six models, viz., beam, double eyilinder, annular cylinder, horizontal cylinder and steeple engines for shallow river navigation. Model of a gen-metal serve propeller.

The Jup has to acknowledge intelligence of Coloxon, Manner, in Vec Chrisman, for the animates he was always, in Vec Chrisman, for the animates he was demanded by the Chrisman of the American Chrisman of the Islands of the Chrisman of the Islands of the Chrisman of the Market Demanded Spanner of the Islands of the Chrisman of the Mercapilan District Chrisman of the Mercapilan District

cerved from home consideration of the Reporter of the Juny has to add his own, to Mr. Haven Marcutar, Mr. Havensa, and Mr. Maarva, who acted severally as the Secretaries of the three Sub-Junies, for the assistance given to him in the compilation of this Report, the decails of which, whether continued in the tables pre-to-white prizes have been awarded in each section, have been collected chiefly by them.

In reporting on the inbours of the Jury, it will be convenient to take the objects referred to its consideration, according to the subdivision of the Commissioners. SECTION (A),

The following table (see pp. 170, 171) contains a classification of the objects exhibited under this subdivision, with the number under each class exhibited from each country.

Invention with regard to the steam-engine appears from this table to be specially directed to the economy of

The tubular boiler is a contrivance for that end, offering, within the same bulk, a greater surface to the action of the heat on the one side, and of the water on the nther, than any other form of boiler. There are eight such, ar models of them, in the Exhibitium, intended far the land

cognic.

In marine engines this economy of space has a special value and importance. The direction which invention is taking with a view to this economy is shown in numerous expedients for the direct action of the juston rod upon the crask of the public-wheel or of the screw propeller, without the intervention of the beam. There are no less than thirty-first direct-acting engines or models ex-

A rotary steam-eagine, if one could be contrived whose rabbing surfaces were steam-right and durable, would effect a remarkable economy of space, and would be better calculated than any other thirties in serve propeller. The increased importance than given by the unoff the screw propeller to the invention of rotary engines is indicated by the exhibition of nine such engines or models.

If, among these, none appears to afford a complete solution of the problem, at any rate there is nothing to discourage further attempts. Nor is this problem the less likely to be tolved now that a gara of power is nu longer looked for from the use of rotary engines, but nuly a simpler and more convenient mode of applying

Such a gain might indeed result from a free access of the atoms to the pixton from a dismission of the friction or the jar of the variety parts or from a more complete or the pixton from a dismission of the pixton from the information in mechanics, perceital men now know, that there is no more possibility of thereading the work of an any of its working parts, than there is no increasing the quantity of water which a reservoir will supply, by vary— The difficulty of susping the best form to a solid body

The difficulty of assigning the best form to a solid hody which is to receive and apply the resistance of a fluid, is indicated by twelve competing forms of paddle-wheels and fifteen different series propellers. CLASSIFICATION of STEAM ENGINES and BOILERS, showing the Number of each Class exhibited from each Country.

1 1 Courted. 10 2 ٠ ٠ ٠ . ZOLLVEREIN. . 1 . Bright M. ٠ AUSTRIA. waqiqua emobilities. 1 . . AMERICA. Medals ENGLANO. ı MACHINE WITH Eliptical direct aeting STRAM ENGINES AND AICTICLES. Semi-rotary engine ertical eylinder, Models of ditto Models of ditto Models of ditto Madels of ditto Models of ditto Boam engine Disk eogtoe ď ei. 일 전 보 2 <u> 6</u> Sub-Land Engines of all sorts. No.

N N N N N N N N N N N N N N N N N N N	STEAM ENGINES A	1. Beam engine, ser	2. Models of ditto,	3. Oscillating cylin- die-wheels -	4. Models of ditto,	5. Models of ditto,	6. Annular cylinde engine, model	7. Double piston-re engine, model	8. Tronk cylinder englos, screw-	9. Revisental cylic ing engine -	10. Models of ditto	 Rotary engine, screw-propelle 	12. Nodels of ditto	 Inclined cylinder action, screw- 	14. Double cylinder engine, paddle	15. Models of ditto	16. Disk rotary dire	17. Compressed air a	Windmills, horizont	Water-wheels, turbi-	Water-pressure cogi	Electro-magnetic en	1. Water-gauges -	2. Steam-gaugeaun	3. Paddle-wheels, r	4. Nerew-propellers	6. Slidevalves	
M. revellancous, p 9 9 9 9 Atome-boot Engines, S. N. N. N. M. of the second Engines, S. L. S. C.		_	_					_		~=	-	-			-	-				-	-		-	-	-,		٠	
Wirecillancous, P. S. N. N. N. Mean-boot Engines.		-																	+	w)	ω	F-1	00					
								7	esnign	A too	wp-ae	DAR.							Š.	Š,	%	No.	No.	'900	ориг	lloon.	W	

gear.

The advantages to be obtained by warling stems are presently—long favour to men of relevance—are now presently—long favour to men of relevance—are now presently—long favour to the explaint the stems to the explaint as a spoke pressure and the start of the dark and ordering I ord before the stocks in the start of the

AWARDS IN SECTION A.

No. 8, p. 211, and Illustration, 212. Joun PENN and Sox, Greenwich. 1. A pair of 12-hore power oscilland cylinder direct-acting engines, for river navigation, of light construction and good workmanship for small vessels. 2. A pair of 30-horse power patent direct-acting engines, called trank engines, for driving a screen propeller.

In these regions, which are nimber to these of H. M. Collins and the collins of the collins without the above regime of the trents, it includes in dameter, projecting through both code of the collins o

The ordinary making of a suffing-hox at one end is, moreover, in this regine, enlarged into that of the large convex surface of the trunk (14 inches in diameter) at both ends; and the difficulty of keeping the packing of these steam-tight, is increased by the lateral strain, to which, serving as guides, they are subjected.

wairen, serving as guides, trey are suspected.

These are practical disadvantages which may, for nautical purposes, be compensated by the economy of apace which is effected in this engine. It is from this consideration that the Jury has included it, with the river engine, in the award which it recommends of a

Conneil Medal to the makers.

No. 119, p. 1155 (Belgium).

Liege. 1. A pair of 140-horse power vibrating eviluder engines, for the navigation of the Rhine. The framing and paddle-centries, usually of cast-iron, being in these engines made of wronght-iron, the requisite strength is obtained with less weight.

The vibration exhibits twing so placed on opposite sides of the crash that each piston completes its stroke in an inclined position of its eyilinder (and, of course, when the stroke of the other piston is incomplete), the same crank-pin is made to serve for both pistons, and a single crank supplies the glace of the two striple angles to come and supplies the glace of the two striple angles to concurrently and any of the complete committee engine, of good construction and worknamabily; with a small dender-copies attached, for keeping up a constant apply of water to the holder when the engine is attainmary.

3. An oscillating direct-acting three-horse power portable engine and boiler, so combined that the weight of the boiler gives stability to the working parts of the engine fixed to the side of it. The arrangement is simple; the inside of the boiler may be easily cleaned, and the working parts reached.

4. A small doukey-engine, with its pumps and valve-boxes complete, for a scann-boxt; to apply usefully the steam which would otherwise he blown off through the waste-steam pipe, in filling tha boilers, pumping the waster from the bige or from the sea to wash the decks or sails, &c.; and in case of need, to extinguish fire, A Council Modal is recommended for this collection of

and a size, pp. 184-1186. - Sec Illustrations, pp. 1185. This (Frame). Procover and Soc, Chartres. A double turbine, constructed on the system of M. Fontsine Baron. The turbine is no hydraulic machine—of frequent turbine, for the size of the si

chine depunds, the intrinse possions those all visibles reinmy, when used for griding flows, the made to cointime, when used for griding flows, the made to cointime, the control of the control of the cointime of the

one of the most successful of the modifications of that form under which Fourneyron first introduced this machine in France, in the place of the old horizontal water-wheel.

The following exhibitors were awarded the Prize

Medal:—
No. 6, p. 211. Warr, James, and Co., 18 London Street,

London and Soho, Birmingham. A pair of horizontal eylinder direct-acting marine engines, of 700-horse power, for driving the serew propeller.

The two cylinders of each engine are placed opposite to one another athwart the ship, and work, by means of guides and connecting-rods, on the same erank of the shaft which earries the propeller. The cranks of the two engines are fixed at right suggest so one another. No. 1, p. 210, and Illustrations. ATRENTON, CHARLE, H. M. Dockyard, Devosport. Patent expansion gear, by

No. 1, p. 210, and illustrations. ATHERTON, CHARLES, H. M. Dockyard, Devenport. Patent expansion gear, by which the variations of the expansion may be registered whilst the engine is working.

a winst the engine or working.
No. 43, p. 219. COLLINGE, C., and Co., 65 Bridge Street,
Westminster. A new and simple method of reversing
rith eside of an engine, whereby the direction of its
g motion may be more easily changed.
No. 33, p. 218. CLATON, SHUTTLEWORTH, and Co.,
Is Lincoln. A six-horse power oscillating cylinder directacting portable steam-engine, of plain and simple conacting portable steam-engine, of plain and simple con-

struction, having a good arrangement of the slide, and is easily manipulated. No. 3, p. 210. Sauth, F. P., Greenwich. A complete series of models, illustrating the gradual advance and improvement of the serve propeller, which was proposed

series of models, interrating the gradula assumes and improvement of the seree propeller; while are proposed as a country of the property of Goujon, Paris. A high-pressure direct-acting five-home power steam-engine. The revolving parts are well balanced throughout; whereby the atrain pool the bearings,

 Lecons de Mécanique pratique, par Arthur Morin, vol. ii., pp. 329 and 362. The details of numerous experiments made to determine the efficiency of these machines, will be found in Colonel Morin's work.

- 1 Takes

due to the centrifugal force, and the consequent wear and tear, and loss of power by friction, are avoided. This precention, expedient in all engines, is the more required in this, as it is intended to work at high velocities (500 revolutions per minute). The high pressure (75 lbs. per square inch), at which it is proposed to work this engine, is, however, to be deprecated as attended with great with, and with great loss by reason of the higherenture.

rus, and wan great said by reason it the agade-imperiative pages. St. Michel, Chartres (Rare et Loire). A friction clutch, for throwing out of goer a single pair of stones pages of the control of the mill. On the spindle which carries the mill-stone is fixed a conical cup, into which a core, faced on the corresponding driving-spindle, which carries the mill-stone is fixed a conical cup, into which a core, faced on the corresponding driving-spindle, in the control of the reverse motion of the server releases, it.

motion for every refressel. POLYER, — Mechanic Rosen, Apparatus by which any number of prince mevers may be connected or disconnected at pleasure, so as to work the same machine. By this simple and ingenious expedient, a water-wheel and a steam-engine may be mode copilarly to drive the same machine with reputativity, the copilarly to drive the same machine with reputativity make up for the deficiencies of the set as is necessary on nake up for the deficiencies of the set and the set of the

five-horse power oscillating cylinder direct-sering steamcupier, of good construction, and good work membry. No. 100, p. 1013 (Austria), Neutrier, H. D., Vienna, No. 100, p. 1013 (Austria), Neutrier, H. D., Vienna, No. 100, p. 1013 (Austria), Neutrier, H. D., Vienna, No. 100, p. 1013 (Austria), Neutrier, Neutrier, Indianary governor, except that the centres of the balls are made to move on the unifier of a parabolicid or revolution area, fixed on your. This effected by means of parabolic arms, fixed on your. This effected by means of parabolic arms, fixed on your. This effected by means of parabolic arms, fixed on your. This effected by means of parabolic arms, fixed on your. This effected by means of parabolic arms, fixed on your. This effected by means of parabolic arms, fixed on your. This effected by means of parabolic arms, fixed on your. This effected by means of parabolic arms, fixed on your. This effected by means of parabolic arms, fixed on your parabolic arms, fixed on

the tolls slide, the rods which connect the balls with the valves sliding through them to admit of this motion. Nos. 46, 2005, pp. 218, 219. Stemens, C. W., Birmingham, working model of patent chronometric governor, well-known and upproved.

mill, was many more and the state of the sta

ship practically good and durable.

No. 25, p. 214. Caossaria, W., Beverley. A portable oscillating cylinder direct-acting steam-engine, of simple construction and good work manufacture.

oscinance cymaer urrect-acting steam-engine, of simple construction and good workmanship. No. 12, p. 212. Ebwanza, T., Islington Foundry, Hirmingham. Patent five-borse power direct-acting highpressure steam-engine, of simple construction and good workmanship.

No. 14, p. 212. Simpson and Smirron, Trafford Street, Manchester. Short-stroke reciprocating high-pressure

respice.

The solid syllinder be conscived to be fixed eccentricity. He solid syllinder be conscived to be fixed eccentricity through the sides of which case an aperture is left for the party of the wait of the opinior, and which is negatived by the sides of the cylinder and which is negatived as the sides of the cylinder be supposed as to fix of the cylinder be supposed as to fix the contract of the cylinder be supposed as to fix the cylinder of the cylinder be supposed as to fix the cylinder of the cylinder be supposed as to fix the cylinder of the cylinder be supposed as to fix the cylinder of the cylinder be supposed as to fix the cylinder between the cylinder between the cylinder being fixed and the case movember of the cylinder being fixed and the case movember of the cylinder being fixed and the case movember of the cylinder being fixed and the case movember of the cylinder being fixed and the case movember of the contract of the cylinder being fixed and the case movember of the contract of the cylinder being fixed and the case movember of the contract of the contract of the cylinder being fixed and the case movember of the contract of the c

its axis, it may obvinusly be made to complete the other half by recvening the action of the stems; provided that the dead points can be passed. This may be effected by at right angles to but first and, a second corn—either the rotation of the axis to which the cylinder is fixed, or the vibratory motion of the case serve to transmit the motive when the contract of the contract of the contract of the state objection as others for the same object, in regard the same objection as others for the same object, in regard to the difficulty of packing. It has the advantage over

then of a more even war.

According to the control of the control

Honourable Mention is made of the following:

No. 4, p. 210. Stornesat, Statomten, and Co., Bristol.
A direct-acting engine for driving a screw propeller, of good worknamship.
No. 24, p. 214. Lyncu and Inquis. Vertical cylinder.

ATTACH and INGLIS. Vertical cylinder direct-acting engine. Commended for compactness and good workmanship. No. 30, p. 214. RANSOMES and MAY, Ipswich. A five-horse power steam-cogine, on Penn's patent trunk prin-

horse power steam-engine, on Penn's patent trutk principle.

No. 34, p. 214. BUTTERLEY COMPANY, Alfreton, near Deshe An eight-horse nower oscillating steam-engine.

Derby. An eight-horse power oscillating steam-engine. Commended for simplicity and good workmanship. No. 37, p. 215. Evans, J., and Nos. Six-horse power high-pressure oscillating steam-engine. Commended for

 high-pressure osculating steam-engine. Commerciated mr simplicity of construction and good workmanship.
 No. 11, p. 212. Hawthoan and Co., Leith. Highpressure oscillating engine. Commercialed für its simple construction and good workmanship.
 No. 526, p. 239, and Illustratiou. Wilkson, E. R., and

Co. A denkey-engine. Commended for arrangement and commanding. Convertance, W., Brighton, Model of a compensating fly-wheel of inguious construction. No. 714, p. 281. Histiff, Janus, 22, Yauxhall Row, Yauxhall. Working model of a locomotive-engine and

tender. Extremely well made and creditable to the ingenuity and industry of the maker—n workman,
No. 200, p. 225. Trea, Joseph Ilksar, 22, Pall Mall.
Patent pneumatic governor for regulating the speed of
steam-engines. Experience is said to have shown the

usefishess of the invention.

No. 56, p. 219. WATKIRS and HILL, Charing Cross,
London, Sectional models of steam-engines. Excellent
models for educational purposes.

models for educational purposes.

No. 328, Class VI., p. 297. Barchiffe, —. Trigger for shutting off steam from locomotives. Commeuded as a very simple arrangement.

No. 67, p. 220. Evans, William. Working model of a double cyllader engine. The inventor and designer

No. 67, p. 220. EFANS, WILLIAM. Working model of a double cyliader engine. The inventor and designer of this model is blind. No. 5, p. 211. Tavalis, R., 7, Upper Woodlaad Terrace, Woolwich. Model of a telescope chimney for marine boilers. Commended as good model.

Woolwich. Model of a telescope chimney for marine boilers. Commended as a good model. No. 16, Class VI., p. 270. MATHER, W. and C., Salford Iron Works. Spring rings for pistons, of good workmanship.

SECTION (B).

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No. 5	1. Expansion-valves 2. Safety-valves	1 4 1	1 4 1	Ē	Ē	=	-	-	=		Ξ	1111	1111		-	1111	
No. 6 No. 7 No. 8	Pistons Governors, chronometric, pneumatic, patent fric- tou Clutches, frietlon combin- log machines	1 2	3	-	1	-	-	-	-		-	1 1 1	-	-	-	1 1 1	
No. 9 No. 10	Condensers, &c Whistles, water-alarm, &c	1	3	Ξ	Ξ	Ξ	-	Ξ	-	=	=	Ξ	=	=	=	Ξ	Ė
	Total	17	23	1	4	-	-	-	-	-	-	-	F	-	-	-	ŀ
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No. 1 No. 2 No. 3 No. 4	Heavy eastings Wrought iron, in the rough, Wheel-work, cog-wheels, &c. Pinished work	1		3 2	=			-	Ξ	-	=	1	1	16	-		3 -
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No. 6 No. 7	Guvernors, chronometric, pneumatic, patent fric-	2		2	-	1		-	-	-	-			5	-		-
No. 8	Clutches, frictioo combin-	1		1	-	1	2	-	-	-	-			2	-	Н	_
Co. 9 Co. 10	Condensers, &c Whistles, water-alarm, &c	2		4	Ξ	1		-	-	-	Ξ		3	5	-		

AWARDS IN SECTION B.

No. 647, p. 247. THE DESIGNATION CONTANT, New-castle-upon-Tyne. 1. Rolled irou plates from 17 to 20 feet long for ship-building paroses and for the sway beams of engines. 2. Rolled keel iron, a milway bar, measuring of feet 3 inches in length. A great importance has of late years been given to the manufacture of wrought iron in large masses by the increased scale, which every form of construction of iron is assuming. The limited dimensions of the wrought-iron plates, sway-beams, shafts, burs, &c., with which the engineer has to work, are indeed among the chief obstacles to construction in iron. Although much progress has of late years been made in the scale ou which it is wrought, yet these are believed to be among the largest specimens ever produced in their respective departments of manufacture, and the Jury were manimous in their recommendation of a Council Medal to the mokers of them. They regret that this recommendation, not having been adopted by the Council of Chairmen, they have only the Prize Medal to award to

No. 543, pp. 241, 242, PATENT SHAFT and AXLETBEE COMPANY, Brunswick Iron Wurks, Wedneslury. 1. Speeimens of iron of their manufacture. 2. Patent milway carriage axles and other axles, with illustrations of their process of manufacture. 3. Patent links for suspension

bridges, rolled at a single beat. To form these axles, plates of iron are placed together like the radii of a circle, and tied with pieces of wire. In this state they are heated to a welding heat and then placed under forge-hammers, which have, together with placed under forge-hammers, which have, together with their anxiis, circular eavities of the dimensions of the axle to be formed. The fibrous quality of the iron derived from the plates, which are welded together to form it, thus remains unimpaired in the forging. A Prize Medul has been awarded for these articles.

No. 641, p. 247. COALBROOK DALE COMPANY, Stafford-

collection of exhibits a Prize Medal is awarded. (Conneil

shire. Specimens of iron, viz., square, round, flat, half- Samples of patent rolled iron, principally for ship-building, round, oral laction. Angle, T, and girtler iron. Tire iron whereby a saving of workmanship in knees for ships is for wheels. Engine, floor, and foot-plate iron. For which effected. A Prize Medial awarded.

No. 202, p. 226. ASHEY, JONATHAN, Croydon Common No. 649, p. 247, Mensey Ison Company, Liverpool, invention, of which Honourable Mention is made. Surrey. A serew friction clutch. Commended as a good

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division.	ARTICLES		Exhibits.	Council.	Prize.	Kahibita.	Countl.	Prine.	Exhibits.	Council.	Prise.	Eshibles,	Council.	Prise.	Exhiton.	Council.	1
Pacunatics.	1. Air pumps - 2. Blowing fans - 3. Blast cogines - 4. Miscellaneous -	-	Ē	=	=	=	=	-	3	=	- 1 -	=	=	=	Ξ	=	
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AWARDS IN SECTION C.

No. 300, p. 226. Laoyp, G., 70 Great Guildford Street, Southwark, Inventor and Manufacturer of the patent centrifugal disc blowing machine, is awarded a Prize Medal.

The vanes of the blower are curved, and the sides conical. The air enters into a space left for its admission about the axis, and is expelled when the vanes are put rapidly in motion at its periphery, into a ease which surrounds it, from which it is conducted by a pipe, and the blast applied by a nozzle. The exhauster differs from in not having an outside case. The air is conducted by a pipe from the space to be exhausted to the central part of the exhauster, and expelled at its periphery. The improvement claimed is in the curving peripbery. of the vanes and in the coaical form of the sides. The action is stated to be noiseless, and the power consumed, less than that in the ordinary blower

The Jury, being desirons of verifying these statements directed a series of experiments to be made, of which the results are detailed in the following table (see p. 176). The blower being driven by Messrs. Clayton and Shuttleworth's steam engine, through a band which was passed over the dram of M. Morin's dynanometer, the work expended in driving it was registered by that instrument, with whatever velocity it was driven. The number of revolutions made per minute was measured by a counter, and the blast being received into a closed reservoir, was allowed to escape from it by a rectangular pipe, whose aperture could be varied by a slide. The pressure of the air in the reservoir was measured outside, by means of a bent glass tube communicating with the interior, and containing water.

The pressure of the air in the reservoir being known and the dimensions of the aperture by which it escaped, the velocity and density of the blast could be calculated,* Hence its ris rips was known, half of which represents the work which the blast was capable of doing if all its power could have been applied. The apparatus was constructed under the direction of Mr. Hensman, and the experiments were made and the table calculated by Mr. Hatcher (see page 176).

The blower of Mr. Lloyd was found to work com tively without noise. It is due to him to state that the apparatus at the command of the Jury did not enable em to drive the fan with that velocity which he allowed to be necessary for obtaining the greatest useful effect.

No. 120, p. 1155 (Belgium). The Marcinelle and
Coullet Syllting Contant. A ventilator for airing A ventilator for airing mines. A. Fabry, inventor. This machine consists of two wheels, baving parallel axes, each earrying three vanes

of a peculiar form, and made to revolve in opposite directions. These vanes engage and disengage with one another like toothed wheels; and as they separate, ereate, by their peculiar epicyclical forms, a vacuum about the axes of the wheels, discharging the air into a surrounding case, by their peripheries. The wheels do not drive one another by their peripheries. The wheels do not drive one another by the contact of their vanes, but by an independent mechanical consexion of their axes,

An economy of power is claimed in the use of this machine, as compared with the ordinary means of ventilation in mines. It has been introduced within the last few years in various mines in Belgium, particularly in those near Charleroi. The Jury bave awarded a Prize Medal to the exhibitor.

* A resum of the theory of this subject, and of other practical questions to which the attention of scientific men has of late years been directed, will be found in the useful work entitled "Atie Memoire des Ingénieurs, par G. T. Richard. Paris, 1818."

EXPERIMENTS ON BLOWING FANS,

Fan No. 1. Lloyd's Form .- Covical sides; curved vanes. Dismeter 30 inches.

Number	Area of Iniet	Number of Revolu-	Velocity of Tips of	1	re of Air in unaher,	Area of Opening from Air	Valueity of the Air at Onfice	Horse-power at which	Units of Work given out by Engine per	Units of Work in efficent	Proportion per tivat. o Work yielded by
Expeni- ment.	Opening in Square fughes.	mode by Fan per Minete.	in Fret per Second,	In Inches of Water.	in the per inch.	Chamber in Square Inches.	from Air- Chamber in feet per Second.	Engine driving the Fan worked.	Minute, to posseds raund One Foet bigh,	streem of Air specimented by half its oil oven,	Pan to that given out by Engine. Uneful effect per Cent.
1 2 3 4 5	82·51	984 1,066 1,066 1,087 1,066	128-9 131-6 124-9 142-4 133-6	2*90 2*20 1*50 0*90 4*33	0°1049 0°07,6 0°0470 0°0426 0°1556	36 72 108 144 Closed.	119-9 98-9 75-5 63-4	1:77 3:26 2:84 3:11	59, t23 107,622 53,817 102,681	19,913 96,215 17,901 14,801	34 24 19 14
	Fan N	. 2, C	mmon Fo	rm. —Str	night rea	es, inclis	ed slightly	to the radii.	Diamete	r 30 Inches	-
1 2 3 4 5	250-8	769 722 8 /3 911 803	99-6 94-6 117-0 119-5 117-0	2-1 1-5 2-5 1-1 3-1	0-6750 0-0543 0-0 05 0-03;8 0-1123	36 72 144 Closed.	96·4 81·2 104·7 63·8	1-22 2-45 4-55 3-81	40,389 80,734 149,928 125,679	12,202 14,750 31,780 20,145	30 18 21 16

No. 839, p. 1290 (France). Extra, E. —, 53, Rue de Malte, Paris. Various Blowing machines. M. Endrés blowing machine is an improvement on the ordinary blokemidt's bellows, giving in it a more netarly labat. It is composed of two nit-resolt, commanicating by two plyes, in once of which a cylindrical believe is worked, plyes, in once of which a cylindrical believe is worked, not not support to the contract of the second arizes of the second arize-resol or reservoir is regulated, and the bellows is made to drive air into it, both when it ascenda and descends. A Price Media is warded.

In reporting upon the hybrinesis machines exhibited, it is impossible to refrish from solvering to the general impossible to refrish from shortest to the general ledge on which the perfection of ruch machines always being the contract of the contract of

• This is the care with the horizontal water-wheel; without the various scientific expedients adopted in the construction and working of that wheel, as the turbine, it could not probably in any case be employed with advantage.

† It is but reasonable to expect that the superierity which the French have confersedly attained in certain.

which the French have economically attained in certain branches officiality, by onlivating the arts of design, will eventually appear—through the agency of the Ecoles de-Arts et Mediers—in the scientific character of their machines.

The whole establishment of a water-wheel partakes of

The whole establishment of a water-wheel partakes of this ebaracter tha form and dimensions, for instrace, of the shulce and coursers—the number, dimensions, and forms of the float-boards—the dimensions of the wheel listef and the rate of working. It has been abundantly shown, by experiment, that by varying these conditions, the work of the same fall may be varied by from one-half to two-thirds of its whole amount.

now almost universal in France, of the curved floatlocards of M. Poncelet in undershot and breast-wheels, and of the turbine of M. Fourneyron. It is not, however, only in the adoption of new forms of water-wheels in France, that the improvement has been apparent, but in the better establishment and more skilful werking of the old forms; such as are in use in this country.

Of all such expedients for the recomminal application of unter-power, is a principle that, as for a it may be of unter-power, is a principle that, as for a it may be of unter-power, is a principle that, as the solid lever is without vision, and that it should lever in without vision. For that there is power level by the shock of water for water may be absorbed in the reverence into which it is the properties of a six of water may be absorbed in the reverence into which it is visit as yet of the properties, and it is visit as yet of the power which make an enterprise and the power which man have been expended, in giving it is visit as yet of the power which man have been expended in giving it defines, function and the power which make have been expended to be not added the severe which the power which make the power which was a cloud of the severe, that three should be so made and considered with the power which was an extended to the principle that all expedients are the economical of these principles that all expedients are the economical of the principles in the severe control of the principles in the disk of the principles to find them to be a principle of the principles and the principles as the principles as the control of the principles are the principles as the control of the principles are the principles as the control of the principles are the principles as the principles are the principles as the principles are the principl

The record of this fact is important, as placing in an obvious point of view the necessity of other means than are now afforded for the scientific education of mechanical engineers.

PUNPS.

Not withstanding the great analysis of the pump, and to extensive me, in a use of our work madden, conceptually a second service of the pump, and the pump of the

* Happort de Jury Central, sur les produits exposés en 1843, v.d. il., p. 14, Paris, 1853.

SECTION (D)

						D).										
		Es	GLAN	D.	C.	NAD.		As	ERIC	Α.	A	erni	A.	B	Date.	N.
			Med	als.		Med	de.		Med	ele.		Med	iale.		Ved	ale.
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Pumps, &c	Hydraulics, &c. 1. Lift pumps 2. Lift and force pumps 3. Centrifugal 4. Rotary 5. Fire-engines Water-rams	7 7 3 5 11	11-11	1 2	11117			11-11			Hose			1 - 1 1 2		
			-			-	-	-		-	-		1	-		-
Hydraulic presses	Hydraulic presses -	5	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Water-meters -	Water-meters	5	-	-	-	-	-	-	**	-	-	-	-	-	-	-
Craues, jacks, &c	1. Lifting cranes 2. Lifting and weighing cranes 3 3. Jacks 4. Mine lifts 5. Hoists	6 2 6 2 5	11111	3 2 1			-	11111		1 1 1 1	-	1 111	-	- 2	11111	1111
Piling engines -	Pillag engines	_	_	_	-	_	_	_	_			_	_	_	_	_
Miscellaneous -	1. Hydraulic engines - 2. Cocks and taps 3. Valves 5. Distillation 6. Archimelean screws 7. Sundries	2 6 1 2 1 1 4		1171111		1111111		1711111			11111111	1111111	=	0111111	1111111	
	Total	83	1	13	1	-	1	2	-	-	-	-	-	7	-	-
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Pumps, &c	Hydractich, &c. 1. Lift pumps———————————————————————————————————	so Exhibits.	1 1 1 1 Council.	tale,	t _ 1 Exhibite.	1 1 1 Council, W	Prince Prince	l aç to l de m Exhibita.	1 1 1 Council. 36	Pile Pile	11111 Exhibita	11111 Council. gr	. state.	1 - 1 Exhibits.	1 1 1 1 Council. 32	1 1 1 1 1
Pumps, &c Water-rams - Hydraulle presses	Hydractics, &c. 1. Lift pumps———————————————————————————————————	so Exhibits.	1 1 1 1 Council.	tale,	t _ 1 Exhibite.	1 1 1 Council, W	Prince Prince	l aç to l de m Exhibita.	1 1 1 Council. 36	Pile Pile	11111 Exhibita	11111 Council. gr	. state.	1 - 1 Exhibits.	1 1 1 1 Council. 32	1 1 1 1 1
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Pumps, &c. = Water-rams = Hydraulle presses Water-nosters = Cranes, jacks, &c	Hydractics, &c. 1. Lift pumps —	Little Children	Council.	India,	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11 1 1 1 1 1 1 1 Council, pg	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	all i i i polen Emble	Mc Courcil 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11 - 1 1 1 1 1 1 1 1 1 1 Exhibits.	111111 Council. M	alaba	11 1 1 1 1 Eablite	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[CLASS V.

water through the poung. This fact cannot be too distinctly, stated. There are hybratile machines which yield, in the water raised, from 75 to 80 per cent of the poperation, but so imported in instrument in the lift and force-pump, that the best yields only 45 per cent, the screepe set yielding more than 80 per cent, the screepe set yielding more than 80 per cent, 50 hard for 10 per cent, 10

1st. In the small size and the peculiar construction of the valves, 2nd. In the proportion of the section of the barrel to

that of the suction and force pipes.

And, In the form of the suction-pipe at the extremity where the water enters it, and of the force-pipe at the

extremity where the water is discharged.

4th. In the forms of these pipes where they unite with
the barrel.

5th. In the preportion of the length of the barrel to the depth from which the water is raised. It is impossible to say to what extent the loss of power due to these causes may be removed, without experiments directed expressly to that end; this much is, however, certain, that it would be sensibly diminished by increasi the size of the valves, or by any other expedient which should diminish that sudden variation in the section of the stream which the valves create. That variation, attended as it is by a corresponding sudden variation of the velocity of the stream, involves a loss of power varying as the square of the difference of the two velocities," and dependent, therefore, on the ratios of the sections of the saction-pipe and force-pipe to the section of the harrel. From inattention to this arises the second source of loss of power we have enumerated. It is well known that the form of the mozele by which water is discharged from a force-pump influences largely the amount of the from a force-pump innuences targety the amount of the discharge, but it is not equally well known that the form of the extremity of the suction-pipe by which the water enters has an equal effect in facilitating its ingress.

contra afta in equal oracet in insentings its improvywhere the contractive with the branch, and the supplest
by which it commonstrates with the branch, and the supplest
postupe. A fifth cause to which attention appears not
histories to have been directed, the loss of prover due to
histories to have been directed, the loss of prover due to
water mixed. Any use when gives a succession of quick
water mixed. Any use when gives a succession of quick
the proper studies to a common surface ripe, althoring
final its way into the harved to cate it, will find the damp of the contractive prover than when
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as certain amount of prover, and as more, is required to
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At its increased by half the vis vive due to the difference of the controller. The regulation of all theories of Caroni, and the viscoliver. The regulation of the Money of Caroni, and the viscoliver of Caroni, and the viscoliver of the Caroni and the preparation of the policy of the Caroni and the Caro

pump by effinx from the spont, or by the raising of the valve in the bucket), more water is brought into the barrel than is due to the volume generated by the piston. Half the vis viva of the water under the piston at the end of the stroke measures this surplus work. If a sufficient pause be allowed, and if the head of water above the piston be not considerable, as in the common sectionump, the upward rush of the water beneath it at the end of the stroke will lift its valve, and a portion of the surplus work (represented by half the vis viva) will take effect in the elevation of more water into the barrel than effect in the cevation of more water into the barrel timas would fill the space generated by the piston; and timas is explained the fact of the greater discharge from such pumps when worked by quick strokes with intervening panses, than when worked slowly. If the head of water above the piston be, however, considerable, as in the force-pump, any vis viva which may remain in the water at the end of the stroke will produce a shock, and a cor-responding loss of power. This shock, commonly experienced in the action of force-pumps, is accompanied by a violent and prejudicial action of the valves, especially when they are of metal. When the down-stroke of the piston follows so rapidly on the up-stroke as to meet the ascending stream produced by the preceding stroke, the resistance to its descent is increased, as well as the loss of power due to the commotion of the partieles of the fluid it traverses.

It is obvious, therefore, that the proportions of a pump, to be worked by a given movine power, should be such, that the power to be expected at every stoke may just a list instancial in what proportions this work is distributed over the stroke, or under what traying degrees of pressure it is generated, provided that the pressure the piston. If this pressure be exceeded, the piston may separate itself from the water between this time barrel, the pane drawing air; and this is more labyle to over at the the motion of the water at that path being necessarily the motion of the water at that path being necessarily

mountained a finite velocity to the vister at the commonweater of the struck, or with the large described by the pisson is still exceedingly small, requires a most type that the contract of the structure of the

* These proportions are determined without difficulty. If a represent the vertical neight of the bottom of the hard above the surface of the water to be raised, a bit length of the strike, K the section of the giants, and a the weight of the strikes, K the section of the strikes, a bit is section of the strikes, and $\alpha+\delta$ is the behigh of its restrict of rather, and $\alpha+\delta$ is the the high of its restrict of particle strikes, and $\alpha+\delta$ is the the high of its restrict of particle strikes, and $\alpha+\delta$ is the the high of its restrict of particle strikes, and $\alpha+\delta$ is the the high of the series of particle strikes, and $\alpha+\delta$ in the high of the strikes of the strikes and the strikes are strikes and the strikes and the strikes are strikes and the strikes and the strikes are strikes and the strike

$$K \mu b (a + \frac{1}{2}b) \equiv U$$
; whence $b \equiv \sqrt{a^2 + \frac{2U}{nK}} - a$.

† If we conceive the stroke to be completed under a constant pressure, which, with the assistance of the valvereservoir, is possible, the extreme height to which the waterin the barrel will ascend is greater than that at which this pressure would hold it suspended without the elocing of the saction-valve.

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space is aided by the pressure of the condensed air in the an-relamber, and when the stroke is completed, the state of condensation of this air is, by the momentum of the condensation of this air is, by the momentum of the through the possess by which that pipe communicates with the air-chamber. Thus, by this contrivance, the surplus work, or half the vis viry, which remains in the water of the saction-pipe at the conclusion of each stroke, the property of the contribution of the contribution of the saction-pipe at the conclusion of each stroke, the pipe to be pipe the wext stroke of the pipton.

The nature of this action will be best understood from that of the hydraulic ram. The contrivance constitutes, indeed, in some respects, a union of the action of the ram with that of the pump; and, besides accomplishing the object for which it was applied, appears to have the effect of considerably economising the power employed in working pumps.

The socition air-chamber has been added to a common metion-point, exhibited by Mr. Sazz (45.2, p. 23.5), in the Agrinus are consistent of the society of the Agrinus are allowed by the society of the society of the society of the class of small pumps, called "free-veripers," exhibited by Mr. Ratomarer (46.9, p. 27), and Mressy, Saxes and by Mr. Ratomarer (46.9, p. 27), and Mressy, Saxes and Canadian engine, it does not, however, appear to have been applied in any of the larger class of engine exhibited, it than have been given to it in either of these engines.

AWARDS IN SECTION D.

No. 131 (Canada), p. 106. G. Parat and Roorners, Montreal. A carring fore-engine, to be worked by firsty men. Highly commonded for the large proportion of the sectional area of the nestion-jee to that of the larvel, the large first of the properties of the large first of the larvel, the large first of the section-jee and the paratil arrangement. In the experiments under by direction of the Jury, so other ougine three a column of water so high as this, or discharged so great a longly of water per man, or yielded on a vita of the section of the Jury, so is a vita of the properties of the Jury, and the properties of the Jury of the properties of the Jury, and the properties of the Jury of the properties of the Jury of the properties of the Jury of the Jury of the Jury of the section of the Jury of the Jury of the Jury of the Jury of the section of the Jury of the Jury of the Jury of the Jury of the section of the Jury of the Jury of the Jury of the Jury of the section of the Jury of the Jury of the Jury of the Jury of the section of the Jury of the

No. 1310, p. 1239 (France). Lettert, 118 Rue du Temple, Paris. 1. A fire-engine without a carriage, to be worked by ten men. 2. A marine fire-engine, to be worked by ten men.

lighly commended for the ingenious, simple, and economical arrangement of the pistons, the large dimensions of the valves, and the large sectional area of the saction and force-pipes, in comparison with the barret.* The piston is a lumlior perforated come of branes, to the

The paton is a linuow personates come on mass, to the interior of which is applied a circular piece of leather, like a filtering paper to a funnel, but having a sector cut out, instead of being folded; the radial edges of the leather overlap, and its periphery projects beyond the edges of the come, adapting itself to the internal surface

edges of the cone, acaptung meet to use internal surmore of the barrel.

When this piston is to be used for suction, it is fixed to the rod with the lune upwards; and when for firering, with the hase downwards. In the returnstroke, the water passing through the perforations of the haras cone finds a

passing through the perforations of the trass close main a passage between the loos radial edges of the leather, which it separates.

The valve in the air-vessel is a simple disc of leather, screwed down at its centre on a perforated plate. The Jury have awarded the Prize Medal for these engines.

Jury have awarded the Prize Media for these engines. No. 410, p.227. Surabo and Mason, 243 Hischfriers Road, London, London Hrigado carriage fire-engine, worked by twenty-eight men. Metallic salves; for which a Prize Medal is awarded. Moses Mrany warning, 63 Long Acre, London (401, Moses Mrany warning, 63 Long Acre, London (401,

pp. 226, 227, and Illustrations). Loudon Brigade carriage fire-engine, to be worked by thirty men. In compliance with a wish expressed by some of the Exhibitors, the

• The pumps of Letesta gave a greater useful effect, in proportion to the power expended in driving them, than any others, in the dynamometrical experiments of Colonel Morin at the Paris Exhibition of 1849. This sectial effect did not, however, amount to on-duff the power expended. trial in the processe of the Jury, and the following tables contains the results of the trial. The engine were worked contains the results of the trial. The engine were worked soliginity placed at the disposal of the Jury by their contains the worked upon the different engines of the state of the state

merits of the above-mentioned engines were subjected to

It could have been determined with a precision not otherwise attainable—One-Ser Table, page 180.0.
No. 448, p. 234. A Prise Medal is awarded to S. CRAEVEN, Spalling, for a pump for thing the surfacewater only of a well, and at the same time filtering it. The surface-ips is plitted, no at solitor of no portion of it moving an vertical plane. The moveable portion is always be more the surface. To prove the principal containable with the property of the property of the protainable of the property of the property of the protainable of the property of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the property of the property of the protain of the property of the property of the property of the protain of the property of the property of the property of the protain of the property of the property of the protain of the property of the property of the protain of the property of the property of the property of the protain of the property of the property of the property of the protain of the property of the property of the property of the protain of the property of the property of the property of the protain of the property of the property of the property of the protain of the property of

envering one another.

Honourable Mention is made of the following Exhi-

No. 602, p. 227. WHILLAN SHALDON. Pointful pump. In pecalitary lies in the counseism of the backet with the cylinder by a collar of leather blocked into the shape of a transacted case, in smaller or ableing fixed to the backet, as the collar of leather blocked into the backet, in the collar of leather blocket in the collar of leather blocket in the backet play in the collar of leather blocket by the collar of leather blocket play in the collar of leather blocket play in collar of leather blocket play in the collar of leather blocket with the collar of leather blocket play in the collar of leather blocket with the collar of leather blocket blocket blocket with the collar of leather blocket blo

Mo. 935, p. 1225 (France). NILLAYs.—Jun., Graville, mear Havre. A double pump, with large cylinders and six-inch valves, constructed on the same principle as Shalders, pump; mounted upon a carriage to be used in executions. Commended for convenient arrangement and good workmasship.

No. 424, pp. 232, 233 (Illustrations, p. 233). WARNER, Jons and Sons. Deep well force-pump. Commended for the finelity with which the valves can be removed to be repaired, and for good workmanship.

ce regimere, site for good workministing. No. 409, p. 227. Rode Street, Stington. A portable farmer's fire-regime, applicable and a fine for the first street, and for a first street, the support of the nearly and for simplifierly and convenience of arrangement. No. 239, p. 1191. LACARD, H. EGUEN, Maker, 105. Quai Valleny, Paris. A revolving pump, and various jets of each of the support of the nearly and convenience of arrangement.

arrangement.

Centrifugal Pumps.

In these pumps, water admitted at the axis of a hollow wheel, traversed by vames and made to revolve rapidly, is expelled at its circumference.

The pipe by which the water reaches the axis of the wheel (or the reservoir which feeds it) becomes, under these circumstances, a saction-pipe, and if the reservoir into which the water is received from the periphety of the wheel be closed, and a pipe be carried from it upwards, the latter becomes a force-sine.

the latter becomes a force-pipe.

The greatest economy of power in such a pump-may
be expected to be attained when there is the least possible loss of the vis viva of the water in its access to the
wheel, and when there remains the least possible vis viva
is it when it leaves it. For if there he my loss of the
vis viva of the water in its ingress to the pump which

A pump on this principle is described in the Traité de Mécaulque of Borgnis, Paris, 1819. The Invention is there ascribed in MM, Designt et Deville, Marbines Hydraullques, p. 32; h is probably, however, more accieus. TABLE of the QUARTITIES OF WATER raised from the same Depth and threwn thrown the case Reservoir in equal times, by the mane Plate Excitate, each worked by an appropriate

S 52 F 2522325 Italymore 6 66 6 66 6 666466 Company Manage 8 52 F 8 6566466 Company Manage 8 67 F 8 6566666 Company Manage 8 67 F 8 656666 Company Manage 8 67 F 8 65666 Company Manage 9 67 F 8 65666 Company Manage 9 67 F 8 65666 Company Manage 9 67 F 8 6566 Company Manage 9 7 F 8 6566 Co		_	-	64	н.	-	10	-	. 1		1 1	211		ingles in the second	in in	=	2 101	5 call	
Control Cont	Name and Constry of Makes and Exhibitor.	of Burn in the	rationa t of Persp. arches.	Seroke,		Dameter of Section Pipes, to	Area of V in Square In			da vetaW be retired and and talk a bit cetar pretired and b	diaD to vodar hosoriteb to	ell odt to o		Pect, turnel ration per Mare	recommend to a		of Water delivers of the state.	o sits aix o soliveries soliveries des soliveries des soliveries des	
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1	Shand and Mason London, large engine-					5.4		16-91						-		325.05		8,928 579.8	
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3-6 21-63 3-69 & 0-213 None, None 7-63 10 884 63-29 30, 0-73 78-42 33-69 2-9 231-10 3-43	gine gine i) Lebestu, Paris, m:					5 S	9.62	10-2						52-30	9 5 1	232.36			
	etestu, amall fire-engin forcing-pump only †		21.63	2.63	-	None.	None.	3.						3	9-6	234.00		4,825	
	omparative Experime	ata on the	Quantitie Engines.	n of Wat	ter delivered by A	Great		}								7 2		With Sortion borsed in Gravel.	00 M
with second second by different and the second seco	X F	reather's the small supply just o French of Sterry two eagin	gmall eng French t equal to engines, es supplie es supplie	glae, wiff engine, a the com- such work large on d in two	h 10 men; emple leo worked by th unition. and by 10 men, ex- dur, worked by ; minutes 30 gallon worked by ;	ayed to n men. nployed 20 men. ns more		Nerr Nhan Perry	reesthor.	large engla	g 21	20000	zle, work		d		4+4+×0 0	₹\$ 1 1 % 1	
We will be a second of the sec	Zi .	for ywest for each	her's larg ne delive last could	red in t	also worked by tree minutes 22 ff.	gallons		Ner	d a Masso tu, maria ywenther,	n, y gener se eugine, wi small eugin	irh ic, with	111	:::		:::	223	000	116 0	
Properties in the Quantities of These delivered by different Control of the Contr									-	A considerable and the control of the second	To the	-	and and and	being age	dentally	bell elear.			

might have been avoided, it is evident that power must have been expended unnecessarily in producing that is viva. And in like manner, if any viv viva remain unnecessarily in the water when it beaves the wheel, it is evident that the power by which that via viva was created might have been saved.

The expedients by which the water may be brought to the wheel with the least loss of vis vivu are common to this and to other bydraudic machines; those by which it enters and is delivered from the wheel are peculiar to the centrifugal pump.

If the values be straight, it is crident that whatever nay be the velocity of the water in the direction of a radios, when it leaves the wheel, its velocity in the direction of a traggest will be that of the elementeeree of the wheel, so that the greater the velocity of the wheel, the greater will be the amount of via viva remaining in the water when distanted, and the greater the amount of power nucleosly expended to ereate that vis viva.

If, however, the vane he careed back unde, as regards to melion of the white, as to have now the direction melion of the wheel, so at to have nowly the direction of the melion of the wheel of the varieties raise in the centrifugal flower of the same factor of the varieties of their state of the varieties of varieties. And a varieties of varieties of varieties, and carried the varieties of the varieties of the temposite of direction—in statistics, in that amore degree will the waterly offered of every extra a finished to the varieties of varieties of varieties and supplies of varieties and supplies of varieties and supplies of varieties and supplies of varieties are a supplies of varieties and supplies of varieties and supplies of varieties are a supplies of varieties and var

pedient of curred vanes is adopted in Mr. Agueld's peap,. With regard to the admission of water to the whee, it is obtained to the section of the control of

the channels formed by the vanes; as in the turbine. It is obvious that the tendency of the centrifugal force continually to increase the velocity of the water over the continually to increase the velocity of the water over the velocity of the variety of the value of the velocity of the value of the velocity of the v

This diminution of the sections of the channels might probably best be effected by giving to the sides off the wheel the forms of conical discs; an expedient which is adapted in Mr. Llayd's blowing-machines, and in Mr. Bessence's centrifugal pump,

The communication of notions to the water of the receiver in which the wheel reviewers, and to which the receiver in which the wheel reviewers, and to which the receiver in which as possible from the risks of the wheel. I there is no shade the receiver is the receiver in the regard of the receiver in the receiver in the reward of the receiver. The vertery with which the the water is to be missed. Beyond a certain height this water is to be missed. Beyond a certain height this water is to be missed. Beyond a certain height this water is to be missed. Beyond a certain height this water is to be missed. Beyond a certain height this water is to be missed. Beyond a certain height this water is to be missed. Beyond a certain height this water is to be missed. Beyond a certain height this water is present the water in the water is to be water in the water in the water is the water in the water water is the water in the water in the water is the water in the water is the water in the water in the water is the water in the water in the water is the water in the water is the water in the water in the water in the water is the water in th

Finsbury Square, London, for a centrifugal pump, * o.e. foot in diameter, having curved vases, separated by a central disphagu, perpendieniar to the axis and intersecting the vanes, so as to form a double wheel; to the two parts of which access is given for the water by central spertures six inches in diameter, on opposite sides of the wheel, whose says is fixed to the dimburance.

To determine, the useful effect of this pump, n series of experiments were made under the direction of Colonel Morin, the Vice-Chairman of the Jary. The results of these experiments are detailed in the following Table. (See page 182.)

The work of the motive power was determined by the well-known dynamometer, constructed by M. Morin, on a principle proposed by General Poncelet. It is the distructive feature of this dynamometer that it registers each effort of the motive power with the space through which the machine is driven by that effurt, however

The contribugal-ramp is by so means are investigablement extends in further perticular of its history, which is the property of the property of the consolitant to state that it was used in America as for lack and the property of the contribution of the coningent contribution of the designation is now of the American panels. The true principal contribution of the c

theory investigated.

In Angast, 1984, this gordinant not once a lower discovered in the Angast, 1984, the gordinant not once a lower discovered in the Angast and the Angast angast and the Angast ang

In 1815 be published a work entitled. "References trapping et caperineutiles are the fitnes a revietion on a replace et caperineutiles are the fitnes a revietion on a replace et caperineutiles are the fitnes a revietion of the result of the caperineutiles are the caperineutiles and the principles applicable of the same time to the centrifugate principles applicable of the caperineutiles and the application he specially gainst out. The explanation has been considered due to grain out. The explanation has been considered due to priority, either in the invention of the machine or in the material and the consideration of the contribution of the same threatening of the contribution of the fitness of the contribution of th

A mode boff one of them was calabilitied to be leave, by M. Geyan, but glade from the calabilities are in the late properties of the increase of The findiant, passage, in them the properties of the increase of the increase of the calabilities of the calabilities of the calabilities are sorted as extending the calabilities of variable it may be; and that it does this, not for a single stroke of the engine, or revolution of the wheel by which the machine is driven, but continuously, for a lengthened period. The dynamometer was applied to a drum, a period. The dynamometer was appreed to a urain, a strap from which drove the pump. To ascertain the work yielded by the pump, the water, raised by it from a reservoir beneath the floor on which it stood, to a given height above it, was received into a reservoir on the floor, wherein was an aperture of a rectangular form through which it could flow back into the reservoir, and which could be opened or closed to any extent by a slide. When the pump was set to work, the dimensions of the apertore were so adjusted by means of the slide, that the water renrained stendily at the same height in the reservoir. The

quantity of water which escaped by the apertore was then obviously the same with that raised by the pump. The dimensions of the aperture and the slepth of the water being known, the quantity of water which escaped could be enjeulated, and thus the water raised by the pump was

To ascertain the influence of the enryed form of the vanes on the efficiency of the pump, straight vanes were applied to a wheel of the same size, worked under the mpyrous or a viner of the same size, worked finder the same circumstances. The results are stated in the Table. The pumps of Mr. Gwynne (140, p. 1441) and Mr. Bisschen (421, p. 232), on which similar experiments were made, the particulars of which are detailed in the

EXPERIMENTS OR APPOLD'S CENTRIFUGAL PUMP. Careed Arms.

Table, had straight vanes.

Number of Experiment.	to which	ight the Water a sel.	Dischar No	ege per sube.	Ratio of Funer to Edect.	Revolutions of Wheel per Minute.	Remarks
1 2 3 4 5 6	Feet. 8·2 9·0 18·8 13·4 19·4 26·2 27·6	Metres. 2-39 2-745 5-61 5-897 5-897 7-97 8-235	Galtens 2, 100 1,664 1,164 1,246 1,248 432 681	1,itres. 9,540 7,440 5,274 5,610 5,676 1,752 3,030	0-589 0-618 0-619 0-630 0-630 0-398 0-463	828 620 792 788 800 841 876	All these experiments were made wit Poncelet and Morin's dynamomete
				Straight	Arus, nelise	d at 45°.	
1 2	18-0 18-0	5-48 5-48	569 736	2,544 3,348	0-339 0-434	674 670	
	. Arms				Radial Arms,		
1 2	18-0 18-0	5-48 5-48	369 474	1,674 2,148	0-232 0-243	624 720	
	Experi	MENTS OR	GWYNNE'	s Centre	FUGAL PUNE.	(Straight p	arallel radial channels,)
Number of Experiment.	to which	ight the Water deed.	Dt-har Mm	ige per inte.	Ratio of Power to Effect.	Beredstines of Wheel per Minute.	REMARKS.
1	Feet. 13-8	Metres.	tiallens.	Litres. 1,320	0-19	675	Experiments made with dynamomete

EXPERIMENTS On BESSEMEN'S CENTRIFUGAL PUMP. (Radial arms and conical sides. Experiments made with McNanght's Indicator.)

1,272

Number of Experiment.	to which to	he Water	Diarha: Mrs	tge pet ate.	Satio of Power to Effect.	Breelstiens of Wheel per Minute.	REWICES,
1 2	Feet, 3:37 3:63	Metres, 1:627 1:158	Gallens, 832 1,006	Liters, 3,781 4,567	0.18	60 71	
3	2-2616	0.700	-	-	-	40-5	No water thrown. The water just
4 5	3:427 3:28	1-100	896 846	4,067 3,841	0-225	60 60	(act surfaces ap to the rection in a

WATER RAMS.

13-8 4:17

F. Roe & Hanson, 70 Strand (462, p. 235, and lilustrations). Hydraulic ram, for raising water to the tops nf houses EASTON, J. & ANOS, C.E., Grove, on hwark, part

Inventors and Manufacturers (408, p. 227). Improved Honourable Mention is made of the following Ex- patent hydraolic ram. The hydraulic ram* requires to be

* The hydraulie-ram, usually attributed to Mongolfier, appears to be an English invention, the first having been creeted at Oulton, in Cheshire, by Mr. Joho Whitshurst. in the year 1772. We are indebted for a knowledge of this

adjusted, as to the loading of its valves, for each particular case in which it is opplied. The following Table contains the results of experiments made to determine the

Name of Exhibitor.	er of Experi-	Run in Jackes.	rt of Bows by Valve imate,	all of Waver ying Itam in meroscing from of Catern to		of Water illens sto fiam.	Faige	of Water d by Gallens.	to which the was reject in hore level of	atage relation has effect vield fram to the done upon it full of the area.	n of quantity yr taled to
	Nomber ment.	Play E	Name h	Mena suppl Feet, lertel Rem.	Absolute.	fer Missie,	Absolute.	Per Minute.	Height Freet a East.	Per Ca of Its North	Relation of Wat that G
Roe and Hansom Ditto Ditto	1 2 3	100	70 60 74	2-92	107-00 101-05 95-11	8-92 11-23 3-14	6:87 6:23 1:81	0-57 0-69 0-66	20:81	45 . 44 13	0.664 0.662 0.019
Ditto =	1 2 3 4 5 6	i full	44 45 20 - 68 52	5·26 5·42 5·21 5·33 5·5 5·44	76-27 28-36 49-41 41-17 11-43 21-65	5-63 5-67 9-88 8-23 2-28 4-21	6.62 3.31 3.03 3.06 2.19 3.31	0-66 0-61 0-61 0-44 0-66	19-87	44 42 23 28 60 67	0·117 0·116 0·162 0·074 0·191 0·157

HYDRAULIC PRESSES.

The Prins Modal was availed to the two following:
No. 412, pp. 292–397. The Black Query Factorson
Concesses, Warrington, for a large hydraulic press, used
Concesses, Warrington, for a large hydraulic press, used
Concesses, Warrington, for a large hydraulic press, used
to find the concess of the large of the concess of the large of the concess of the large of the concess of the find the concess of the large of the concess of the find the concess of the

the top of 14, 29 incides three. The total weight of the press as calibilitied in from 60 to 70 tons.

Stationary of the state of the s

Honourable Mention is mode of Brilinouse, E. T. & Co., Eagle Foundry, Manchester (416, p. 230), for their hydraulic press for pocking cotton or other material in bales.

WATER METERS.

The labours of the Heath of Towas Commission have given fresh importance to the loverion of water-netter. To afford an unlimited supply of water it is necessary that some means should be afforded of measuring the state of the

fact to the recordes of M. Merin at the Conservative de-Art et Mellers, who has recorded it in the following words Art et Mellers, who has recorded it in the following words thereis.—Beller Hydraulipus etabli, par John Servanov at 1722, & Oulton, Cheskine, pour is service de la Benastrie at 1724, a Collection, Cheskine, pour la service de la Benastrie 1736, an moyen d'une seconde sengape.—It is due to the manifecture not bet mans on shich the experiments were manifectured to the man of the consequence of the conlection of the consequence of the consequence of the conlection of the consequence of the consequence of the conlection of the consequence of the consequence of the conlection of the consequence of the consequence of the content of the consequence of the consequence of the content of the consequence of the consequence of the content of the conthe service may be made, and to dispense with the re-

Fire different contrivances for this object are cabilities, the days has, however, found none so far perfected to sainfy the conditions of a good meter. In the majority of them the measurement is node by the revolution of a driven count by the collisions of the contribution of a driven count by the collisions of the contribution of the perfect of the contribution of the contribution of the perfect of the contribution of the contribution is liable, is the fact that a considerable leakage may be obtained without giving sufficient motion to drive the fan.

A water-meter, exhibited by DOSKIN, BRYAN, & Co. (242, p. 218), is constructed on the well-known principle of the due steam-cogine. Although this is free from the defects which beloog to meters constructed on the principle of the revolving fan, it is open to those of insecure packing and unequal wear.

CRANES, &c.

The Prize Nedal is awarded to the fullowing Exhibitors:-

No. 614, 5277. Fox Ilteramon, A Co. Dereit,
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two cost of the vindises the form of a clock flare.
No 4.1, 21th. Americano, W. G. Nercandespunc
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cylinder, like a gasometer, risea as it becomes filled—is ordiner, like a gasometer, risea as it becomes filled—is made by mechanical expedients, of great ingenuity, to communicate the required motions to the erune. No. 414, pp. 233, 234. MYNCHOL and VERNON, Liverpool. Working model of a patent steam-travelling e-ane, for lifting and removing beavy weights to italker-yards,

goods' depies on railways, &c.
Like the ordinary hand-travelling erane, this machine
moves upon a trans-road hild upon longitudical becume,
raixed from 15 to 20 feet above the ground. A square
shaft runs the entire length of this road, and is connected
at one extremity with the engine, which cases it to
revolve. This shaft is supported by brackets, which
wing on centres; so that each may be readily displaced

by pressure applied in the direction of the length of the shaft. Motion is communicated from this shaft to the machinery of the crase by means of a drum, which slides upon it—carried along by the crane—and which displaces each bracket as it passes it.

No. 76, p. 1146. (Netherlands). K. ENTHOVEN, the Hagne, Inventor and Manufacturer. An iron crane for weighing affil lifting, constructed on an ingeuious principle, and of good proportions and workmanship.

weighing aft lifting, constructed on an ingenium practice, and of good propertions and was almost a state of the state of

the security of a grap upon a classic. P. Matta. Under No. 16(1), p. 90. (Travel). Model appearing for the extraction of one, and for the few and safe ingrees and the period of the control of the control of the control for period or the control of the control of the control for period or the control of the control of the control of the tree and the military, and work the pumps. A four-sheld not received the military and work the pumps. A four-sheld not of the shaft, serves as a golde to a serve of square caper, which are lifted through one stage of the frame by each which are lifted through one stage of the frame by each versie of maps, which, while place of a service of maps, which, while the control of the control of the control of versient of maps, which, while on a service, are precedted by the position by their weight. A militar expedient which position by their weight. A militar expedient as it rices, and relaxes it as it decender. The eage are and by an implantous construence to under these states of the control of t

Honourable Mention is made of Mr. DANIEL GREA-TOREX (415, p. 230), 9 Deslorough Terrace, Harrow Road, Paddington, for his model of an improved hosting machine for raising and lowering goods, which can be worked by hand or by steam. The person accending or descending with the machine can stop it at any point of the secent or descent.

Jacus.

No. 509, p. 237. The Jury award a Prize Medal to George England and Co., Idatcham from Works, New Cross, for their traversing serew-jack, seeful for railway purposes, and commended for ingenuity of contrivance, and economy of material and space.

No. 490, pp. 236, 237 (Illostration, 237). Also to S. Thonstos and Soss, Birmingham, for their hydraulic lifting-jack, constructed on the principle of the hydraulic

VALVES.

No. 201, pp. 225, 226. A Prize Medal is awarded for R. Howstoo's triple-best valve for large pumps, which affurds three passages for the water. They are anumbrand concentries, and, by an adjustment of the weight of the load on each to the surface it offers to the pressure of the water, are made to open and close is necessive, thereby diminishing the first effort of the lift of the pission (due to the incretion of the water) and the blow on its descent.

Corre

Hononrable Mention is made of the following:—
No. 476, p. 295. Major Romart Little, Woolwich
Common, Inventor, for an improved water-ceck for connecting pipes without breaking joints. The plug of this
cock may be removed to be reground, without unsol-

dering the pipes.

No. 1608, p. 1254 (France). — Fainault, Brassfounder, Orleans. Hermetic tap. A cook elosed or opened
by means of a coarse serew acting upon a valve. A good
and simple contrivance, not likely to get out of order.

SECTION (E),

		Englanu.				Аменеа.					Aus	TRIA.		BELGIUM.				
				Me	dals.			Mes	fals.			Me	dals,	3	5	Me	dals,	
Subdivision.	_	Exhibitees	Exhibits.	Council.	Prise.	Exhibitors	Exhibite	Council.	Prise.	Exhibitors	Exhibits.	Council.	Pile.	Exhibitor	Exhibits.	Countil.	Prise.	
No. 1	Railway locomotives— lastic cylinder —— Dutaide cylinder —— Inside cylinder —— Inside cylinder tank — Models —— Compressed and hot air Hydraulic —— Connous nord locomotives	3 3 3 14 3	3 3 3 14 3	1	2 1 2 1 1 1									1-111111	1			
No. 3	Railway carriages, waggons— Carriages — — — — Trucks and Waggons — — Carriago models — — — Wagron models — — —	5 1 15 3	5 1 15 3	-	3 1 -			-	=		1	1111		1111		1111		
No. 4 No. 5 No. 6	Railway voicelpedes Atmospheric railway apparatus Breaks	3	3	Ξ	Ξ	ī	ī	=	=	Ξ	Ξ	=	=	=	=	=	, :	
No. 7	Full size	8	8	Ξ	-	=	=	Ξ	=	-	2	=	=	=	=	=	. :	
	Buffers Couplings Wheels, tires, axles, bearings Miscellaneous	4 3 19	3 19 7	=	5	1	1	=	=	-	1111	1111	1111			Ξ		
	Total	99	100	1	15	2	2	-	-	-	-	-		3	3	-	Ϊ.	

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				Med	labs.		-	Mes	lals.			Mes	labe.			Me	lak
Sabdivision.		Exhibiters.	Exhibita.	Council.	Prise.	Eshibitors.	Exhibits.	Council.	Prine.	Exhibitors.	Exhibits.	Council.	Prise.	Exhibitors.	Exhibits.	Coandl.	Direc
No. 1	Rallway locomotives-																
	Inside cylinder	Ξ	=	Ξ	= 1	- 1	- 1	-	=	:	-	-	-	:	-	-	1
	Inside cylinder tank	-	=	=	-	-	2	10.	-	1.	= 1			-	0	-	1
	Outside cylinder tank	-	-	-	-	-	-		-	-	- 1	-	-	-	-	-	
	Modeis	-	-	-	-	1	- 1	-	-	-	-	-	- 1	1	1	-	-
	Compressed and hot air - Hydraulic	Ξ	=	1	=	1	=	1 =	=	1 =	=	=	= 1	=	=	0	:
No. 2	Common road locomotives -	-	10	-	=	-	ΙΞ.	-	= 1	12	= 1	-	101	=		0	13
No. 3	Railway carriages, waggons-			1													
	Carriages	Ξ	ΙΞ.	-	-	-	=	-	-		=	Ξ	- 1	- 1	=	-	-
	Trucks and waggons Carriage models	-	15	-	=	-	10	=	=	1 :	= :	-	-	- 1		Ю.	
	Waggon models	-	-	-	-	-	-	-	-	1 -	-	-		1	1	-	-
No. 4	Railway relocipedes	-	-	-	-	-	-	-	-	-	-	-	- 1	- 1	-	-	-
No. 5 No. 6	Atmospherie rallway apparatus Breaks—	-	-	-	- 1	-	-	-	-	-	-	-	-	-	-	-	-
.,0.0	Full size	-	-	-	-	١	_	-		-	-	-	- 1	-	-	-	١.
	Models	-	-	-	-	-	-	-	-	-	-	-	- 1	1	- 1	-	-
No. 7	Buffers, couplings, &c.—		١_	_	_		_		_		_						
	Couplings	-	1 =	10	1 = 1	-	=	Ε.	Ξ	Ε.	15	-	=	1 -	12	10	
	Wireels, tires, axles, bearings	-	-	-	- 1	-	-	-	-	1	1	-	1	-	-	-	-
	Miscellaneous	-	-	-	; -	- 1	1	-	- 1	-	-	-	-	-	-	-	-
	Total	-	-	-	-	3	3	-	-	1	1	-	1	3	3	-	-
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go		É	4	1		949	4	-	_	ģ	*		1	97.		7	1-
Subdirlaion.		Exhibitors	Eshibits	Council	Prize	Exhibitors	Exhibite	Cunnell	Prim.	Exhibitors	Exhibits	Council	Prize.	Exhibitors.	Echibita	Countill,	N.
No. 1	Hailway locomotives-			1										i i	1		
	Inside cylinder	-	-	-	-	-	=	-	470	-	-	-	=	5	5	1	
	Outside cylinder Inside cylinder tank	-	10	=	li:	1 =	-	-	_ =	1 =	. =	=	=	3	3	1 =	١.
	Outside oylinder tank	-	-	-	HE.	- 1	-	-	-	-	-	-	i -	3	3	-	
	Modela	-	-	-	-	-	-	-	-	-	-	-	-	16	16	-	-
	Compressed and hot air -	Ξ	-	=	5	10	-			-	=	15	1 =	3	3	=	1
No. 2	Common road locumotives -	=	1 =	=	10		1 =	-				10	-	l i	l î	-	1
No. 3	Railway curringes, wargous-						1	1						1			
	Carriages Trucks and waggons	Ξ	=	1:		-	-	-	-	-	=	-	1.	5	5	=	
	Carriage models	=	1 =	=	=	1.5	1 =	1 =	-	1 3	Ε.	Ξ	1 =	15	15	1 =	١.
	Waryon models	-	-	10		1 -	-	-		-	-	1 =	-	3	4	=	1
No. 4	Railway velocipedes	-	-	-	-	-	-	-	-	1 -	-	-	-	15	-	-	١.
	Atmospherie railway apparatus Breaks —	-	-	-	-	1 -	-	-	-	-	-	-	-	3	3	-	ŀ
No. 5	Foli size	-		-	l -	-	l -		-	-	-		-	9	2	-	
No. 5 No. 6		-	-	-	=	-	-	-	-	1 -	-	-	-	9	9	-	ŀ
No. 6	Models - '		1											١.	١.		
No. 6	Buffers, couplings, &c			-	10	-	1 =	=	-	1 =	15	1:	10	3	4 3	1 =	1:
No. 6	Buffers, couplings, &c.— Buffers	Ξ	. =														
No. 6	Buffers, couplings, &c.— Buffers — — — — — — — — — — — — — — — — — — —	Ξ	-	Ξ	10	-	-	-	-		-	-	1 -	22	22	-	
No. 6	Buffers, couplings, &c.— Buffers	=				Ξ	=	Ξ	Ξ	ī	ī	=	=	9	9	=	
No. 5 No. 6 No. 7	Buffers, couplings, &c.— Buffers — — — — — — — — — — — — — — — — — — —		-	-	-	-		Ξ	Ξ		1			9			

The introduction of curves in milways, unless their radii be very great, has hitherto been considered unafie, and the not of the construction of milways is, under an extension of the control of the milways is, under control of the
Our colleague, M. Anvoux, who, as a member of the Sub-Jury A., on Carriages, was placed out of the number of competitors for medals, has attempted the solution of this problem on the railway from Paris to Scenux, and a working model of one of his trains is excludited in the French Department. On this railway there is a zigzay, he radii of whose earners vary from 185 to 200 feet, the radii of whose earners vary from 185 to 200 feet,

As the labours of the Sub-Jury for carriages were conducted independently of the principal Jury, the exclusion

which is said to have been traversed without necident by the trains of M. Arnoux daily, at a speed of from sixteen to eighteen miles an hour, since the month of June 1846.

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1846. which recent experiments on a large scale have created, The construction of railway carriages admits of great improvement, a fact to which the attention of inventors is obviously directed. In the construction of railway waggons, the use of corrugated iron has been introduced;

and cast steel for the construction of railway springs appears to be coming into more extended use. beautiful specimens of this manufacture from the Continent, as well as from Great Britain, have been exhi-To maintain a great speed, the first requisite in a loco-

motive engine is great evaporating power, and to obtain this there must be a large surface of metal exposed to the action of the heat on the one side, and of the water on the other. This is obtained by Mr. Stephenson's admirable expellent of a series of tabes which traverse the boiler, conveying the heated air from the furnace to the chimacy; by which expedient the absorption of the heat from the air, heated by the fire, into the water, is made to extend over a greater surface than by any other.

AWARDS IN SECTION E.

No. 512, p. 238. See Illustrations, p. 234. In the engine called the "Liverpool," patented by Mr. T. R. Champton, to which the Jury recommends the award of the Council Medal, a heated surface of no less than 2,136 square feet is obtained by means of the tubes, besides the surface exposed to the direct action of the heat in the furnace, which measures 154 square feet. The evaporation result ing from this vast amount of heated surface is stated to yield a steam-power equivalent to that of 1,140 horses. It is a second condition of great speed in becommitive engines, that the piston should make the fewest possible number of strokes whilst the engine traverses a given space; for which purpose the driving-wheels must be the largest possible. By bringing these from the position they have been accustomed to occupy (near the middle of the boiler) to the foot-board of the furnace, Mr. Crampton has succeeded in giving to the driving-wheels of his engine, the "Liverpool," a diameter of 8 feet. It is a further advantage in the use of large driving-

wheels, that for a given velocity of the engine, they diminish the angular velocity of the wheel, thus diminishing the tendency of the wheel to jump, by reason of its centrifugal force when the crank is not truly halanced, t a tendency which, before the attention of engineers was called to the necessity of balancing the erank, was fruitful in accidents. The same expedient by which Mr. Cramp ton obtains space for larger driving-wheels, enables him to place the boiler luwer, and thus-giving a lower position to the centre of gravity of his locometive-to increase its stability

The Jury award Prize Medals to the following: No. 509, p. 238. GEORGE ENGLAND and Co., Hatcham Iron Works, New Cross. Improved locomotive engine for railways of light traffic, weighing, with coke and water,

ten tons. The centre of gravity is low, and a good mode of M. Arnoux from competition for the prizes awarded by the Jury of Class V. is made rather according to the letter than the spirit of our instructions.

* A pair of guide-wheels placed at an inclination of 45 degrees to the vertical on the first earriage of the train, as segrees to the vertical on the nest entrange of the train, and a similar pair on the last, compel there to take and to main a similar pair on the last, compel there to take and to the training the control of the c

axle of the next pair of wheels in the same carriage.

† Or from the momentum of the connecting rod, &c., as at every revolution it ascends.

has been adopted of heating the water before it is pumped into the boiler. The driving-wheels of engines so light as this, require to be very truly balanced, or their weight should be very small in comparison with the engine, that they may travel with safety. The award is made for

they may travel with salety. The award is made for ingeninus arrangement and good workmauship. No, 510, p. 237. W. Buidors Anams, I Adnim Street, Adelphi, London. 1. A light locomotive engine coupled to a four-wheeled carriage which supports the end of the engine in case of accident. The engine carries water beneath the floor, and has a sledge break, 2. An eightwheeled double railway-carriage for first and second-einss passengers,

The award is made for combination and arrangement in the locomotive, for the break, which is well executed, and for good proportions and workmanship in the car-

No. 506. The Great Western Railway Company. Loconstive engine and tender, constructed at the Company's Works at Swindon. One of the ordinary class of engines, manufactured by this Company for passenger traffic since 1847. It is eapable of taking a passengertrain, of 120 tons, at an average speed of 60 miles per hour, upon casy gradients. The evaporation of the boiler, when in full work, is equal to 1,000-horse power—the when in init work, is equal to 1,500-noirse power—ties effective power, as measured by a dynamometer, is said to be equal to 7.43-horse power. The weight of the eugine, empty, is 31 tous; coke and water, 4 tous—engine in working order, 35 tous. Tender empty, 9 tous; water, 1,600 gallous, 7 tous 3 ewit; coke, 1 ton 10 ewit; total, 1,600 gallous, 7 tous 3 ewit; coke, 1 ton 10 ewit; total, 17 tons 13 cwt.

The heating surfaces are, fire-box, 156 feet; 305 tubes 1,759 feet.—Diameter of cylinder, 18 inches; length of stroke, 24 inches; diameter of driving-wheel, 8 feet; maximum pressure of steam, 120 lbs. The actual con-sumption of fuel in practice, with an average load of 90 tons, and speed of 29 miles, including stoppages (ordinary mail train), has averaged 20 81bs. of coke per mile. The award is made for good proportion of parts and superior

workmanship.

No. 536, p. 240, and Illustrations, p. 241. R. and W. Hawthonn, Newcastle-upon-Tyne. First-class passenger locometive engine. The award is made for a good arlocometive engine. The award is made for a good arrangement of parts, and fir an improved link motion.

No. 534, p. 240, and Illustration, p. 1078. Kirson,
Inontroon, and Heuvirson, Leeds. A lecomotive tank
engine. The award is made for good workmanship,
No. 473 (Prussin). Phereservor, and Co., Hoerde,

near Dortmund, Inventors and Manufacturers. Disc near Dortmond, inventors and Manufacturers. Disc wheel and bollow axie for railways. The wheel consists of a single disc of wrought irm, fitted accurately to the and and the tire by turning. On the end of the axie and in the inside of the tire, flanges are formed, and the disc being dropped into its place, as the lid of a tin box would be dropped into its rim, is then secured to these two flanges with rivets parallel with the axie. Hence there is no tendency to draw or loosen the rivets, nor are they exposed to any wear or injury when the wheel is revolving. The axle being made tubular, has its stiffness considerably increased, without any corresponding increase of weight, The whole presents an arrangement in which great strength and firmness are obtained without additional expenditure of material.

No. 555, p. 242. J. Spencer and Son, Newcastle-on-Tyue, Baillie's patent volute springs. These springs are made of a long plate of steel coiled spirally round a centre. so as to present an outline somewhat like the fusee of a watch. The hase heing supported, any force applied at the summit tends to force this inwards, and to bring the spring into the form of a flat coil. Several applications of these to the purposes of bearing-springs, buffer-springs, and draw-bur springs are shown.

and draw-har springs are shown.
No. 634, p. 246, and Illustrations, G. R. Thorney-chort and Co., Wolverhampton, Inventors and Manufac-turers. Specimens of Beigs's patent compound axis, fire, and rails. The distinguishing principle of the construction of these parts is the forming them of two different chinracters of iron adapted respectively to the kind of deteriora-tion to which each part is liable, and the strain to which it is subjected. Thus, in the wheel tire, the centre of the breadth and the inside of the flauge are formed of a hard irou fitted to resist the greater wear of these parts against the rail, while a softer and more tenacious iron is used to make those edges of the tire which are exposed to no wear. The great tenseity of this softer iron supplies the strength Ine great tellicity of this solitor iron supplies the averages required in the tire. Similarly the upper surface of the rail is formed of a hard iron, which will not wear away, and which gives strength to the rail by its resistance to the compression to which its upper surface is subjected. while the lower flange is constructed of a tough and tenacious metal fitted to resist the extension produced on those parts of the rail. The railway axles are, in like manner, formed by welding up a tough metal round a central bard core. The two metals are welded teacther in the course of the manufacture, so as to render the combination of the different qualities of iron perfect

Nu. 637, p. 246. GEORGE WORSDELL and Co., Warrington, Manufacturers. Railway axic and railway wheel-tire, forge-hammered. The iron is carefully faggoted and welded up, and the excellence of the work is indicated by the tenacity and strength of the completed axie. specimen exhibited, which has been bent cold under a pressure of 84 tons, offers a good sample of the result of the process, and is commended as an excellent specimen manufacture.

No. 646, p. 247. BEECROFT, BUTLES, and Co., Kirkstall Forge, Leeds, Manuficturers. Specimens of railway wheels and axles. Messrs, Beecroft exhibit, among others, a form of wheel peculiarly adapted for express trains, in which lightness should be combined with great strength. These wheels are constructed entirely of wronglit iron, the boss and spokes (single and double) being forged in one piece. The tires are then shrunk on and riveted us usual, Their wrought-iron disc wheel displays a mode of so dovetailing the disc to the interior of the tires as to obviate the necessity of rivets. These wheels have also wrought-irou bosses. They are commended for indicious combination and good workmanship,

Nu. 682, p. 249. P. R. Jackson, Salford Rolling-mills, Manchester, Manufacturer, Locomotive and carriage tires. The carriage tires exhibited by Messrs. Jacksou are rolled in one piece, and are admirably finished. The exhibit presents a valuable feature in the steeled tires, in which the outer and wearing surface is formed of a thin plate of steel welded (hy a process said to be peculiar to the manufacturers) to the iron. By this application it is anticipated that the tendency of the tires to become grooved will be diminished, and their durability be perportionably increased.

No. 640, pp. 246, 247. RANSOMES and MAY, Ipswich. Water-crane, patent compressed treenails, and wedges for

No. 307, p 237. J. Lee, Long Acre, inventor and Pa-tentee. Carriage break. A good example of what has been termed the sledge break. It is analogous to the drag or shoe on common roads. Instead of the resistance necessary to stop the train being created by the pressure of the break against the periphery of the wheel, an iron shoe or sledge is pressed down before the wheel upon the rail, and the wheel mounts the sloping surface of this sledge, which then slides along the rail until the resistance absorbs the via via uf the train, and brings it to rest. The resistance ereated by this break being very great, it should not be applied to all the carriages of a train at once. With this caution it is commended as a useful contrivance.

No. 530, p. 239. C. C. WILLIAMS, Glasshouse Yard. Goswell Street. A railway earriage, constructed of Moul-mein teak, varnished. This carriage is strong, convenient, and neatly executed; in the substitution of varnish for paint there is an economy, and the carriage may thereby be the more quickly repaired.

No. 532, pp. 239, 240, and Illustrations, pp. 239, 240. HERRY H. HENSON, Pinner, near Watford, Patent covered waggon for the conveyance of merchandise by railway; fire-proof when closed, and so arranged that the side or roof may be opened for loading or anleading. The award is made for the combination of corrugated iron and wood in its construction, No. 539, p. 240. J. E. McConnell, Wolverton, Rail-

way passenger carriage. This award is made for an ex-

cellent adaptation of corrugated iron to the construction of railway enrringes, and for superior workmanship.

No. 541, pp. 240, 241. JOHN COOPE HADDAN, 29 koonsbury Square. Patent railway carriage. Rewarded Bloomsbury for the application of papier maché to the construction uf railway carriages.

Honourable Mention is made of

No. 642, p. 247. M. PERCIVAL PARSONS, 6 Duke Street, Adelphi, Patentee and Designer. Among the various exhibits of Mr. Parsons, Normanville's patent axle-box deserves notice. The bearing is cutirely inclosed in a cast-iron box, which keeps the axle free from dust or sand, while it preserves the grease, which would other-wise fall on the road and be wasted. This box is cast in one piece, and around the axle is fixed a collar of stiff leather, so as to form a close joint, and prevent the ingress of dirt. As an improvement in the details of the railway system this well deserves attention.

Nu. 346, p. 969. PIERRE RODIER, Nova Scotia. Working model of a locomotive engine, made by the exhibitor. a boy 14 years old. A paper accompanying this exhibit certifies the boy to have received no nid, either in drawings or workmanship, which display ability and deserve

No. 231, p. 1451 (United States). L. C. HIGGINGO-THAM, Version, New York. Miniature model of a loco-THAM, Verion, New York. Stimuture moses of a necessary motive engine; made by a boy who lived by the side of a railway. The passing of the trains was the only information within his reach. A remarkable fact, to which the Jury would draw attention as a proof of the youth's singular powers of observation.

SECTION (F).

AWARDS IN SECTION F .- (See Table, page 188.) No. 618, pp. 244, 245, and Illustrations (England). The Council Medal is awarded to T. Dunn, Windsor Bridge, near Manchester, for a traversing frame to remove carriages from one line of rail to another.

A strong frame supported on wheels, which are covered hy its sides, travels on a railway at right angles to the lines, from one to the other of which the carriages are tu be transferred. The level of the upper surface of the transverse rail is a little above that of the principal lines, so that the latter are cleared by the flanges of the wheels of the frame, which therefore freely traverses them. The transverse line is broken where it crosses the principal transverse line is broken water it crosses me princepai lines, space being left for the trains to pass. To receive the carriage, a rail is placed like a shelf or ledge at the bottom of the sides of the frame, so as just to clear the surface of the permanent rails; and to raise the carriage upon this shelf a switch is provided, which, turning upon a hinge, may be hrought, when the frame is properly placed, into the direction of the principal line. The upper surface of this switch forms an inclined plane, op which the carriage may be raised until its wheels rest upon the The frame, with its hurden, is then pushed sideways along the transverse rail, to the rail to which the carriage is to be transferred, and the switch supplies an inclined plane by which the carriage descends. traversing frame, supplying (for many purposes) the use of the turu-table, is commended as a useful invention, affording increased facilities for railway traffic

The Price Medal is awarded to the following exhibitors:— No. 602, p. 242. W. H. Bartow, Midland Railway, Derby, Inventor. Wrought-iron permaneut way for rull-ways. The rail in Mr. Bartow's invention is made to form ways. The rail in Mr. Barlow's invention is made to form its own continuous bearing. In section the rail somewhat resembles an inverted $V(\Delta)$, with the ends considerably turned outwards. This portion farms the sarface by which the rail bears upon the ballasting, the apex of the V being formed with flanges in the ordinary form of rails; and the rail therefore beds throughout on the hallast. It can be very easily packed up and adjusted when out of place, and all the fittings of sleepers, chains, and keys are done away with, nothing being required besides the rails themselves, except a cross or tie-rod at the joints to hold them at the proper distances asander, so as to keep the gauge of the line. This rail has been tried on the Mid-land line, and the results, as shown by the diminished

SECTION (F.)

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oscillation and vibration of the trains in passing, and the smaller number of hands required to keep this portion of

the line in order, are said to be satisfactory.

No. 638, p. 246. Enaw Vast. Coursays, 83 Upper
This mes Street, London, and Abergavenny, Manifesturers.

The price Media is awarded to the eighbit in condersation of the facilities it affects for the comparison and study of the different forms of section, which have been deadly of the different forms of section, which have been deadly of the different forms of section, which have been deadly of the different forms of section, which have been deadly of the different forms of the course of the deadly of the different forms of the course of the deadly of the different forms of the course of the deadly of th

Bellitzy Dist., owes: one with the property of
of, and not be enaght, so as to prevent the proper choing. At the same time the of the point, SA. Cranaras Verse and Co. Lavaras verse and Co. Transitation of the principal of a standard control of the principal of the principa

on posts so set at the foar nugles of a require or a rhombus, that they close rither zeross be line, and lever the read clear, or cluss the read, and shart off all approach to the three closes of the close of the read, and shart off all approach to the proceed between the sheet of the several gates by means of iran reds, the motion of any one is accompanied by the corresponding notion of the close three divisions of the foar in succession, but by simply sering on one, he produces simultaneously the required movement in all, and the companies are considered to the control of the foar in succession, but by simply sering on one, he produces simultaneously the required movement in all, and are all the control of the foar in succession, but by simply sering on one, he produces simultaneously the required movement in all, and the simultaneously dependent of the control of the simultaneously are required movement of the control of the simultaneously and the simultaneously are required to the simultaneously and the simultaneously are simultaneously and the simultaneously are required to the s

increased only in a small proportion. No. 552, p. 242. C. DE BERGUE, 9 Dowgate Hill, Inventor and Manufacturer. Patent station buffer. Mr. De Bergue has aimed at producing a station buffer, which should offer to a train impinging upon it a gradually increasing resistance through a long space, thereby absorbing the vis viva of the train gradually, and without shock of the carringes apon one another; and he has sought to do this without the aid of a spring, the recoil of powerfully compressed, might be attended with danger. In his station buffer the train impinges on the cud of a long stout heam of wood, slightly tapering from one end to the other. This beam has its smaller end fitted to enter a strong iron hox or case. The force necessary to drive this taper beam into the case continually increases as the larger end approaches the case, or as the wood must be more and more compressed to eater the case. At the same time the beam, when driven in to any point hy the impact of a train, remains fixed there, having no tendency to fly out or return to its first position. All the injury which may be produced by the recoil of a powerfully-compressed spring is thus avoided, while on the removal of the carriage the iron case is easily unscrewed, and the beam of wood loosened and drawn out to assume

SECTION (G).

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No. 1 - No. 2 - No. 3 -	Commercial weighing in- struments } Instruments of measure - Counters and tell-tales Gauges Indicators	1	1			17	-	1 1111						17 4 7 4 3	17	-	6
	Manometers, dynamometers	Ξ	Ξ	Ξ	Ξ	Ξ	Ξ	Ξ	Ξ	Ξ	Ξ	Ξ	-	5	5	Ξ	1
ĺ	Total	1	1	-	-	1	1	-	-	-	-	-	-	40	40	-	7

Among the instruments exhibited in this Section are some dynamometrical machines but little known in this country, but which have been applied in France, with great success, to determine the most favourable conditions for the construction and working of machines, with respect to the economy of power. The machines heretofare used for this purpose have been the stram-indicator of Watt and the friction-break of Prony. The former serves to determine the work done by the steam upon the piston of a steam-engine during any single stroke; and the other, being applied to a driving-shaft when all other work is thrown off it, serves to measure the work by which that shaft is driven, from whatever source it may be derived. It is the object of these dynamome-trical instruments to determine the work transmitted to the whole or any part of a machine, not for a single stroke only of a piston, but continuously, through any given period; and to do this without absorbing—as the frictionbreak does-the whole work to be measured, but whilst the nuchine is performing its customary work. The nmount of work necessary to yield given useful results is thus determined, independently of the influence of any other parts of the machine than those which operate

directly on the result, Every such admeasurement is a manufacturing constant of great value, capable of being employed to determine the cost of production under other and widely different circumstances. Such constants as have yet been thus determined, science owes chiefly to the labours of French These dynamometers have been used not engineers," only to determine the power transmitted by machinery from steam-engines and water-wheels, but to manual labour, as applied to the working of pumps and driving effort of a team of horses through successive days of labour, and journeys as long as that from Amieus, Nancy and Le Mans, to and from Paris, has thus been measured and recorded, and the work expended on such efforts estimated, aggregated by the machine, and registered in

The invention of these machines is due to General Poneclet. They were constructed under the direction of Colonel Morin.

The following are the dynamometers exhibited:—
1. The "Dynamometro de rotation," for determining the work transmitted by a revolving shaft. A dynamometer for determining the manual labour

2. A dynamonater for determining the manual moon: of driving the handle of a pamp or a crank.
3. A dynamometer for registering the work of the steam on the piston of an engine through any number of strokes. Constructed in the principle of the constant indicator, made in the year 1841 for the British Association of the principle of the constant of the principle of the pri tion of Science, and described in their Report for that It will be sufficient to describet the rotation dynamo-

* They have been collected by Colonel Morin in his "Aide Memoire de Méranique Pratique." Fifth edition.

1849, Matthias, Paris. † It is not easy to make this description clear without a drawing. For a more intelligible explanation, the reader is Morin.

meter, which is that used by the Jury in its experiments on the centrifugal pumps.

Upon an axis, having east-iron supports, capable of

being fixed by screws npoa the floor, are placed two pulleys, which we will call a and B, the one, A, is fixed on the axis; the other, B, is moveable upon it between limits hereafter to be specified. Let it now be supposed that the machine, the power employed in driving which is to be measured, is worked by means of a strap passing over two drums, one of which is upon a shaft connected with the engine, or other motive power, which we will call the driving-shaft. Let this strap be removed, and the dynamometer being conveniently placed and screwed firmly to the floor, let a strap from the dram on the driving-shaft be passed over the dram, a, and one from the dram on the machine over n; then it is plain that if B were fixed to the axis as A is, the strap passing over a would transmit the motion of the driving-shaft on to the machinery; so that the latter would be driven as it was before, except that the work would now be transmitted through the dynamometer, which before it was not. To cause the axis to carry the drain a round with it, a spring, fixed in the axis, passes between knift edges, fixed near the circumferences of the wheel n. This spring being enried round by the axis, and pressing on one of the knife edges of the dram B, carries it round with it, first deflecting under the resistance natil the force with which it tends to recover itself is equal to that resistance. This deflection being measured, measures the resistance to be overcome to drive the machine, and the space travelled by the point where it is applied, measures the space through which that resistance is overcome.

The registration of these measurements, under every ange of resistance and motion to which the machine

may be subjected, is effected as follows:-r, q, s, round which passes a long strip of paper, winding (when the rollers are put in motion) of r and ess, passing, between them, over q. Tu put them in motion a bevel wheel, whose axis—at right angles to the axis of the dynamometer-has its bearings fixed to the frame, so as to be carried round with the axis of the dynamometer, engages with another bevel wheel, which runs loose on the axis of the dynamometer, and which is held at rest by a fixed The bevel wheel carried round by the frame hrneket. and engaging in this fixed bevel wheel, carries with it the roller r, and obviously communicates in it, and therefore to the strip of paper, a motion proportional to that of the point where the spring presses on the knife edge. The roller s is made to take up the paper thrown off by r, hy means of a spiral spring inclosed in it. The strip r, ny means or a spirat spring incrosed in it. I ne strip of paper being thus understood to pass over the roller q with a motion proportional to that of the point of appli-cation af the pressure which drives the machine, let it be observed that on an arm of the drum n is fixed a style, carrying at its extremity a pencil, which is pressed by a spring upon the paper passing over the roller q. When the strap which the drum n drives is taken off, that drum

referred to the "Leçons de Mécanique Pratique," of M.

is carried round by the drum a withint resistance; there is, therefore, no deflection of the spring, and no turning of the pulley upon the axis consequent upon that deflec-tion. The trues of the pencil upon the paper will, under these circumstances, be a straight line; and in all experiments the neucil is made first to trace such a line.

When, however, the strap is replaced, and the work is out on the drum n, the latter turns upon its axis, pressing the spring upon the knife edge, and deflecting it until its resistance is equal to that opposed by the machine driven by the strap. By this turning of the drain the peneil is by the strap. By this turning of the drum the peneil is moved at right angles to the line which it before traced on the strip of paper, by a space proportional to the deflection of the spring, and, therefore, to the pressure hy which the spring is deflected; and this proportion being waiter the spring is referred, and some preparation maintained, however the pressure may be varied, an irregular curved line is traced upon the paper, whose distance from the straight line before traced upon it, is always proportional to the pressure by which the machine is driven; whilst the corresponding distance along the straight line previously drawn, being measured from the commencement of the motion, is proportional to the space described by the point of application of that pressure. Hence it is apparent that, as in the case of the common steam-indicator, the area of the curvilinear space between the straight line traced by the style before the work was put on, and the curved line traced by it afterwards, is proportional to the work done in driving it. There are

two other contrivances worthy of uotice. 1st. A contrivance for correcting the want of uniformity in the motion of the paper, produced by the diminution of the diameter of the roller r, as more of the paper winds off it. This correction is rendered necessary by the great length sometimes given to the strip of paper, This correction is effected by the intervention of a fuseewheel

2nd. An admirable method of M. Poncelet for registering in numbers in one part of the dynamometer the work which in another (as described above) is registered, under the form of a curvilinear area. This is effected on a principle, which has also been applied to the mechanical quadrature of areas, in an instrument called the planimeter, of which several are exhibited in the department of Philosophical Instruments. The two registrations serve to verify one another.

AWARDS IN SECTION G.

No. 1151, p. 1233 (France). P. CLAIR, 93 Rue de Cherche No. 1134, p. 12331 (France). P. CLAIR, 93 Rue de Cherche Midl, Paris. 1. MM. Poncetel and Moriu's rotary dyna-mometer. 2. Lapointe's constant indicator. 3. Clair's indicator, The award is made for good and intelligent workmanship in the construction of these machines, under the direction of MM. Poncelet and Morin. Among the articles exhibited by M. Clair is also an admirably constructed model of a locomotive engine in metal, the working parts of which are opened or shown in section, for explanation and instruction.

No. 761, p. 1216 (France). J. BÉRANGER and Co., Lyons. Scales, weighing-machines, and various uther im-plements for weighing. Guided by an ingenious mathe-matical theorem, M. Béranger bas so combined a system of levers that he can place one of his scale-pans at any distance from the other-according to the form he wishes to give to his weighing machine—without affecting the equality of weights which balance in the two scale-pans.

This combination of levers is simple, economical, compact, and admits of a ready application to all purposes of commerce. M. Béranger has, in fact, made that application in the collection of convenient and ornamental weighing-machines which he exhibits.

No. 944, p. 1225 (France). PARENT, 33 Ruc des Ares, Paris. Weighing-scales, weights, and measures, which

struments made for philosophical and chemical purposes, and a degree of precision and accuracy is thus attainable for the purposes of commerce, which is not to be looked for in common balances. The award is nade for an attempt to improve commercial balances, and for the admirable

workmanship of those exhibited. No. 105, p. 1013 (Austria). H. D. Schmidt, Vienna. Model of a patent weighing table.

The mode of suspending the platform on a quadrople lever, and of connecting this lever with the steelyard, is the same as usual. But a very advantageous arrangement is nande for relieving the steel fulera of the levers, when the machine is not in use from the weight of the datthe machine is not in use, from the weight of the platform, and of any carriages passing over it. Under the ints where the platform rests are the four levers; these points where the platform rests are use conwards, and nearly touching the upper surfaces of four short pillars of iron fixed into the masonry at the bottom of the pit. When the meehine is not required for weigh-ing, the long end of the lever is lowered, together with the steelyard counterpoise and framework, by means of a winch and sevew, natil the bosses of the levers rest on the pillars beneath them. The weight of the platform and any carriage upon it is then borne by these pillars, and not by the steel fulers of the fourfold levers. fulern are thus saved from much unnecessary deteriora-tion. On raising the frame with the steelyard and the end of the long lever, the weight of the platform is thrown on its fulera, and the machine is then ready for

No. 774, p. 252. JONATHAN DAVIDSON and Co., Burony Street, Ediuburgh, Inventors and Manufacturers. The steelyards and weighing-machines of these exhibitors are manufactured in a very creditable manner. The parts manufactured in a very erectifiable minimer. The parts appear well proportioned; and care has been taken to prevent deterioration, as far as possible, by apriling steel at all the points peculiarly exposed to war. The arm of the steel of the result of the steel of able for any counterpoise, as the several weights read off merely show multiples or sub-multiples of the counterpoise. The arrangements and proportions of the several parts are judiciously determined, and the whole is well finished.

well finished.

No. 784, p 283. H. POOLEY and SON, Láverpoof, Inventor and Manufacturer. Patent weighing machines. These are remarkable for simpleity, neat and effective construction, and good workmanship. The principle is alike in all. The weighing platform rests on four points, very near the fulers of a quadruple lever, as in the common street weighing-machine. One of these fourfold levers is prolonged, and at its extremity is connected with the short end of the lever, to which the scale-pan with its weights, or the sliding counterpoise, is attached.

The locomotive weighing-machine appears very deserving of notice. This consists of a system of three such tables, placed so that a locomotive running over them may have each pair of its wheels on a separate table, Then the three counterpoises may be adjusted until each one correctly balances the proportion of the weight bearone correctly balances the proportion of the weight bear-ing on its table. A bor with a light lever, and a bandlo projecting from it over each steelyard, enables the attendant, standing opposite the centre not or brick tho winations of all three, and inspect with accuracy the state of adjustment. By the use of this multiplied weighingmachine the proportion of weight borne by each pair of wheels may be tested, and the inquirer is thus enabled to alter the adjustment of the springs until he has secured such a distribution of the load as may be most likely to lead to good working.
No. 772, p. 252. Day and Millwand, 118 Suffelk

Paris. Weighing-scales, weights, and measures, which Street, Birmingham. Patent weights, and measures, which have many of the more important characteristics of in-

Wandscorth, October 1851.

HENRY MOSELEY, M.A., REPORTER.

CLASS VA.

REPORT ON CARRIAGES GENERALLY, NOT INCLUDING THOSE CONNECTED WITH RAIL OR TRAM ROADS.

[The figures after the Names (between parentheses), refer to the Exhibitors' Numbers and to the Pages in the Official Descriptive and Lauremated Cavalogues.]

Sub-Jury for Carriages,

The Earl of Jessex, Conirmon, 38 Berkeley Square.
J. Holland, Deputy Chairmon and Reporter, 258 Oxford Street; Coach-builder.
M. Ansons, France; Gagineer.
T. Herron, Squamer Hill, Bublin; Coach-builder.

M. Anson, France; Engineer. T. Herron, Summer Hill, Dublin; Conch-builder O, McDastet, United States. Anyouse Poncearr, Belgium; Engineer-In-Chief.

By the "Intractions from the Causell of Chairmen to the princin," we are directed to consider the articles coming within our province for examination, under two divisions, and to regard as qualifications of principles of the principles and to regard as qualifications of the principles of the pileation of any new material, with elegance of designs, and reconsible chemposes," and in the second data, or consider the principles of the principles of the principles of solidity for safety, durability, and chemposes.

Our examinations and awards have been made in strict conformity with these instructions. We find that the contributions in our department are apportioned among various countries as follows, viz.:—

Bath (Great Britain 60 79 France - -Hamburgh -. 3 Grand Duchy of } 1 Sanlinia 1 Austria tlunds -3 Canada -United States 8 -- 100 107 2 2

(Messes, J. Hurrox and Soxs, of Dublin (884, p. 257), exhibit four carriages, which are excluded from competition as Mr. Hutton is a Jaror in this class.)

Besides the articles in the foregoing table, we have had under examination a number of models of minor importance, patent axles, wheely, and other parts of estringes, coach-lace, &c., the peculiar merits of which are not axles, ciently cylident to entitle them to especial notice or commendation.

The fact most obvious in the display of carriages is the sexas of variety in the kind, and the absence particularly of the higher class of equipages, of travelling carriages, propry so called, and of vehicles intended "for the public service." The dress or plain vis-s-ris, the dress or plain cach, the landau, the mail-coch, &c, have no representatives in the Exhibition.

We confers we are somewhat surprised at the deficiency

in this respect; but regard it as accounted for in a great measure by the denand for carriages of these descriptions having been so materially diminished by the general introduction, within a recent period, of railways.

We are also of opinion that the trade is not fairly any

more than fully represented, and that the set of carriagemaking has attained a point of excellence which would werrant the expectation of a light verification of course very generally the set of inspries words, beather, and extra prices and the set of inspries words, beather, and extra prices are set of inspries words, beather, and extra prices were set of the set of the set of the set of the prices were set of the set of the set of the set of the prices were set of the set of

the continging the state of the art of corrisposhtilling of former and not very distintt times with that of the prosent, we consider the principles of huilding in many respects greatly improved, and particularly with reference to "lightness" and a four regard to "strength," which service the properties of the property of the contraction of the state of the contraction of the contraction of wheels and other parts requiring "artering hand lightness" conditions, a most required to the properties of the contraction of wheels and other parts requiring "artering hand lightness" conditions, a most required to the contraction of the contrac

We observe many innovations and contrivances in springs, steps, fore-carriage locking movements, &c., which are not always improvements, and yet convenience and nice adaptation have been much advanced in these resports also within a few years. We notice a justify metricorious and very time automatie step on the carriage of Mr. David Davies of London (292 p. 256), and an ingracious spring door-lock on a carriage of M. Mousard of

Paris (67, p. 1207).

In our judgment the appearance of the earriage has not been improved by a deviation quite consons from the lines hitherto adapted and approved, and we regret to remark, under the head of "elegance of design," that we find in that exhibition of carriages a great defining the properties of the pro

eines incorraion.

In the control of the process of

We do not observe that there has been what may be properly considered, "antecested application of any new material," although we may need to the properly considered, "although we may need to be a subsection of the properly considered to be given and the properly considered to be given the subsection of the proceedings of the properly considered to be given to be subject to be given to be given to be subject to be given to be subject to be given to be given to be subject to be given to be subject to be given to be subject to be given to be subject to be given to be subject to be given to be given to be subject to be given to be subject to be given to be subject to be given to be subject to be given
Isdigium, and the United States. The iron-work is also goaerally of the best description, in point of quality of the metal and the execution, but in many cases it lacks due simplicity in form and arrangement of some of the parts. The perfection which textile manufacture has attained of late years, has had a corresponding effect on the interior fittings of carriages, which in limings, &c., artic cost, artistic proportion of a companion of the late of the control of the control of the cost of th

The consideration of "reasonable cheapness" has been also jobserved; but it is obviously very difficult to determine the exact intrinsic value of an article like a carriage, and to judge positively whether the affixed price is sexsive or not. The cost is often much increased by orunnent, finish, or contrivance, that might be advantageously dis-

neared with, and thus a carriage, otherwise extravaguat in price, be relocate to a standard of "resonandic cheapness". And this uncleas addition of expense is a fault of common courance to which we have previously allowed. Extravaguant prices may fairly distinish the claim fore approval, but at the same fine we are convinced that fore approval, but at the same fine we are convinced that orbitant price, but that with carriages as with articles of homelood formitten, the most similar perhaps to those under our notice where the quality of the article is more or be conceived, the lowest priced may often grove to be

the deared perchase. After a patient, and we believe through examination. After a patient, and we believe through examination. After a patient and indiquants are within possession of the perchange of the percha

AWARDS, CLASS VA.

	GREAT BRITAIN.
No. 802 No. 811 No. 814 No. 828 No. 862 No. 874 No. 933 No. 950 No. 956 No. 956 No. 956 No. 957 No. 997	Andrews, Richard Sendampten Poor Planton Regres Cs, and Cs. London Two Landon Two Januting Chemistry London Two Januting Chemistry London Park Rassouth London Park Parketon London Park Parketon London Park Parketon London London Park Parketon London Lo
77770	FRANCE,
No. 50 No. 490	Balvalette Brothers Boulogue Buggy Drag. Dumaine, J. A Paris Town Berlin.
	BELGIUM.
No. 118 No. 122	Jones Brothers Brussels Cab Phaeton. Van Aken, P. and Sou - Antwerg Cab Phaeton.
	* UNITED STATES.
No. 466 No. 361	Childs, Charles Springfield, Massachusetts Watson, G. W Springfield, Massachusetts Philadelphia, Pennsylvania Sporting Waggon.

JOSEPH HOLLAND, REPORTER,

London, Jan: 11, 1851.

The Control of

CLASS VI.

REPORT ON MANUFACTURING MACHINES AND TOOLS.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATEO CATALOGUE.

Jury.

General J. V. Poscezer, Chairman, France; Member of Institute, late Director of Polytechnic

Neliool, &c. Rev. H. Watas, M.A., F.R.S., &c., Deputy Chairman and Reporter, Jocksonian Professor of Natural and Experimental Fishmorphy, Cambridge. Professor Filters Osman, Tassensy Director of the Technological Institute, Florence. Laura ne Castroroms, Amstric; Vice-President of Chomber of Commerce, Milan; Member of the Silvarial Institute of Biologia.

Scientific Institute of Bologua.

BEMANIN FOUTHEROILA, Manchester; Mechanical Engineer.

CHARLES GASCOUNT MACLEA, Leeds; Mechanical Engineer.

GELLHEARK FONEK, POTUGIA; Mechanical Engineer.

JOHN PLESS, Greenwich; Mechanical Kingineer.

GERORGE RESSHIF P.R.S., Whitehalf Places; Mechanical Engineer.

T. R. Sewell, Carrington, near Nottingham; Lace Manufacturer, Samen, Weaurn, United Stotes; Civil Engineer.

Professor W. WEDMING, Zollverein; Member of the Board of Trade and Commerce at Berlin.

Associates.

A. BARCLAY, Brewery, Park Street, Southwark; Brewer, ROBLET DAYSON, 33 Mark Lane; Civil Engineer.

Foliation Persons, State Lang, Cert Laguer, J. Minacin, F.C.S., Oakenshaw, near Acerington, Laneashire; Chiico Printer, A. PAYEN, France; Member of the Institute. Dr. Varestraare, Zoliverein; Professor of Chemistry.

THE Jury for "Manufacturing Machines" have inspected the articles contained in that Class of the Exhibi-

tion, and have to Report thereon as follows: They find it to contain a collection apparalleled for number, importance, ingenuity, beauty of execution, and every quality by which the machines of the present day are distinguished; but they desire carefully to guard against the supposition that every branch of mountaeturing mechanism is represented. On the contrary, great inequality prevails in this respect; some manufacturing processes being ohundautly and almost amerikacusily illustrated, others wholly quitted, and the remainder re-

presented by very few specimens. The textile processes in general, the preparation and spinning of cotton, flax, wool, and silk, weaving in all its branches, are, for the most part, well illustrated by the public spirit of various exhibitors, who have not only sent complete series of the respective machines, but olso mointoin them is motion, doing work, so that these materials are octually shown to the visitors is their gradual progress from the raw state to the saleable product, But even in this division many machines are necessarily omitted, especially if the nature of their work units it to be carried un in the presence of a crowd of spectators.

Such are the preparatory washings and cleansings of raw unterial; all kinds of fulling, colendering, dyeing, and the like, which either derive their sole interest from and the like, which either iterity their sole interest freis processes that ore occumpanied by excessive noise, dust, disagreeable smells, splashing and spilling of water and other fliquids, or similar nanoying phenomeum; or are of such a mater as to occupy time, or demand noire care than can be bestowed in the presence of an assembly of spectators; or which require peculiar conditions of temperature or other arrangements incompatible with a public exhibition. Paper-making may be placed under this head, and consequently only o few of its models and machines are exhibited; and those, at rest.

For completeness and value, the collection of machine tools for working metal and wood may take its place next to the textile mechanism; and here may be seen speci-mens of nearly every one of the engines that have been introduced in the present century by our machine makers, and by means of which the construction of the vost and

complicated muchinery that now pervades all classes of industrial occupations has been rendered possible. the anguitude of the work usually executed by such engines-the steadiness of foundation which they require, and which is must tainable in this building - and other considerations, appear to have prevented the exhibition of their action; for although they are placed in the department of mechines in motion, and some of them are actuelly kept in motion to part, no work is placed upon them. For obvious reasons, oil processes of working metal which require heat are impracticable, and very few of the machines which helong to such are here to be found. Thus the reduction of metals from the ores to burs and sheets. end all founding or easting processes, ore wholly unrepresented, as well as the curious and interesting operations belonging to the glass and pottery manufactures To these may be added muchines which are so bulky or To these may be some more meaning where we so sussly deranged as not to justify, in the opinious of their owners, the risk and expense of removing them to the Exhibition, or the sacrifice of the work which they

are producing in their own manufactories A great voricty of printing presses will be found in A great vorcety or invating presses and se runn in the collection, mony of them maintained in constant action; also mony mills for grinding and crushing vege-table producps, with the elcousing oud sifting apparatus connected with them; but of course not exhibited in action. Besides these, there are various miscellaneous machines which will be indicated as we proceed. Enough, however, has been said to show that the present collection does not represent the real extent to which machinery is employed in the manufactures of this country, seeing that, at all events, those machines are omitted which derive their sole interest from the processes with which they are connected, and when these are of such a nature as to forbid their being carried on in the presence of an assemblage of spectotors or in an armomental building. assemblage of spectotors of at an information annual, it will be remarked that the greater part of the machines which ore exhibited are sent by their makers and not by manufacturers.

The above remarks are more especially directed to the British part of the Exhibition; but they apply with still greater force to the foreign, in which the distance of the respective countries and the risk of damage to the meCLASS VI.]

chanism have necessarily interposed many difficulties to the transmission of large, valuable, or delicate objects of this description. Hence, notwithstanding the considerable number of beautiful and ingenious machines that are placed in the eastern division of the building, any attempt to estimate from this collection the relative employment of machinery in any branch of manufactures by their respective countries, or the relative standard of excellence which each has attained in the construction and contrivance of machines, would lend to the most fallacious and unjust conclusions.

The machinery of the Exhibition, and the foreign machines especially, must therefore be looked upon as a collection of miscellaneous articles, sent by individuals without any principle of concurrence or any attempt to ensure the fair and equable representation of every class of manufacturing machinery, or of the styles and mode of workmanship which prevail in different countries or districts

It will of course be understood that the above remarks are strictly confined to the articles which belong to the class of manufacturing machines; for the portions of the cases on miningers and manufactor, for the portions of the shallding wherein they are placed also contain many of those that are included in Class V., especially in the foreign departments, in which the machines of the two Classes V. and VI. are also mixed up with agricultural and other mechanism of all kinds, and with hand-tools and manufactured articles that properly fall under the denomination of "cutlery" or "general hardware." not been sent by their respective exhibitors, or they prove upon inspection to be either models of small importance, or to have been so daranged by the transit as to make it impossible to set them in motion, or form any just opinion of their merits, especially in cases where the exhibitor is neither to be found, nor has left any representative capable of explaining them,

In round numbers it appears that the English exhibitors amount to about two hundred and twenty. France has contributed between fifty and sixty; the United States, fifteen; Belgium and the Zollverein, ten or twelve each; Russia and the Netherlands two or three; while Sardinia and Switzerland have merely sent some machine-tools used in the manufacture of watches. Since it thus apcars that the machines sent by each country, whether Pears that the accurace seet by case comments the little of project bear no proportion to the relative employment of machinery, considered either with respect to geographical distribution or to the different departments of manufacture, it will be useless to examine each country by itself. In the following more detailed survey of the functions, including under each head all those that have been contributed by the different nations

(A.) Convension of Raw Material into a continu-OUS THREAD, AND SUBSEQUENT PROCESSES,-(1.) Cotton. (2) Wool. (3) Flax and Hemp. (4) Silk.
(B) Weaving of all kings.—(5) Looms. (6) Lace-frames. (7.) Kuitting or hosiery frames. (8.) Heald machines, sewing machines, &c.

(C.) PAPER AND PRINTING.—(9.) Making, cutting, and folding paper. (10.) Type printing. (11.) Numbering, paging, and raling machines. (12.) Lithographic and

paging, and raming cooper-plate preses.

(D.) Working farts of the above Machines.

(E.) Machines for Workino in Metal, Wood, Stone, Clay, Leather, &c. &c.—(13) Lathes for metal NTUNE, ULAY, LEATHER, &c. &c.—(13) Lathes for metal (including also those for wood, &c.), (14). Machines for planing, (15). Slotting, (16). Skaping, (17). Drilling and boring, (18). Other machines and toos for working metal. (10). Machines for sawing, planing, mortising, &c., wood. (20). Working in other materials, as stone, coal, clay, leather, glass, &c. (F.) MILLS FOR GRINGING AND PREPARING FLOUR, AND

OTHER VEGETABLE PRODUCTS .- (21.) Grinding. (22.) (6.) MACHINERY FOR THE MANUFACTURE OF SUGAR.

(II.) APPARATUS FOR BREWING, DISTILLING, AND MANUFACTURING CHEMISTRY.

whose zeal, ability, and diligence, we have been so greatly indebted throughout the whole period of our labours.

(A.) Conversion of Raw Material into a continuous THREAD, AND SUBSEQUENT PROCESSES. (1.) Cotton.

In the exhibition of machinery for spinning, and its preparatory processes, Messrs, Hunner, Platt, and Sons (1, pp. 263-268) have taken the lead, by establishing and maintaining in operation a complete series, beginning with the opening uncline and scutcher, and in-cluding the various carding engines, the drawing, slubbing, and raving machines, two relf-acting nonles (the one adapted to the weft, the other to the warp), and also a threatle, a winding-machine, and a doubling machine. This spleadid series of nincteen machines is of their own manufacture, and contains many improvements on the ordinary constructions, besides infording a complete picture of the progress of the raw material from the state in which it is imported, to that in which it is delivered to the weaver. Attention must also be directed to the beauty and excellence of the mill gearing and its framing, by means of which these various machines receive their notion from the steam-engine. This part of the work is exhibited by Measrs, Htcs and Sos, of Bolton (1, p. 268). The cotton cleaning and opening machine of the above The cotton cleaning and opening macrine of the most series is on Mr. F. A. CALVERT's construction, who also exhibits (27, p. 271) other specimens of his new and effective method of making wool-burring, cotton cleaning, and carding cylinders.

Other makers have sent admirable specimens of some of these machines, each distinguished by peculiarity of construction, important improvements, workmanship. Amongst these the new throstle of Messes, SHARP, BROTHERS, and Co. (15, p. 270), is remarkable. The principle of this machine, which is derived from America, is-that a small loop running on a ring is substituted for the usual flyer, whence it is termed "the ring and traveller threatle." The framing and disposition of its parts are greatly improved by the present

makers Mesers, Higgins and Sons (14, p. 270) exhibit their roving-frame, and Mr. J. Mason (10, pp. 258, 269) a drawing-frame, in roving-frame, and a slubbing-frame, furnished with their patent collars, by which the spindles revolve with greater stendingss, and an increased velocity can be attained. Also separating plates for the slubbings, and a hrake motion for more effectually stopping the exhibit an extensive contribution of machines, including a carding-engine, drawing, slubbing, and raving-frames, and three parent self-acting nules, each of a different construction. A new self-acting nule is also shown in operation by Mr. G. P. Macriston (24, pp. 270, 271), in which a radial arm is employed to produce the return motion, or putting-up of the carriage. Mr. R. SUTCLIFFE (42, p. 273) exhibits a doubling-trame of an improved construction, in which the fiver is drawn by the bobbin, and other arrangements are carried out for the purpose of obtaining a high velocity. Messrs, Gaunner and Bazger (87, p. 279) contribute a small doubling-frame for lace thread, in which the spindles are driven by connect wheels in lien of bands, an arrangement that has also been used in the throstle of Messrs. SHARP sirendy debeen used in the investie of ofesiers, Shahr arready described. Mr. Pattesov (3. p. 271) exhibits a machine for winding cops: M. De Footante Moneau (p. 273) a sunde of driving spindles with tooth goar, and Mesers, Lawrs and Mr. Lawre (209), p. 293) a spindle for roving, slubbing, or doubling, which considence the datatage of

top bearings with facility of doffing.

The Foreign Department contains very few machines for the manufacture of cotton,

Mr. Rrsta (France, 1438) exhibits a machine, which he serms "L'Epurateur," for opening and cleaning cotton upon a new system, that promises great advantages; and Messri. Syamu and Co. (France, 1021, p. 1227) We cannot conclude these prelimenary remarks with-out expressing our cordial thanks to Colonel Lloyd; to ship, in which the spindles are wholly driven by spar-or 2

ecls. From Belgium, the Phienix Company (134, 1155) have sent a well-made "soft-bobbin" frame, in p. 1155) have sent a well-mode "soft-hobbin" frame, in which the cone and pulley, usually employed to produce the variable motion required by the bobbins, are replaced by a group of spur-wheels. Mr. W. HAYOEN, of the United States (368, pp. 1461, 1462), exhibits a drawing-frame for cotton, with an ingenious self-acting mechanism. Frame for regulating the weight of the slubbing, and Mesers.

BATES, HYDE, and Co. (440, p. 1463), send a saw-gin for cotton. Mesers. W. and C. MATHER (16, p. 270) exhibit a calico-printing muchine, for printing eight colours at one operation.

(2.)-- 11'col. The machinery for the woollen maunfacture, notwith-Are mecanory for the wooten mammediare, botwith-standing its extent and importance, in very slenderly represented. Mr. G. E. Donistriumer (40, p. 273) con-tributes a machine for long-wool combing, recently patented, on a new principle, of great ingenuity and admirable pronise; and Mestra, literar and Soxs (48, p. 274) have furnished a series of the six machines. employed in the manufacture of warsted yarns, of the best workmanship and of improved construction. By best workmanship and of improved construction. By these the complete progress of the unterial, from the state of a sliver to the spisming, inclusive, is shown in daily operation. Mr. Masos (46, pp. 268, 263) exhibits, in the short-wool department (or clothing branch), two carding-machines and a mule. These deserve especial on the Continent, and universally in the United States. by which endless sluthings are formed directly from the card The old hilly-machine, and the operations concard. The old hilly-machine, and the operations con-nected with it, are thus dispensed with, and the yars produced is more level. Mr. Mason's machines contain several important improvements, of his own invention; especially an apportus for condecating the slubbing from the first card. In the French Department, a set of woolken machinery, on the same system, is exhibited by Messrs, Mancien and Co., of Louviers (632, p. 1208); namely, two carding-machines are of highly-finished workman-mule. These machines are of highly-finished workmantwo carding-machines and one semi-self-acting mule. These mactimes are of nignty-massed workman-ship, and in the best style of modern French machine building. In this department (283, p. 1190), Messrs, Lacavex and Soxs contribute a fulling-machine, of admirable construction upon a system which has entirely summane construction upon a system which his chitrely superseded, on the Continent, the old method of fulling-stocks. In the English part, Mr. E. Huwr (49, p. 274) exhibits a gig-mill, of a new and simplified construction, which, by working on both sides, and thus finishing the process of dressing with teasels, without removing the eloth from the machine, is rendered capable of turning

out considerably more work than on the usual system.

The English mechanists have not contributed a single The English mechanists have not contributed a single slearing-mochine, but in the Fureign Department there are exhibited several of very ereditable workmanship, mamely, by Mossrs. Throuse (Firsts) a57, p. 1060), II. Theorem Broomings (Belgium, 128, p. 1153), and SCINELDER and Lizanaxo (France, 1001), p. 1227).

(3.)-Flax and Hemp

The Flax manufacture is represented, in the present collection, with the same spirit and completeness as the

Mr. R. Plemmen exhibits his patent rotatory disc machine (74, pp. 275-277), with other machines for break-ing, entting, and dressing flax; also his application of gutta erchn to the holders. Mesurs. Lawson and Sons con percha to the holders. Messrs. Lawson mas Sons con-tribute a set of sixteen machines (75, pp. 277, 278), which, for heauty of execution, value and completeness of illustratium, are fully equal to those which Messrs, Himacar have furnished in the department of cotton. These mediates are divided into three series, that include the three departments of flax manufacture; namely, the tow, the long flax, and the cut flax; and they contain all the machines med in each respectively, by which the raw material is converted from the form in which it is imported to the thread, as delivered to the weavers, or others, by whom it is employed. Among them are the machines by which the spinning of flox has been so greatly facilitated by substituting cold water for warm.

which was formerly employed to the great detriment of the health of the workpeople. Messrs. Hingains (14, p. 270) have also exhibited excellent specimens of the four machines employed in the long flax spinning, and

tour machines employed in the root one spinning, and the preparatory steps which belong to it. In the article of Henp we find only the large machino of Mr. J. Crawmal. (78, p. 279), by which yares, spun by processes not exhibited, are converted into a rope. This machine, compared with the previous ones, from which it is derived, is remarkable far simplicity of

The Foreign Department does not contain a single machine relating to the flax manufacture.

(4.) - Silk.

The simpler machinery of the silk manufacture is com-pletely exemplified by the beantifully-finished machines of Mr. J. L. Davespoat (80, p. 279), which include the complete series employed in that branch, for throwing, winding, cleaning, spinning, doubling, and reeling; the whole of which are exhibited in operation. Mr. J Fuort (84, p. 279) also cuntributes models (or rather, short portions) of his improved machines for winding, cleaning, throwing, &c., and of his spinning and doubling machine, in which the two operations are performed by

one process.

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From this rapid survey of the machinery in the Exhihition, for converting the raw materials of cotton-wool, flox, and silk, into a continuous thread, it appears that wearly all the processes are represented, and some of them in the most satisfactory and complete manner. It is to be regretted that no specimens have been sent of the curious machines, by which enoutehout is manufactured into a continuous line.

(B.) - WEAVING OF ALL KINDS. (5.)-Looms

We may now proceed to the various classes of locans, of which a great variety are placed in the Exhibition, and most of them maintained in operation, either by power or hand; many of them also are remarkable for novelty of construction and for important improvements, which can only be alluded to, here, as it would be which can only be influed to, here, as it would be impossible to render them intelligible without the aid of drawings or very long descriptions. Those, however, which appear of the greatest importance may be meationed

E. and C. PARKER's power-loom for said Messrs, C. cloth (77, p. 278) is distinguished by peculiar and effective arrangements for maintaining the uniform and regular delivery of the warp, and a constant but adjustable ten sion in the taking-up motion, by which the firmness of this important article of manufacture is insured

Mr. Baows (56, p. 275) also exhibits a sail-cloth power-loom with peculiar arrangements, adapted to the me objects

In Mr. Barlow's double jucquard loom (82, p. 279) two cylinders are employed, and the cards are disposed upon there in alternate order, so that, while one cyhnder with its cards is brought into action spon the horizontal wires, the other is withdrawn for the purpose of rotating it, and shifting the card, and rice erest. By this arrangement the loops can be worked with a valuation of the card, and rice erest. ment the loom can be worked with a velocity 40 per cent, greater than that of the ordinary construction: the steadiness of its action is greatly increased, and the strain apon the warp diminished, by another improvement, which consists in lowering the warp threads as well as raising them; whereas in the ordinary jacquard loom those threads which are not carried up by the lifting bars are allowed to remain in the horizontal position.

The power-loom of Messys. Kixwourtwi and Illellocan (21, p. 270) is characterised by two self-acting methods of stopping the loom by throwing off the belt; the one when the well breaks, the other when the shuttle traps, that is, sticks in its course through the shed.

Mr. Mason's large loom for wool (10, pp. 268, 269), has a motion which releases the swell of the shuttle-box at the instant of picking or driving the shuttle, whereby the force required for the latter operation is greatly diminished.

Mr. M. Ssittii (22, p. 270) exhibits several powerlooms with a poemiar mode of delivering the warp; one of them has a self-section for changing the shuttles, and thereby working in three colours in any desired order, the changes being governed by a kind of jacquard

Mr. FROMAGE (France, 219, p. 1184) contributes a powor-loom in which two shuttles are employed, and shifted by an endless chain, provided with inspects fixed in the order required by the pattern.

in the order requires by the pattern.

Messrs, Taxton and Sox's power-loom (23, p. 270) is provided with four jacquard cylinders working simulaneously, and Mr. Chatatran (32, p. 273) exhibits a large power-loom for damask-wearing, provided with a jacquard and some new armagements.

jucyuard and some new arrangements.

Mr. Carcirrox's model (35, p. 273) shows a taking-up-motion that adjusts itself to the increasing diameter of the eloth beam with more precision than any previous contrivance.

CONTITUENCE.

Other looms are exhibited by Mesers. Harrison (18, p. 270), Hennixu (44, p. 273), Elliott and Hexs (50, p. 274), Milligan (38, p. 273), Choos (64, p. 275), and

b. 574.) Annearous. J. Sarrat (30, p. 23).
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Mr. Hanubox (18, p. 270), whibits a power-loom made fifty or sixty years ago, which will be looked upon with great interest as a specimen of the mode in which machinery was constructed at that period.

good interest as a specimen of the mode in which muchinery was constructed at that periods, muchinery was constructed at that periods, but the property of the property of the property to the property of the contains are two jumpard cylinders by Mesen. Matters (2008, p. 1929), and Karata (2009, p. 1932), which exhibits paper in two of the culture of the collector constructions are Well-made jumpared of the collector constructions are well-made jumpared of the collector construction as the Construction of the collector (2009, p. 1935). The Well-made jumpared of the collector (2009, p. 1935), the Well-made jumpared of the collector (2009, p. 1935). The Well-made jumpared of the collector (2009, p. 1935), the Well-made jumpared (2009, p. 1935), from Begleins, W. Yasser (1908, p. 1936), joined a singular loss in which in paymard fearner to accord until confidence of enoting the implied derives person to succeed well companied for colors and principle derives person to succeed well companied for colors and principle derives person to succeed well companied for colors and principle derives person to succeed well companied for colors and the colors of the chains of enotes, the

Various applications are shown of small jucquard machine which are to the heldlest of pover-fooms in few of tappets, or in other ways, so as to produce dispers or other figured patterns of limited range; as, for example, by Meses, Geruzat (Edg. 183, p. 1125), M. Serrin (22, p. 201), A Surrin (33, p. 273), Maser (6, pp. 248, 264), and patching the reals, will adapted for small wextern, is shown by Meses. Boxansut, Granis, S.A., p. 1050, and a reader with keys similar to those of an organ, by Mr. MacKassati, Col. p. 273).

Mr. De Fontaine Moreau (30, p. 273) exhibits a jacquard loom, in which a cylinder like that of a barrel organ, and provided with pegt that can be shifted to sait any required pattern, is substituted for the usual chain of cards.

(6.) Lace Frames.

Mr. Bunkin (94, p. 280) exhibits, in operation, a single ther jacquard hobbin-act machine, making figured bace. This machine is of excellent workmanship, and most judiciously arranged, combining all the recent and important improvements in this branch of manufacture, Mr. Sewatz. (92, p. 279), one of the jurears of this

Mr. Sewell (92, p. 279), one of the jurors of this class, contributes a double-tier bobbin-net-machine, making Brussels net, combining great simplicity of arrangement and symmetry of proportion with efficient operation.

Mester, Ball, Dennichter, and Co. (90, p. 279) maintale, in operation, a warp-lace machine, making slik blond, of excellent workmanship and design, and remarkable for the noiselessness of its complex movements. A frame for "gassing have"—that is, for burning the minute fibres from it by possing it rapidly over gas flames, is exhibited by Messers, Bertrox (96, p. 289); but

finance, is exhibited by Messrs, Beurox (96, p. 280); but they are unfortunately prevented from showing this most interesting process by the necessary restrictions against the introduction of gas into the huiding. Messrs, Hirmon and Borrons (88, p. 279) show a lace-

Messrs. Herson and Borron (88, p. 279) show a lacedressing machine of superior construction, but are also prevented from exhibiting its operation by the nasuitableness of the process.

(7.) Stocking or Hosiery Manufacture, In this Department are several machines, both English and foreign, well worthy of remark, Messrs. T. and

and foreign, well worthly of Poinars, Moore, 1, and and foreign, well worthly of Poinars, Moore, 1 and
Of circular bookey frames Mr. CALTHENK (66, p. 270) the Eaglish Department chilibit two, and Mr. Acques, of Troyac (346, p. 1204), in the French Department, there These machines, which are nearly identical, sor the factor of the following t

The circular frames of M. Baxtustor (France, 422, p. 1198, 1199) are more complex than the above; the stakers are stronged in a borizontal position, and revolves with the frame; but these maschines will produce fabrica of a facer description, and of flux and silk, materials which are instructible in the finance above mentioned. In the Belgian Department (122, p. 1153) will be found a small circular hosiery frame, by M. JOVYEN.

(8.) Heald Mackines, Sewing Mackines, &c. Two machines for weaving healds for looms are exhibited in this collection. That of Mr. JUPRINS, in the English Department (52,

p. 1374), is an ingenious application of the principle of the common plaining muchine to the production of a heald, combined on a new system, completely free from knots or other obstructions to its action, and to the pessage of the warp.

The machine of M. Doney (France, 823, p. 1220) is

a beautiful piece of mechanical combination, and the health, although different from the above, is also without knots. Plaiting machines of the asual construction are show by Mr. Vax Miranto (Belgium, 133, p. 1155), and M.

hy Mr. Van Mirrio (Belgium, 133, p. 1155), and M. Eursvell (Prussin, 54, p. 1681). Under this head we may also notice three ingenious and useful contrivances in the French Department, namely, a small frame by M. Forcurar (877, p. 1220) to enable poor working or cottagers to weave slippers with case and rapidity; a frame for weaving wigs by M. Caotsar (1574, p. 1292); and a large machine for sewing sacks by M. SCENCHAL (475, p. 1194).

An effective and ingenious machine for sewing with two threads is relibited in section in the American Department by Mr. BLODUET (351, p. 14-8). A somewhat similar one is shown by Mr. JUDETN in the English Department (52, p. 27-8).

(C.) Paper and Printing, (9.) Paper-making, Cutting, and Folding.

We now come to the curious and useful process by which worm-out and dirty rags, old ropes, and such-like inpairantly worthless matter, are wreaping into paper. Het unfortunately, as in many other cases already almoded to, the noise, diamp, and heart with which the operations vertical them from being shows, and induced for the most part the unchines are only represented by Medels. Mearst. Cowar and Sox (166, p. 289) exhibit a model

Mestrs, Cowax and Sox (166, p. 290) exhibit a model of a pull-meter for regulating the supply of palls to be of the sleets; Mr. FOLKRINKER (106, p. 290) a model of the sleets; Mr. FOLKRINKER (106, p. 290) a model of his original patent paper machine; and Mesors, Downoodle of a complete series of machines, with their apprenuence, for making paper, countaining all the latest improvements which be loss introduced into this improvements which be loss introduced into this improvements. On the contradiction of the paper of
making mashine. Derriess of the process are illustrated by other exhibitors, as in Mr. Warnov is improved judy-strainer (16, p. 18). Warnov is improved judy-strainer (16, p. 18). Warnov is my constant (16, p. 18). Warnov is my constant (16, p. 18). Warnov is my constant (17, p. 18). Warnov is my constant (18, p. 18). Warnov is my

In the French Department (717) there is a complete suite of paper machinery of the full size and of excellent workmanship, containing all the appurtenances for moulding, drying, laying, and cutting the paper, by Messus,

ing drying, laying, and cutting the paper, by Messex, Vankata, Minuscarco, and Exax, Le, p. 213). Mr. W.Lsox, (112, p. 200) exhibits his admirably constructed and need in achieves for cutting paper, carderized and the constraint of the constraint of the convertically, and in the other, which is more especially included for mill-boards, it desceeds diagonally. In the Freeds hyparament, M. Borrina (101, p. 120) has a more stagonally in a borrinant place.

motest diagonality in a forthfolia plane.

Two machines for generality and folding envelopes are
Two machines for generality and folding envelopes are
the statement of the stat

of the envelopes,
Mr. Black (188, p. 283) has an effective machine for
folding printed sheets, whether 8vo, 12mo,, or 24mo,
to weighper's, &c. with precision and rapidity; and Mr.
TATION (186, p. 283) a machine by which flat circular
dises of paper are neatly monided into hemispherical
lamn shades.

Mesors, Chuscu and Goddard (135, p. 283) exhibit a machine which cuts sheets of card-board into packs of

The machino of Mr. Adorano for making eigenettes (448, p. 30a) is principally employed in cutting, wrapping, and folding the ends of the paper envelopes in which the tobacco is enclosed, and may therefore be included under the present head. In this beautifully contrived meolianasm are endless sheet of paper is applied at one end, together with the requisite tobacco, and after passing through fourteen operations those materials are delivered at the other end in the shape of complete eigarettes.

(10,) Type Printing,

An excellent machine for founding type in exhibited in the Zollverein section by M. LEONMARDT, (55, p. 1050) by which 4,000 types can be made in an hour; and similar machines by Mesors, Hopsmans (12, p. 105) and BACKMATS (13, p. 1105), in SARON, for founding and and institute of the control
and justifying type.

In the Eaglish part, Messrs, Hanniso, Pullers, and Jonnson (102, p. 280) exhibit the patent approtype machinery, of which they are the proprietors. Hy this apparatus type is formed from ecoper, sinc, or other metals without heat, by means of dies and pressure, and

is also dressed nod regulated by the machinery. The GUTTA PERCHA CONTANT of London (424, p. 301) contribute sucrectype plates of gutta percha (with specimen impressions), in connection with a large unfinished machine intended for printing therewish on codders paper, which is also to be cut and folded before it leaves the nuchine; the gutta percha types not requiring the paper to be damped.

Mr. Cookx (118, p. 280) shows a new arrangement of type-boxes for compositors; and M. Soarsexx, in the Danials section (13) exhibits an ingenious machine for composing and subsequently distributing type—this machine has not, however, had the advantage of expedition has not, however, had the advantage of expe-

of fraining-presses worked by hand, the following sexchibited-i-19, Mesers. Covenance and Levracov, 0.1, p. 279), with self-inking apporatus; by Mesers. Surrawity, Core, and Co (104, p. 220); by Mesers. Earl W. ULLENG [121, p. 280), also with self-inking apparatus; by Mesers. CAVILI and DINON (124, p. 229); by Mesers, p. 280 and Core (165, p. 280); and in model by Mesers. CAVILI and DINON (124, p. 292); by Mesers, [124, p. 280], and Core (165, p. 280); and Cons (106, p. 283).

p. 283).
Two forms of a hand printing-press, of novol arrangement and excellent workmanship, are exhibited by Messrs.
RANSONER and MAY (640, Class V., pp. 246, 247), one of which has a self-inking apparatus.

Cylinder printing machines are exhibited by Mesers, Natien and Son (158, p. 285); by Mesers, Waternawa and Sons (164, p. 285); and in model by Mr. Cowpen (134, pp. 282, 283).

The Scandinavian press of Messrs, Horktsson and Cope (162, p. 285) is worked by power, but has a vertical pressure.

tical pressure. In the great machino by Mr. Applement, exhibited (122, pp. 290, 281) by Mr. Inchana, by which the "Illustrated London News" is printed to the Exhibition, the printing cylinder is placed in a vertical direction. Four timese for supplying the paper are fixed in a radiating position from the centre, thus allowing four sheets to be prioted in each turn of the cylinder.

Another printing machine, in which a stereotype plate is curved to fit the circumference of a cylinder, is exhibited by Mr. Nelson (120, p. 280).

(11.) Numbering, Paging, and Ruling Machines. Messrs, Chuncu and Goupand exhibit (135, p. 288) an

and the second s

(164, p. 253), and ny Standard are exhibited by Mr. Snaw 33, p. 539). Machines for ruling paper are exhibited by Mr. Snaw (110, p. 280), and, in the French section, by M. Batchitz-Variation (413, p. 1198), the latter is arranged (in the manner of cylinder printing machines) so as to rule the paper on both sides before it quits the machine.

pour la Carrelle

(12.) Lithographic, and Copper-plate Presses,

In the English section the following Lithographic In the English section the following Lithographic Pre-set and exhibited:— By Mr. Sharwood (103, p. 250), in which a mangle wheel is used for producing the motion of the stone; by Messrs D. and J. Garto (114, p. 280), with side lever and registering apparatus; by Mr. STRAKER (142, p. 283), with similar appendages by Messas, M'Crora and Co. (160, p. 285), for a zine plate, which is arranged over the leather cover; and by Mr. Usdrawoon (473, Class V.), which is chiefly adapted for printing in colours. In the French section we also find a press, by Messrs. Lacaotx and Sox (283, p. 1199), and another by M. Brisser (449, p. 1199), in which the top lever is turned sideways instead of being raised apwards as usual.

In the English section Messrs. D. and J. Grand (114, p. 280) exhibit a copper-plate press, and Mr. Founna-nus a press (100, p. 280) to be worked by steam, and intended to print impressions, which are to be transferred tu earthenware or china. This is accompanied by a spechuen of his pottery tissue paper, in one continuous length of more than two miles and a hulf, manufactured from old coal-pit ropes and hawsers.

(D.) WORKING PARTS OF MACHINES.

In all machines there are certain parts which actually do the work for which the machine is constructed, the mechanism serving merely to produce the proper relative motion of these parts to the material npon which they operate, and these working parts being the tools with

which the machine operates.

Accordingly, in machinery for spinning and its pre-paratory processes, for weaving of all kinds, and for paper-making, there are a variety of such working tools, as, for example, spindles and flyers, fluted rollers, beckies, wool, and silk, weavers' reeds and shuttles, the wire cloth employed by paper-makers, &e., the making of each of which articles constitutes a distinct branch, and is carried on by a different set of workmen from those who make the machines. For the machine-makers usually purchase these parts from their proper makers when they fit up their mechines for sale, as the manufacturers and their workmen do when such parts are worn out.

Specimens of all these working parts bave been transmitted to the Exhibition, and placed in Class VI.; although it might fairly be questioned whether they ought not rather to have been submitted to the judgment of the manufacturers, whose daily experience teaches them the qualities necessary to enable these working tools to perform their office well, nud last the longest time-qualities which are quite independent of the merits of the machinery which sets them in motion; for as the best lathe will make bad work with u bad tool, so a good earling-engine, and a good loom, will fail, if fitted up with imperfect card-clothing, or ill-made reeds and shuttles; und reversely, the best tools are useless if attached to a bad machine. However, we may proceed to direct attention to the principal specimens of this kind, premising that many exhibitors have transmitted glass cases contain a few such articles that can be looked upon in no other light than as pattern-eards.

In the English Department we would select, for par-In the Engine Department we ticular attention, the spindles of Mr. Prescon (5, p. 258); the reeds of Mr. Dr. Bezone (45, p. 274); heckles by Mr. J. Taylor (51, p. 274); and a wool-comb by Mr. Juny Pract, of Bradford (suspended against the woolcombing machine of Mr. Doxtstnoars) (40, p. 273). Besides these there are others, apparently very good, but so few of each as not to afford an equally good criterion of merit. In the French section Musers, Papavoine and CHAYEL, of Rosen (309, p. 1193), the exhibitors of a machine for making earst-elothing, already mentioned, also exhibit some samples of its work, Messrs, Scarve BROTHERS, of Lille (1005, p. 1227), contribute excellent samples of card-clothing for cotton and wool, some having the teeth set in leather, others in Hursfall's patent card cloth, Messrs. Minoupz BROTHERS, of Rouen (645, p.

1207), also send excellent specimens of cards for cottons tow, sitk, and wool. Mr. HARDING COCKER, of Lille (864, p. 1221), furnishes a large number of capital beckles. gills, porcupines, and combs. Meners, Dandor, Mall-Laro, Luco, and Co., of Manbeuge (491, p. 1201), exhibit well-made spindles, rollers, bolsters, steps, &c., Many other exhibitors in this class are to be found in France, Belgium, Spain, Switzerland, and the Zollverein, Some reeds, by Madame Currae, from Tuserny (72, p. 1295), merit notice.

(E.) ENGINEERS' TOOLS FUR METAL, WOOR, AND OTHER . MATERIALS.

Amongst the machine tools, lather, as might be expected, appear in the greatest number and of every variety of size and arrangement, from the powerful machines which are capable of turning wheels 7 or 8 feet in dinmeter, or shafts 36 feet in length, down to the delicate lather used by amateurs, or the nukers of small machines and apparates. However, it must be remarked, that in this collection, complete as it is, several important machines are not represented, as, for example, the colossal lathes which are employed for boring cylinders.

A magazineent railway-wheel lathe, with two opposite headstocks and face plates, and two compound slide-posts to correspond several and two compounds lide-posts to correspond, capable of turning wheels above seven feet in dimneter, is exhibited by Messes, Sigany (204, p. 291), and one of smaller dimensions by Messes, Wattreourn and Co. (201, pp. 287-90), who also contribute two of their potent duplex lather, in which the work is acted upon patent duplex lattics, in which the work is access upon simultaneously by two tools cutting at the opposite ex-tremities of the same horizontal diametrical line. Thus vibration and deciation of the work in shaft turning is wholly prevented. The beds of these lattices are 18 feet and 35 feet in length re-precively, and the latter is provided with two duplex slide-rests, which can be made to valid with two daspics, sources, the same travel sinutaneously by self-action, either in the same or opposite directions at pleasure, so us to economize the time required for finishing the work. They also exhibit a 5-inch self-acting foot-lathe, with complete management of the self-acting foot-lathe, with complete management of the self-acting foot-lathe, with complete management of the self-acting foot-lather with complete management. rangements for sliding, screwing, and surfacing. Large iathes of excellent workmunship, each having some peculiar facilities in the details, and adapted for sliding, screwing, and surfacing by self-action, are exhibited by screwing, and surfacing by self-action, are exhibited by Messer, Shirth, Bracock, and Tankhert (230, p. 295), Pain, Cherris, and Maderaky (313, p. 292), Sakheroine, Owick, and Marson (224, p. 294), and Shirk (220, p. 295). Mr. Muta (206, p. 291-2), com-tributes a well-anade mail. foot laths, with a variety of screw stocks and other tools.

In the American Department, a lathe sent by the LOWILL MACHINE SHOP (447, p. 1464), of 12-inch centre and 13-feet bed, with the usual arrangements for selfaction, will be looked on with great interest, as a specimen of first-rate transatlantic workumuship in this branch, and as offering various peculiarities of form and distribution of metal, the latter being employed as sparingly as possible on account of the great cost of tron. Hence a lightness of construction carried to the extreme point consistent with strength and stiffness, which presents a singular contrast to the solid proportions adopted by our own engineers,

In the smaller class of lathes Messrs, Holtzaperer, and Co. (232, p. 295) take the lead, by exhibiting a first-rate coccept parameters are the read, by extraording a risk-nate measure lathe, provided with all the appuratus required for ornamental turning, such as oval, excentric, and drilled work, and a variety of tools and contrivances uppertaining thereto, of the most elegant and perfect workmanship. Mr. Dalasty (226, p. 294), has a highly-finished lathe, to which is appeuled, amongst other things, his useful chuck, which is capable of fixing perfectly ecutral u wire of may sire not larger than 1-inch. Other Buthes are contributed by Mr. Williams (234, p. 295), with a new tool-holder and self-acting serew cutting apparatus; by the Messrs. KNIGHY (614), who have apparatus; by the herers, Kneint (e1s), who have fitted up a complete numeur-work cabinet, and by Mesors, Eants and Sox (224, p. 294). Mesors, Mondan, Saurrox, and Co. (205, p. 291), send a new machine for tracing rose-engine patterns, M. HAMANN (Prussin, 58, tracing rose-engine patterns. M. Hamann (Prussia, 58, p. 1052) has a highly-finished numateur lathe, adapted for turning either in metal, or wood and ivory, and provided with a variety of the usual clancks and apparatus.

(14,) Planing Machines

Six planing machines are to be found in the collection, amongst which, of course, those of the largest size are not sent, on account of their bulk and weight, and because their arrangements are the same as those of the medium size, of which excellent specimens are exhibited by Messrs. SHARP (204, p. 291), PARR and Co. (213, p. 292), and NHARP (204, p. 291), PARE and CO. (210, p. 292), Bid Messrs. Wittiwoath (201, pp. 287-290), the latter-sending two, of which one is provided with his revolving revers-ing tool, which cambles the machine to plane both ways. The varieties of construction by which these admirable machines are individually distinguished, although they are perfectly similar in general form and purpose, afford the most interesting studies for the engineer and the most interesting studies for the engineer said mechanist. This remark may be applied with equal force to the slotting and shaping engines about to he described, and indeed to many other groups of machines in the present collection. Mears, WrittwoAvin also send a small planing machine (two feet kin these long) moved by a crank, arranged to give a slow cotting action and a quick return; and Mr. SHANKS (210) a diminutive handmachine for the use of opticions

(15.) Slotting Machines.

Of slotting and paring machines we find one large specimen from Messrs, Shaare (20-4, p. 291), and two smaller ones by Messrs, Wattrooxtri, (201, p. 292). 297-290). One of the latter is provided with a complex bed for sustaining the work, composed of four rectiliners ildee, and one rotating disk, by means of which any form composed of a combination of executive riveular ares, and straight lines, may be pared and finished upon the

(16.) Shapino Machines.

The shoping machine, as it is called, is a kind of planing machine in which the tool is attached by pro slides and holders to the end of a horizontal bar, to which a reciprocating motion for cutting is communicated in the direction of its length, by a crank or excentric. The work is either pared to a nonmontal tube with longitudinal and vertical adjustments, or to an proour, and the machine is employed for shaping levers and cranks or curved and plane forms in general, and as it is susceptible of many varieties of construction and detail; the six specimens which are here exhibited by several leading engineers will be compared with great interest by mechanists. The largest is contributed by Messrs, Pans (213, p. 292), in which the tool has a stroke of twelve inches and the led is seven feet long; two lesser ones are sent by Messrs, Smith, Beacock, & Co. (230, p. 295), and one by Messrs, Whitwoath (201, pr. 287-290). Messrs, Smarp (p. 291) exhibit one of a very neat and compact arrangement, but not possessing all the capa-bilities of those just mentioned, and there is also one sent by Mr. SHANES (210, p. 292).

(17.) Drilling and Boring Machines

There are six drilling machines of various sizes and capabilities; amongst them Mesors. Whittwarm again appear, as the exhibitors of a large radial drill, the framing of which may be selected as an admirable specimen of casting in iron. The arm of this machine the selected as an admirable specimen of the bounds as a selected as Meson Union of the selected as the selected as an admirable specimen of the bounds as a selected as the selected as an admirable specimen of the selected as the sel is moveable through an are of 190°. Messra. (218, pp. 292, 293) contribute a large radial drilling machine, the pillar of which is formed into a serew that allows the arm to be turned completely round, and raised to any required altitude.

Excellent self-neting vertical drilling and boring machines, with various arrangements of the table, are exhibited by Messes, Whitworth (201), Shith & Co. (230, p. 293), Para & Co. (213, p. 292), and Williams (234, p. 294).

(18.) Other Machine Tools for Metals.

The remaining specimens of machine tools may be cummerated as follows :-

Engines for wheel-cutting and dividing by Messrs, Engines for wheel-cutting and dividing ny nessrs. WHITWOATE (19), pp. 257-29), and LAWIS mad Soos (2019, p. 2972); a small machine for forming circular cutters by Mestrs, SHITH (220), p. 2501; both-serve imparables by Mestrs, WHITWOATH (201), GLASCOW (219, p. 299), and SOAMSK (210, p. 292); a both-lead and nut-shaping my-line, with two machines for punching and shearing, by Mestrs. WHITWOATH (201, 40 apps).

From the above description of engineers' tools, it will be seen that Mr. Warrworru has contributed one or more specimens of first-rate excellence under each head, In addition it is necessary to direct particular attention to his measuring machine (which, however, properly belongs to the Class of Philosophical Instruments), and to the admirable collection of apparatus, by the employment of which a uniformity of system in the dimensions and fitting of machinery, and in the sizes and arrangements of screw-threads, is rendered practicable amongst engineers in general. The confusion and delay occaengineers in general. The confusion and delay occa-sioned in the repair of machinery and apparatus of all kinds by the want of such a system have long been felt; and the attention of engineers was directed to the subject by a paper communicated to the Institution of Civi Engineers in 1841, by Mr. Whitworth, Ilis system hon already obtained great extension, and he has contributed to the present Exhibition a complete set of the apparatus required to carry it out. This includes different sizes of guide-stocks, and the several dies, taps, &c., for producing the corresponding screws which he has selected as the standard forms of his system, and also sets of standard gauges, by the ose of which corresponding parta of machines may be prepared separately, with sufficient accuracy to fit without trial. He alto exhibits specimens of surface-plates, prepared without grinding, according to the method described in his paper (read at the meeting of the British Association in 1840

In the American Department, Mr. Dick (79, p. 1438) exhibits a variety of powerful machines for producing pressure with small friction, by means of a peculiar com-bination of levers whose surfaces act by rolling contact, and which are formed into curves that enable them either to produce a constant or a varying pressure according to the nature of the machine. One of these is arranged to the nature of the machine. One of these is arranged to not as a boiler-plate shearing and punching machine, Mesers, Farkmarns and Soxs (200, pp. 286, 287) contribute their important and original matchine for rivetting belier-plates by pressure; and Mesers. W. J. and J. Garrowrin (2008, p. 293) an improved machine for the same parpose, in which the pressure is produced by the direct action of the piston red of n steam cylinder,

The admirable steam hammer of Messrs, NASMYTH and Co. (236, p. 295) is too well known to require any lengthenced notice in this place. It is only to be regretted that the nature of its operations forbids it to be put in action in the Exhibition. The effective and useful forging muchine of Mr. Ryder (222, p. 294) it, however, shown in motion, its action being exhibited upon rods of

In the French Department, M. Schwerner (1475, p. 1246) has placed a forging machine in which the hammer is raised and thrown up by a enm; piles of vulcanized caoutehoue are employed to diminish the shock to the cam, and also to produce a rebounding blaw.

Two large coining presses are placed in the Exhibition, the one by Messrs, Maudellay, Sons, and Field (228, 294); the other (in the Zollverein Department), by p. 294); the other (in the Zollverein Department, ...) M. Unimon (476, p. 1078). In each, the screw is dispensed with, and they may be considered as examples of the best style of design and workmanship by which their respective countries are characterized.

Mr. Noarall, of Studies (240, p. 295), maintains, in

nction, a series of the simple apparatus employed in making needles, especially those which he terms "groove-

less needles," of his own invention.

There is no ahundance of small fly-presses in the building. Mr. Mansell (502, p. 305) has one with peculiar

arrangements for catting on an even surface of steel, without injuring the tools; and in the slwiss Department M. Daaria (Switz, 41, p. 1270), exhibits a press with the surface of the surface of the surface of a highly ornamental character, and intended for the library tasks, or shop character, and intended for the library tasks, or shop character, and intended for the library tasks, or shop character, and intended for the library tasks, or shop character, and intended for the library tasks, or shop character of the library tasks, and in this character that property belong to "ornamental fermitnes," or "stationery," as their chief chain or decoration.

In the Foreign Department we may mention a highlyfuided relling, until of most scenarie weckmankfp, adapted for a sint, by M. Kuttre (Prussia, 643, p. 1089), an a excellent machine, for forming hooks and eyes, by M. Hire (France, 250, p. 1189); and three ingenious machines, of very similar construction, for making the property similar construction, for making the by M. Fast (1607, p. 1284), the other two by M. Stotza (1494, p. 1284).

(1494, p. 1248).
Messrs, R. Joursson and Baothess, of Manchester (212, p. 292), have placed in the collection a wire-drawing bench of the best construction, being the only machine for this purpose that has been forwarded.

for titls purpose usin ans oven towarden.

Mr. Fally Anarra exhibits in Class XXII., (265, p. 623)
somo machines intended for phaning, polishing, huruishing, and ornamenting sheets, bars, tubes, &c., of med.

Mesors. Vinc and Asimkan contribute, from America
(196, p. 144), n gold-benting machine.

Messes, STRWART and Co. (238, p. 225) exhibit a model of their machine for forming the moulds in which iron pipes are cast. Several excelent specimens of large pipes, that accompany the model, show the perfection which the machine imparts to the mould, and the nuchine itself would have been sent, but it was found to be too large for the haliding.

An claborate machine, for making and charging percession caps, is cabibited in the Department of the Notherlands, by Mr. Goosensa (77, p. 1116). This machine, which is worked by two men and three children, does the work (according to the inventor's statement) of twelve machines and twenty-live men required in the system countouly employed.

(19.) Machines for Working in Wood (excepting Lather.) From the above sketch it will be seen that the Exhibition presents a tolerably fair picture of the present style of English engineer tool-making for metal-work, and that very few specimens have been sent either from the Con-tinent or from America. When we turn to the machines for working in wood the case is altered. It certainly cannot be said that such unachines are not employed in England; for, from the period of setting up the Portsmouth block-machinery, such contrivances have been gradually making their way into English practice, and our saw-mills, dockyards, and similar establishments, abouted with mechanism for rawing, veneering, planing, grooving, mortising, touguing, cutting mouldings, cask-niaking, carving, and every branch of wood-work: but, from some cause or other, probably the magnitude or roughness of such mechanism, and the noise, chips, and dust it creates, only a few models have found their way into the English Department of the Exhibition; nevertheless, the wood-work of the very huilding in which theress, the woon-work of the training words to the training words was itself almost entirely wronght into form by such machines. In America, bowever, machinery for working in wood is even more largely employed than with us, and their machines find their way into workshops of a smaller churacter. The much greater value of manual labour in that country is shown by the fact, that as little work as possible is done by hand, and that more attention is paid to economy of time and labour, and to the production of rapid results with the least possible expenditure, than to great durability and finish.
Where so many natural obstacles are to be contended against by a scattered population, we must not look so much for elegance of workmanship as for boldness of de-These remarks are illustrated by a series of machines for working in wood, which, although exhibited in operation by the Dagithá importer and patences, Mr. Picsans, of Lavergood (16), 2003, nor of American erigin, and of Lavergood (16), 2003, nor of American erigin, complexed there for ten years or more. The repte of templay and designate these anadises will a teme betray formed to the complex of the complex of the complex of complexed the complexed of the complexed of the complexed familied wood word, which the medities are intended to produce. This arrives completes a most effective floorproduce. This arrives completes a most effective floorproduce and the complete and the complete and the by least of power; and power-machine for meriting, by least of power; and power-machine for meriting, popored almostine for weed-plantage, insigning, and provous driven under a control of the floor floor of making and transport of the complete floor of such as a control of the complete floor of such as a control of the complete floor of such as a floor of the complete floor of such as a floor of the complete floor of such as a floor of the complete floor of such as a floor of the complete floor of such as a floor of the complete floor of such as a floor of the complete floor of the complete floor of such as a floor of the complete floor of the complete floor of such as a floor of the complete flo

In the French Department, Mr. Sautractil. (1s-4, p. 1246) contributes a powerful planing and moulding machine, in which revolving cutters are employed, with some important improvements in their form and mode of

In the English Department, Mr. Bluce (466, p. 209), exhibits a model of the multitude by which the multitude with the multitude with the multitude with the multitude of the mul

(20). Working in Stone, Coal, Clay, Leather, &c.

Sone. Mr. HUNTIN (172. p. 27) exhibit a model of in well-known knoe-planing machine, which has been no long and effectually employed in Scotland and elsewhere. Mentr. RANDELL and SEAVERS (282) have sent several models of stone-sawing machiner, which they have in operation in quarries at Corbana, near Bath: one of the state of th

ling in the organization of a high particular the companion of the compani

a model of a machine for atone pluning.

Coal.—Two machines, with revolving cutter-wheels, intended for cutting coal, are shown by Mr. Wanno (305, p. 205), one to cut in vertical planes, the other in a horizontal plane.

normoting plane.

Glass.—Messes, Clauder and Houderton (306, p. 295)
exhibit two neat contributes for cutting and trimming
glass shades to any required height.

Leather.—In the French Department Messes, Demany

Leather,—In the French Department Messrs, Demanary (487, p. 1201) exhibit a collection of speciment of boots and shocs in which serews are employed in lieu of stitches, and some of the machines which they use for blocking boots, cutting-out soles, &c. These machines, however,

are not completely fitted up.

In the English section Mr. Mansett (502, p. 305) has a boot-blocking machine; and Mr. WAFT (304, p. 305) a kind of printing muchine, intended to print the outlines of the parts of shoes or boots upon cloth or leather, as a

guide to the entter-ont. M. SENECHAL, France (373, p. 1194), has a press for cutting-out gloves.

Clay.-The Exhibition contains twelve ur fourteen brick and tile machines of various kinds, most of which been placed in the "Agricultural Department, which is their proper location - agricultural gentlemen which is user proper extension—agreement generating being neutily qualified by practice and experience to judge of the performance of such machines. Of the few that have needentally found their way into Class VI, we may mention Mr. Brant's machines for making hollow bricks (301, p. 295), and a machine of Mesors. RANDELL and Sauxhers (324, p. 297), in which the clay is forced through the mould by the continuous action of two revolving spirals instead of the usual reciprocating

In the French Department, Messrs. Bonze BROTHERS in the French Department, Siewis, Bonte Biovrneiss, di 7, p. 1199) exhibit an excellent machine for making hollow bricks, in which the plays of the mould are supported with great skill, in such a manner as to obtain the splitting of the bricks, which, in the common construction, is apt to result from the position of the bridges by which the plags are carried.

(F.) GRINDING AND CLEANING PLOUR AND OTHER VEGETABLE PRODUCTS.

(21.) Mills for Grinding.

In the first place we may direct attention to the stones, ateel, and iron pintes, &c., by which the grain or other material is to be erashed; many specimens of these are exhibited, detached from the machinery by which they must be maintained in motion when used. Messrs. Thus and Co. (457, p. 304) exhibit French milistones made at La Ferté-sons-Janarre, and fitted with

Hanon-valck's patent acrator, for introducing fresh air between the stooes, Messrs, Hughes and Sons (459, p. 394) have also a pair of stones with channels for the introduction of air,

and Mr. CLAYTON (440) a pair of French stones. Mr. Hunwoon (414, p. 301) specimens of grinding plates in steel and cast iron formed in concentric rings. plates in steel and cast from formed in concentric rings.

In the French section, hurris-stones of different sorts and qualities are exhibited by Gaulland, Sox (228, p. 1187), Perri and Co. (345, p. 1194), Boccans (341, p. 1199), Gifferent-Bourenos and Co. (529, p. 1294), Moxer Chambort (560, p. 1299), Bools (1448, p. 1245)

Thiaact? Bouleave (1502, p. 1284), Totalland (1508, p. 1245) and in the Zollverin section, M. Landau (231, p. 1286), and in the Zollverin section, M. Landau (231, p. 1286). (9), stones of lava quarried near the Moselle. p.

Mills, fitted up for grinding grain, ores, &c., are shown under the following oumbers: - Mesors, Fahirann (403, p. 298) a corn-mill on a cast-irou frame with gearing: showing their improvements in the modes of driving, adjusting, and feeding the mill-stones.

Messrs, Concorns and Co. (416, p. 301) a portable corn-mill with French burr-stones, intended for the use of emigrants; and Messrs, Tootal (446) a small hand-

Mr. Boucnon (France, 431, p. 1193) also exhibits a small mill complete with bolting machine, for entigrants. Messrs, Westrup and Co. (442, p. 303) a mill of a peculiar and compact arrangement, consisting of two pairs of conical stones, one above the other, but attached to the same spindle; between them is a conical wire sieve, with brushes fixed to the spindle, by which the fine flour detached by the upper stones is separated from the grain before the coarser parts fall to the lower In the American section, Mr. Ross (213, p. 1450), a

model of a portable mill.

Messes, Messes and Cantier (France, 635, p. 1208)

stone is the runner, and there is an arrangement for the

introduction of ntmospheric air between the stones.

In the Belgian section M. Houver (125, p. 1155), and
M. Deskaune (131, p. 1155), exhibit each a model of a small mill, with a ventilator to drive atmospheric air between the grinding surfaces.

A little machine to cuable a workman to cut and A true macronic to contain a workman to cell mag sharpen mill-stones with great precision, and without danger to his eyes from chips, is exhibited in the English section by Mr. Passons (Class V. 642, p. 247); and in the French section a similar contrivance by M.

Touaillon (1508, p. 1248). Mr. Chosaetha. (404, pp. 298, 299), Mr. Henwood (414, p. 301), and Messrs. S. and C. Adams (429, p. 302) have exhibited a variety of mills fitted with metal plates for grinding wheat and other vegetable substances, hours, minerals, &c.

Coffee-mills are shown by W. Murk (206, pp. 291, 292), FIREDROPSE and Co. (443, p. 303), SAVAGE (458, p. 304), and VANDENBROUGE (France, 711, p. 1230). A hand-some silver apparatus for toasting coffee is exhibited by Messrs. Dakin and Co. (408, pp. 299, 300)

In the French section M. HERMANN (873, p. 1221) has fitted up a complete and admirable set of machines largely employed for the manufacture of chocolate, by which the cocoa beans are emished after being roasted, mixed with sugar, and the chocolate fully prepared fur-use. Also an apparatus for mixing and grinding grees, matters for perfumes, scaps, &c. A mixing machine for chocolate is also exhibited by Messes, GATTI and BOLLA (450, p. 303); and a set of excellent machinery for erushing and grinding potatoes, and for making potato flour by a cylinder with saw blades, by M. Hick (France, 541, p. 1204).

(22). Machines for Cleaning and Separating the Products. We will now proceed to enumerate the machines for cleaning grain and separating the finer particles from the coarser after grinding, for which a variety of arrangements are shown, differing in the position of the revolving sieves, in the material and disposition of the brushes and besters, and in other particulars, Mr. HUNT (422, p. 301), vertical flour-dressing machine,

with bair brushes. Mr. Bedfrong (426, p. 302), inclined wire cylinder, with external revolving hair brushes. Mr. BLACKMURE (428, p. 302), model of a bolting

machine, having cloths without seams and revolving gutta percha flaps outside for cleaning the cloth. Mr. SPILLER (436, p. 302), flour-dressing machine; Mr. SHORE (438, p. 302), flour-dressing machine, with cylindrical wire sieves, having revolving wings inside, with steel plates in lieu of brushes; Messrs, Cooms and Co. (444, p. 303), models of inclined and vertical cleaning as small machine for elessing currents, with whalebono brushes; Measures, Williams, with whalebono brushes; Measures, B. and E. Millangton (462, p. 305), n cleaning, or smut machine, with revolving wire brushes; Messrs. R. and J. Rankin (466, p. 305), a vertical smut machine, having an exhauster above to remove the dust;

and, finally, Mr. Asust (470, p. 305), an apright flourdressing machine. In the French section, machines are exhibited by M. In the French section, machines are extinuted by at, Ilcx (541, p-1204), for extracting and separating flour from ground postoles; Mesers, Vacinov and Co. (705, p-1212), for leading grain; and M. Historicart (1866, p. 1237), for botting floor,—having a silk cover, and accompanied by various excellent specimens of sidk gauze for bolting.

In the Belgian section we find machines for cleaning and glasting rice, by M. Hinutar (125, p. 1155); and a cylindrical machine for eleaning grain, by M. DANNEAU (507, p. 1167).
Under the present head may be mentioned a set of

effective unchines by Messra Harrary and Co., of Reading (410, p. 301), for manufacturing bisents. In the French section an elegant machine for heading dough by means of a rovelving spiral, by M. Bolann (428, p. exhibit a small portable mill complete, in which the lower 1100). A model of a machine for making hiscuit

their labours, Other machines, for similar purposes with the above, are placed in the class of Agricultural Implements, and have therefore not been submitted to our inspection. Indeed, it may fairly be questioned whether the greater part of those piready enumerated might not have been

also placed in Class IX. with advantage, (G). MANUFACTURE OF SUGAR.

The sugar-cone mill of Messrs, Roppssons and Russell, (418, p. 301), a magnificent specimen of mill-work on the largest scale, with horizontal cylinders, is shown in partial action, Messra Colling and Co. (432, p. 302) bo exhibit a horizontal sugar mill, and Messrs. Granay, WEST and Co. (445, p. 303) several beautifully con-structed models of different forms of sugar mills, &c.

Three superb sets of vacuum apparatus, for the munufacture of sugar, are exhibited; each from a different country, and each remarkable for magnitude, perfection of workmanship, and excellence of arrangement, as well as for peculiarities characteristic of the nations that have produced them. The English machine of Messrs, Poxylyrx and Woop (602, p. 305) is of great manufacturing power; and its enormous donce, formed from n single piece of copper, is a very winderful speci-men of the coppersmith's art. The French machine, by Mesers. Cata and Co. (1557, p. 1251), is similar in its general form and magnitude, of admirable workmanship, and considered by French practical chemists to be even superior in its arrangements to that of Messrs. PONTIFEX. The muchine of M. HECKMANN (Pressin, 52, p. 1030, and see 'Illustrated' 1051), although not equal in magnitude, nor perhaps in workmanship, to the two already mentioned, must be regarded as a contribution of first-rate merit.

The bydro-extractor or revolving machine, by which water is driven out of goods by centrifugal force, was inwater as surves out or goost by centrifugal store, was in-sected by Mr. Streets many years since, and in great; writed by Mr. Streets many years since, and in great; writed by Mr. Streets many years since, and is great; the streets of the street

of merit, of which we may mention those of the original inventors and proprietors, Meass, Markove, Alliott, and Savara (45t, pp. 503, 304); n well-made machine by Mr. Bissemen (400, pp. 297, 228); and one by Messrs. Rorch and Fixer (405, p. 299). In the French Department, one by Messrs. Berauter and Co. (425, p. 1199); and in the Belgian, one by Mr. VANGORTHEM (124, p.1155).

(II). APPARATUS FOR PREWING, DISTILLING, AND MANU-

FACTURING CHEMISTRY. Mr. Lawaence's distributar (604, p. 305) has the advantage of an equal distribution of heat throughout the wash, either by steam or water, and facility of cleaning the false bottom. He also exhibits a good refrigerator and a store cask, for preserving beer in store, and pre-venting accidents in bursting. Mr. Tizzani (530, p. 307) has a model of a brewery, exhibiting several novel and useful arrangements of the backs, mash tun, refrigeand useful arrangements of the bucks, mash tun, refrige-rator, fermenting and cleaning tuns, and employing steam for beating the liquor back, &c. Mr. WHIKLEN'S refrigerator, exhibited by Mr. Ilclus (618, p. 307), its said to be very rapid in its action, Refrigerators are also sent by Messrr. Askrw (611, p. 307), Copyry (615, p. 307), and Thombox, Youngar and Co. (628, p. 307). Carbonating or acrating machines, for making sods water, Seltzer water, &c., are exhibited by Messrs, Coxe. (608, p. 307), in which pumps may be employed to ex-haust the atmospheric air from the water, previously to carbonizing it, or to force the carbonic gas into the water, when so deprived of the common air. Other machines are exhibited by Messrs, Tviers and Co. (605, p. 306), and hy Messrs. Cooper and Bussile (624, p. 307).

Of apparatus for other chemical manufactores we may direct particular attention to Bounna's colour extractor (610, p. 307); Dawson's new distillers' and rectifiers cord, p. 307); DAWSON a new distincts and recitizers recording close safe (612, p. 307), for the Excise; Hallipat's apparatus for the manufacture of pyroligneous neid (617, p. 307); and Hill, Evan, and Co's, patent

AWARDS, CLASS VI.

THE COUNCIL MEDAL.

Nation.		Number in Cotalogue,	Names of Exhibitors,	Objects Howardest,
United Kingdom	_	82	Barlow, A	Double-action Jacquard Leem,
France	-	1557	Cail and Co	Vacuum Sugar Apparatus,
United Kingdom	-	40	Donlsthorpe, G. E	Wool-combing Machinery.
United Kingdom	-	130	Donkin, B, and Co	Paper-making Machlarry. Antifriction Engineers' Tools and Presect
Caited States -	-	79	Dick, D	Antifriction Engineers' Tools and Presses
United Kingdom	-	200 & 403		Rivetting Muchine and Corn Mill.
France	-	873	Hermann, G	Uhocolate-making Machinery.
United Kingdom	-	218	Hick, B., and Seu	Mill Gearing, Radial Drill Mandrils, and Pertable Forges.
Prussis	_	52	Heckmann, C	Vacuum Sugar Apparatus,
United Kingdom	-	1	Hibbert, Platt, and Sons -	Cutton Machinery.
Prossia	-	619	Krupa F	Flatting Rollers (Awarded also by Class I.)
United Klugdom	-	75	Lawson, S., and Sons	Flax Muchinery.
United King-lem	-		Mason, J	Cotton and Woollen Machinery.
United Kingdom	-	228	Mandslay, Sons, and Field -	Colning Press.
France	-	632	Mercier, A. and Co	Woollen Machinery.
United Kingdom	-	236	Nasmyth, J	Steam Hammer,
United Kingdom	-	77		Sailcloth Power Loom.
United Kingdom	-	602	Pontifex and Wood	Vacuum Sugar Apparatus.
United Kingdom	-	85	Reed, T. S., and Co	
France	-	1438	Risler, G. A	
United Kingdom	-	201	Sharp Brothers and Co	Eagineers Machine Tools, and Throstic.
Prussin	-	476	Uhlhorn, H	Coining Press.
United Kingdom	-	201	Whitworth, J., and Co	Engineers' Machine Tools, Measuring Machine, Knitting Machine, &c.

THÉ PRIZE MEDAL,

Nation.	Number to Catalogue.	Names of Exhibitors.	Objects Bouarded,
France	379	Acklin	Jacquard, employing paper instead of cards.
Fnited Kingdom	- 419	Adorno, J. N	Cigarette Machine.
nited Kingdom	- 10 - 48		Warp Lace Machine.
I'nited Kingdom	- 48 422	Berry, B. and Sons	Various Machinery for manufacturing Worsted, Circular Hoslery Frames.
Inited Kingdom	4(4)	Bessesser, H	Centrifugal Machine for separating Molasses.
United Kingdom	406		Machine for cutting Sash-bars.
United Kingdom	- 94		Bobblu-net Lace Machine, with Jaconard.
United Kiumlom	- 138	Black, J	Folding Machine.
			Sewing Machine.
France	- 428 53	Boland, A Bonardel Brothers	Kneading Machine.
Prussia France		Bonardel Brothers	
France France	- 417 - 15	Baranowski, J. J	Machine for Deletion and Number of Telester
United Kingdom	144	Brewer, C. and W	Machine for Printing and Numbering Tickets. Rollers of Wire Cloth for Paper-makers.
I nited Kingdom	27	Brewer, C. and W	Wool - burring and Cotton - cleaning Machines une
	135	Church and Goddard	Machine for Cutting Cardboards, and Printing and Preparing Bailway Tickets. Circular Hand-loom for Hoslery.
		Clausen, P	Circular Hand-foom for Hostery.
United Kingdom United Kingdom	- 78 - 35	Crawhall, J Crichton, D	
Pursuan Kingsiom	59	Cuyere, Mrs	New Taking-up Motion for a Loom, Wenvers' Reeds.
Fusenny United Kingdom	- 80	Davenport, J. L	Various Machines for manufacturing Silk
United Kingdom	- 226		Small-Lathe, with Self-adjusting Chuck.
United Kingdom	- 45		Small-Lathe, with Self-adjusting Chuck. Reeds made by Machinery.
inited Kingdom	76	De la Rua and Co. (Class XVII.) Dandoy-Maiillard, Lucy.,	Machine for folding and gumming Envelopes,
France	491	and Co.	Rollers for Spinning Machinery.
France		Darier, H	Press for cutting-out Watch Hands. Machine for weaving improved Healds.
inited States -		Dorey, J. F Earle, T. K., and Co	Card Clothing.
	1607	Frey, jun	Machine for making nails.
nited Kingdom			Improved silk Machinery.
nited Kingdom .	401		Machines for working in wood,
nited Kingdom	- 100	Gamba, P., the l'eirs of - Garforth, W. J. and J	Jacquard Cylinder.
nited Kingdom	203	Garforth, W. J. and J	Steam Rivetting Machine.
Piussia Inited Kingdom	102	Harding, Polloin, and Johnson	Turning Laths. Machinery for making Printing Type.
nited Kingdom	864	Harding, Puttern, and Johnson	Heckles
nited States -	386	Harding-Cocker Hayden, W Higgins and Sens	Drawing Regulator for Cotton.
nited Kingdom	- 14	Higgins and Sons	Drawing Regulator for Cotton. Cotton Machinery, and Long Line Flax Machinery.
	- 232		Amsteur Foot Lathe, with various Apparatus and Tools.
nited Kingdom		Hornby and Kenworthy -	Amateur Foot Lathe, with various Apparatus and Teels. Sizing and Dressing Machine, and Self-acting Backing off Motion to a Warping Machine.
rnace	541 269	Huck	Apparatus for grinding and preparing Potatoes, &c. Press for Bending and Cutting Hooks and Eyes.
		Inc, J. B	Analogath's Vision of Cutting Hooks and Eyes.
nited Kingdom	546	Jaconia I I	Applegath's Vertical Printing Machine.
nited Kingdom -	212	Johnson, R , and Bruthers -	Circular Hosiery Frames, Wire-drawing Benches,
nited Kingdom a	52	Judkins, C. T	Heald Machine, and Improved Heald.
			Heald Machine, and Improved Heald. Stopping Motions to a Power Loom.
nited Kingdom .	604	Lawrence, J. sen	Refrigerator, Store Cask, &c. Fulling Machine for Cloth.
		Lacrolx and Son	Fulling Machine for Cloth.
russla	. 55	Leonbardt, J. E	Type-founding Machine. Wheel-cutting Engine and Roving Spindle.
nited Kingdom -	209	Lewis, F., and Sons	Wheel-cutting Engine and Roving Spindle. Self-acting Lathe and Power Loom,
nited States	447	Manlove, Alllott, and Seyrig	Contribugal Washing and Drying Machine,
nited Klupdom - nited Kingdom -	206		Small Lathe and various Tools.
ranca	310	Mareschal, J	
paper	615	Mirende Brothers	
nited States	460	Morey, C	Eastman's Stone-cutting Machines.
rance	664	Nicolas, P	Markine for Engraving Cylinners.
nited Kingdom -	158	Napier and Son	
ulted Kingdom -	40	Perry, John	Weel-comb.
nited Kingdom -	456	Preston, F Presser and Hadley	Spindles and Flyers. Ornamental Sawing Machine.
	7.4	Plummer, R · · -	Scutching, Heckling and other Flax Machines
nited Kingdom : -	6	Parr, Curtis, and Madeley -	Scutching, Heckling, and other Flax Machines. Various Machines for Carding and Spinuing Cotton Three Self-acting Mutes; also various Engineers
-tand street in	200	P 1 4	Machine Tools.
nited Kingdom -	128	Remond, A Ransomes and May (Class V.)	Machine for folding and guaming Envelopes.
nited Kingdom = -	-418	Robinsons and Russell -	Leggatt's Queen Printing Press.
	1454	Roswar, A., and Son -	Steam Sugar-cane Mill. Wire-cloth for Paper-Makers.
nited King lom -		Urder, W	Forging Machine.
rence	1474	Sautreuil, jun	Machine for Planing and Moulding Wood.
rance	1475		
			Slearing Marking,
rance	1001	Schneider and Leganud	Card Clothing.

	1	THE PRIZE ME	100
Nation.	Namber in Catalogue.	Names of Exhibitors.	Objects Rewarded.
United Kingdom	- 22		Various Power Loems.
United Kingdom	+ 230	Shepherd, Hill, and Spink -	Self-acting Slide-lathe,
United Kingdom	- 230	Smith, Beacock, and Tannett	Self-acting Slide-lathe, Drilling and Planing Machines
Belgium	- 134	Société du Phornix	Soft Bobbin Frame.
France	- 1021	Stamin and Co	
nited Kingdom	- 238	Stewart, D. Y., and Co	Mould-making Machine for Cust-Iron Pipes.
'ulted States =	- 88	Star, C,	
inlted Kingdom	- 51	Taylor, J	
United Kingdom	- 136	Taylor, W	Machine for forming Hemispherical Paper Shades from flat discs of Paper.
Prossia	- 57	Thomas, II	Shearing Machine.
United Kingdom	- 630	Tizard, W. L	Model of Brewery.
France = =	- 1508	Tousillon C	Dressing Machine for Millstones.
Belgium	- 128	Troupin Brothers	Shearing Finishing Machine.
France	- 717	Varrall, Middleton, and El- well.	
United Kingdom	- 412	Westrup, W. and Co	Corn Mill.
United Kingdom	- 112	Wilson, G	Paper and Mill-board Cutting Machines.
United States -	- 413	Woodbury, J. P	Wood-planing, Tenguing, and Grooving Machine.

R. WILLIS, REPORTER.

Cambridge, October 1851.

CLASS VII.

CIVIL ENGINEERING, ARCHITECTURE, AND BUILDING CONTRIVANCES.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in tha OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.

Jury.

I. K. Burva, F. Ris, Calarma and Byrater, Date Surses, Westminster, Cvil. Engineer, Canasan Conara, Pringer Galarma, Brance Member of Battists and of Cestal Departs. Dr. Nata, Answery, P. R.S., Bettlerd Sparary, Boctor of Medicine. of Sugitation of Control of Cont

of mechanics, as well as the proper application of raw materials to the various purposes of construction; and architecture, especially, includes, besides these, design in sculpture, modelling, and colour. When each of these different branches of science and of art is classed under a separate head, and the objects which illustrate any of them are removed to their separate classes, there can remain but little belonging exclusively to architecture or civil engineering. As might have been anticipated, therefore, the objects comprised in the Official Catalogue under Class VII. are not numerous, and generally speaking, are not important, although the classification of "Huilding Contrivances," under this head, has admitted n very great variety, including many details of construction, of every degree of importance, from the bolt of a garden-gate, and the apparatus for sweeping of chimacys, to the construction of lighthouses and the means of

moving large ships. Another circumstance has tended, also, very much to limit the extent and the importance of the contributions to this class. The works of the architect and engineer can, generally speaking, be exhibited only by drawings or models, and consequently, with few exceptions, it is the model, and not the work it represents, which has been brought before no; and the modeller, more frequently than the architect or engineer, is the exhibitor, From these causes the inbonrs of the Jury have been comparatively light, and might have been somewhat de-void of interest but for the circumstance of two remarkable objects, one of them not included in the Cutalogue, having been brought under their consideration anbsequest to the commencement of their proceediags, viz., the great building in which the Exhibition is placed, and the model dwelling-houses (pp. 111, 112) which are erected near it. With respect to the first, it has been so pre-eminently successful in every respect, and by uni-versal consent reflects such credit upon all concerned in its design and in its execution, that it is left to this Jury only to be the formal agents of recommending to the Council the awarding of the highest prize, the Council Medal, to Mr. Joseph Paxton, who originated the design, and to Messrs. Fox, Hennerson, and Co., who most ably carried it into execution.

As regards Mr. Paxton's claim, amidst the competition

of the whole of Europe, he proposed that mode and form of construction of hullding which appeared on first sight, and which has since proved to be, the hest adapted in every respect for the purpose for which it was intended. The design possessed this peculiar merit of fitness for its object in a singular degree—there was no startling no-velty in any one point which could lead astray the judgment of those who had to determine upon the choice of plan, or which could in the first instance obtain, still less permanently secure, the good opinion of the public. As Medal.

THE works of the civil engineer and architect embrace, regards the form of outline, which is most simple, several generally, combinations of many branches of the science | designs nearly resembling it had been submitted in the general competition. As to the materials, several pro-posals had been previously made to cover the whole area to be inclosed with glass, and iron would, of necessity, be employed for the framing. But in the combination of form and materials, in the particular mode of applying those materials, and is the adaptation of the forms to be selected to their convenient use, as well as in the various details by which the whole was rendered perfect, the design was entirely distinct in character from all that had been proposed, and appeared at once to have the one single merit of being exactly that which was required for the purposes in view. The design, as realized, has com-pletely fulfilled every condition of utility. It has equally proved to be capable, by simple but judicious decoration, proved to be capance, ny stuppe not pacteous decoration, for which we are indefined to Mr. Owen Joues, of being rendered most elegant and brilliumt in effect; and although very novel in its construction, it has been found, from the ingennity and mechanical fitness with which all the details have been carried into execution, to be susceptible of rapid and moderately economical

To Mr. Joseph Paxton, to whom the merit of this design is due, the Jury have recommended, and the Council have adopted the recommendation, the award of the Council Medal.

By n fortunate coincidence the execution of the design thus ally conceived was undertaken by parties peculiarly well fitted to do it justice. Considerable experience and skill were required in every detail of mechanical construction, great method in carrying out to the fullest extent a system of repetition of similar parts, and strict habits of business and of order, for organizing a system by which vast quantities of materials or of manufactured by which wast quantities of materials or of manufactured parts could be obtained with certainty from several quan-ters, and large bodies of workmen kept regularly em-ployed in the rapid application of these materials and the parting together of the parts. There was also re-quired a command of an extensive extabilishment, and of a staff of able assistants and superintendents. All these requisites and conditions were necessary, and in a high degree, for the purposes of rapidly determining upon all the details of construction, preparing all the working drawings, insuring the construction of the numerous parts in large quantities, and ready to be fixed with perfeet accuracy in their reveral places; and lastly, in excepting without any delay or accident, resulting from miscalculation or error of construction, or defective arrangements, a work of unusual magnitude in an unarrangements, a work of time. All these conditions and qualifications for success, and in the requisite degree, were found combined in the persons and in the establishment of the contractors, Messrs. Fox, Henderson, and Ch. To them accordingly the Jury also recommended a Council

Strongly contrasted with this huilding in its magnitude and in every one of its principal features, and in all its estemble objects and uses, stands the Model Dwelling-house. But though contrasting in pretension, it is in importance second neither to the building itself, or to anything within the Exhibition. And in respect to the number of those whom it seeks to benefit, and the exteat among or copy wount i seems to benefit, that the extest to which their physical and morn! condition may be ameliorated, and the amonot of additional comfort and happiness to be created by the simple means thus suggested of improving the dwelling of the working man, no other in the Exhibition states to be extented to the state of object in the Exhibition yields to it in value, or suggests more weighty considerations for the political economist

and the philanthropist. To place within the reach of all a large proportion of those comforts most conducive to health, to habits of elenaliness and decency, which have hitherto been enelemanaces and uncreasy, where nave intreasses or enjoyed as laxuries only by the few; to remove that painful necessity under which the poor man now labours of aubmitting to privatious and inconveniences, which are destructive of moral labbis and utterly inconsistent with domestic comfort, and to place at his command a certain degree simost of luxnry, which tends to refine the mind, and substitutes a comfortable home for a miscrable and harely efficient shelter from the elements, is the am-bitions but wise and benevolent design of those who, with the example and under the leadership of HIS ROYAL HIGHNESS PRINCE ALBERT, have of late actively promoted the improvement of the dwellings of the working

Separate dwellings for a few families, and many large lodging-houses have been built at the expense of private associations and individuals, as sperimens of what is desimble, and examples of what may be done. These examples have already produced a marked effect upon the demands of the teaant, and upon those who bave to sup-ply the demand. But in order to secure permanently and sufficiently these beachits to the million, for whom they are intended, they must be provided at a price which the occupier can afford to pay, and which shall at the same time judget the builder to erect the houses. This has been the principal difficulty, and one which Mr. Roberts, the architect, who designed the bouses now flowers, the areanees, was transport in source con-nuder consideration, has long laboured to overcome. The present example has been erected under the direction and at the expense of His Royal Highness, and contains all the latest improvements of general arrangement, material, and workmanship. It is fuir to assume that in a new branch of industry such as this, great improve-ments may be made; and if so, we may hope in a very short time that the houses of the labouring classes may excel in elevaliness, equality of temperature, and perfect ventilation, the best houses now constructed for the wealthier classes.

In the houses exhibited, accommodation is afforded for a sufficient number of separate sleeping-rooms for average families. By the use of hollow bricks the walls are made to be less perfect conductors of heat and sound; and the rouses are more economically heated, and are rendered more equable in temperature. By the use of brick and stucco floors, and glazed bricks in the side walls, the whole building is rendered fire-proof, and the walls and floors cannot harbour inseets, and may be kept perfectly clean at the smallest possible expenditure of time and trouble. The hollow bricks are used for airpassages in the euroices and around the upper part of the room and communicating with the chimney, in the manner practised by Dr. Arnott, and thus excellent ventilation is easily obtained. A supply of water is provided upon each floor; and the whole is stated to have been constructed at an expense which allows a set of rooms, capable of affording a really comfortable home, being let ut as low a rate as is now paid for the wretched lodgings from which the poor man escapes to the street ur the public-house, and to which he cannot return without disgost

It is difficult to over-estimate the magnitude and imsortance of the effects of such a change upon the popula-ion of the country, whether as adding to their individual lappiness, or improving their physical and moral condi-

tion, and thus rendering them more valuable and useful

mbers of society.

The Jury have unminously recommended to the Council that they should award the Medal reserved to their gift to His Royal Highaess Prince Albert, as the exhibitor of this most useful and interesting contribution to the Exhibition, and to whom the nation at large is so deeply indebted for the promotion of this important

The views of the Jury upon the merits of the two important objects for which they have recommended the Conneil Medal, have been stated at some length; but it will be desirable, in order to avoid any invidious distinction, to refer more generally and less in detail to those contributions for which after the approval of the Council, it is proposed to uward the Prize Medal. The order in which they will be mentioned must not be considered as indicating an attempt to classify them according to their respective merits, but as resulting from a pre-arranged classification, according to the circumstances under which the objects might be supposed to be sent. Thus models of works executed, and which were contributed by the designer and executor, and as explanatory of the design, and not as a specimen of workmanship in the model, are classed before models contributed by the modeller or by others than the authors of the works, or which are distinguished principally by perfection in the art of modelling, and both as connected more or less directly with the construction of important works in architecture and civil engineering, have been mentioned before amongst " Building Contrivances

Amongst the limited number of models of works successfully executed, entributed by the nutbors of the ori-ginal works, and explanatory of their designs, that which ginal works, and explanatory of their designs, that which happens to fulfil most completely all the conditions of the proposed elassification, is one which also well deserves mention for its merit. It is the model of the dome of the Observatory of Paris, constructed by M. P. L. Thavens, of Paris (1044, p. 1228). The difficulties to be overcome in this work were serious. It was desired to establish on the top of nn existing eylindrical wall of masoury, of about 40 feet in diameter, and having no sufficiently solid central support, a steady centre for an equatorial of large dimensions, and a revolving floor and done of the diameter above stated, the motion of which Travers has for this purpose fixed the instrument upon a small control floor, resting on a conical framework of strong iron ribs radiating from the centre and fixed into the inner surface of the cylindrical wall: a second series of radiating ribs also fixed to the wall and placed intermediately to the former, carries a ring conce small floor, and which serves as the centre of motion for the revolving floor and building. The building, with its done and floor 40 feet in diameter, and weighing about 40 tons, revolves round the central guiding circle before mentioned, and apon a series of rollers working upon a ring hedded upon the wall. The attempt was a bold one: the design rhows south mechanical knowledge and skill in construction: the model illustrates the design clearly, and the result of the attempt is said to have been

eminently succe-sful. Mr. Thavens (p. 1228) also exhibits a model of an ex-cellent iron roof of 120 feet span, constructed by him for the Custom house, Paris,

the Castom house, Paris,

Captain Sir Santra, Brown, R.N. (No. 331, pp. 531,

532), exhibits models of slips for building-up slups, as
designed by himself, and which have for many years
been successfully employed; also nanicrous models of
works which he has executed, and of projects for various
contrivances connected with the construction and moving

of ships. Mesors, S. and H. Mostrox (24, p. 311), have exhibited a model of the patent slip which has so long borne their

Of the models exhibited under circumstances approach jug nearest to the condition above named, are the models railway drawbridges, constructed upon the Datch railways, and seat by the Emiluay Company, by whose engireer they were designed and executed, and-

The model of the Britannia Hridge, contributed by Mr. E. CLARKE (107, p. 341), a gentleman engaged in its construction, and whose name is closely identified with the work as the principal assistant to whom the in-vestigation of many of the scientific questions involved in its construction, and the superintendence of the work, were intrusted. Of the first named, the works have been executed some years, and have well answered the pur-poses for which they were intended. The peculiar mode of opening the bridges is well worthy the study of the engineer, and the application of the principles on which they are constructed may prove highly useful. The models are perfectly well made. Of the Britannin Bridge It is namecessary to do more than to name it. It is naiversally recognised as one of the finest works of the age; but the object bere exhibited can be considered only as a model of the work, and is classed accordingly. In workmanship it manifests the perfection of the art of modelling, and reflects great credit upon Mr. J. James, who is stated in the Catalogue to have executed it. Under very similar circumstances may be classed an

cerelieaty executed model of that great work, the Plymouth hreakwater, contributed by Mr. W. Straat (28, pp. 311, 312), who has personally superintended the execution of the whole of these works, from the counteness.

ment in 1810, To the exhibitors of the two models adjoining that of

the Britannia Bridge, Medals have also been awarded. That of the Kief Suspension Bridge is contributed by the engineer, Mr. C. Vicisorus (105, p. 321); but the work is not executed, and therefore, although in course of construction, can be considered only as a design. The model is by the same workings as that of the Britannia Bridge, Mr. J. Janes, and is a most claborate and beau-tiful piece of work, exhibiting every minute detail. The model of the bridge erecting over the Wye at

Chepstow, is exhibited by the contractors for the work, Messrs, Freen and Willer (9, p. 310). It illustrates well the construction of the bridge, but is not highly

finished.

In the American Division there is a full-sized model, or rather a portion of a bridge, illustrative of the principle of construction on which several large bridges have been erected in America. The principle is a modification of the "lattice bridge," in which iron is skilfally introduced. The design, which is by the Messrs. Ilidea, exhibits that ingenuity and skill in construction for which the Americans are celebrated. It is sent by the

which the Americans are construct. It is sent by the New Yung Loos Bandoe Company (147, p. 1416). Prize Medals have been awarded to Mr. Saltzer (p. 85) as the exhibitor of several most beautiful models of engineering and architectural works, and to Mr. J. W. LEENAN (257, p. 1282), who bus exhibited a very heau-tiful model of the Cathedral of Strasbourg; and of Mr. G. MICHEL, of Berne (248, p. 1282), for an exquisite model of a Bernese farm-yard, with every detail both of interior and exterior, the Jury make Honourable Mention.

and exterior, the Jury mass from the state of the State of Wight, a most perfect specimen is exhibited by Captain Innerson (p. 851), being the model of the Undereliff, life of Wight, from a trigonometrical survey, with every detail minutely and accurately given.
Mr. F. A. Cannington also exhibits several excellent

models of various parts of England.

Before mentioning designs for mechanical construction not yet executed, it will be right to notice Mr. W. C. Wilkins' revolving floating-light (157, pp. 326-328), in which excellence of workmanship is combined with judicious contrivances for meeting the various difficulties of ctons contrivances to meeting the annual light, attached to the mast of a floating-light vessel. These lights are to the mast of a floating-light vessel, in use and work well.

The designs for novel construction in engineering are not numerous. Of these two have been selected as worthy of a Prize Medal, the breakwater and lighthouse of Mr. W. H. Sattu (165, p. 328), and a bridge by Mr. J. T. Rose, of Leith (180, p. 329), in which an elegant and mechanical arrangement of timber is suggested.

Westminster, October 1851,

Amongst building contrivances it is to be regretted that more numerous examples of heating and ventilating have not been found. But these having been generally connected with branches of manufacture, are considered in other Classes. Of the contrivances more or less connected with building, which have remained in Class VII., Major PRATT (16, p. 311) has exhibited a model of a very major rearr (10, p. 011) and cambine are simple and ingenious system of steps, for landing from boats, which rise and fall with the tide, keeping at all times a complete set of steps, with a vertical rise and trend, and with a landing at the bottom, and the parts, being never covered by the water, may remain clean and The model is small and unpretending, but the object dry. The motor is same and unpretending, out the object is by no means unimportant, and the idea promises to be successful and inexpensive in construction. No greater merit can be ascribed to any plan, and the Jury have considered it well worthy of a Prize Medal.

To both Mr. C. E. HEINER (53, p. 315) and Mr. A. Siene (1, p. 309) the Jury have awarded Prize Medals for complete sets of diving-dress upparatus, alike excellent in construction and well studied in detail; each has some peculiarities, but both are good in workmanship and well

signed.

In contrivances for more domestic purposes to Messrs. J. HENNETT and Co. (152, p. 526), who have exhibited a specimen of their metal slintters, and several excellent water-closets; and to Mr. T. H. Wilson (113, p. 528) for a very ingenious contrivance for a bolt for double roadgates, which gets rid of the objectionable stop that is now used, which, rising in the middle of the road, is both dangerons for horses and very unsightly, and for a system of bolts and slides for doors, which renders them almost air-tight, and adds to their scenrity against violence, the Jury have also awarded Prize Medals,

Amongst several objects which were allotted at a late period to Class VII., the Jury wish tu draw particular attention to wo sets of boring-teels from the Continent, one contributed by Mr. J. F. Lauk, of Wilders, Switzerland (65, p. 1270), constructed on a principle that has been eminently successful, in which water is introduced by means of bollow rods, and mixing with the powder or small dust formed in the boring, is discharged through the tool by the blow of the latter, in descending or by other means, and thus carries with it the produce of the other means, and this curries with a time produce a boring, keeping the bottom clear and fresh to receive the full effect of the tool. A boring of 1,300 feet in depth has been made with these tools, and with a facility of

which the old tools are not susceptible. Mesers, MeLor and Sos, of Paris (638, p. 1209), have also exhibited a set of powerfol buring-tools, similar to those with which they effected the celebrated "Puit Ar-tésien," of Grenelle, which exceeds 1,800 feet in depth. This result is sufficient proof of the excellence of the apparatus,

Among contributors of other objects, worthy of Ho-nourable Mention, but to which prizes have not been awarded, the Jury desire to record the names of—

awarded, the sury desire to record the names of—
Mr. T. Borch (73, p. 317), the exhibitor of a model of
a milway ferry-boat.
Mesors, Barmera and Soxa (95, p. 318) for their models of various apparatus for working in situations exposed to

the sea, and of that used to assist in getting off the "Great Britain" steem-ship.

Mr. J. Donsox (114, p. 323), for his model of a fine roof

at the Newcastle Railway Stat Mr. G. Hunwood (31, pp. 312, 313) for a simple appa-

ratus for shutting and securing ships lights.
Mr. J. Leemann (258, p. 1283) for a model of a four-tain in the Market-place of Nuremberg, by the Sculptor Schald Schouhofer. (Honourable Mention in Class XXX, ALICE LOWE and Co. (62, p. 316) for stink-traps

Mr. T. G. Newsman (170, p. 328) for models of orna-mental roofs for churches and other similar buildings, of terra cotta, and also of timber, and for a construction of window-sashes, showing much ingentity From Saxony some excellent models of roofs have also

been scut, which deserve mention.

1. K BRUNEL Reporter.

CLASS VIII.

REPORT ON NAVAL ARCHITECTURE AND MILITARY ENGINEERING; ORDNANCE, ARMOUR, AND ACCOUTREMENTS.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the pages in the OFFICIAL DESCRIPTIVE AND ILLESTRATES CATALOGUE.]

Jary.

Baron Devis, Chairman and Reporter, France; formerly Minister of Marine, Member of Institute and President of the Central Jury, &c. Major-General Sir Jour Bengover, K.C.B., Deputy Conirman, 87 Pall Mall; Inspector-General of Fortifications

FORTHERMORE, LICHT.-COI, COLQUEROUN, B.A., P.R.S., Royal Arsenal, Woolwich.
Ch. LESONNE, Belgium; Member of the Chamber of Representatives, late Merchant,

Ch. DESINYS, DESIGNING MEMORY OF COMMERCE OF REPOSSABLE AND MAJOR MICHIGAN, FRANCE.

Sir Balowin Walker, K.C.B., Surveyor-General of the Navy; Admiralty, Somerset House,
A. WHITSKY, United States; Merchant.

ISAAC WATEY, Somerset House; Assistant Surveyor-General of the Navy.

Associates.

Capl. F. W. Bezeney, R.N., Noval Department, Board of Trude.
Licut. Carriag, B.E., Hon. Secretary.
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Capt. YOLLAND, R.E., Ordnance Map Office, Southampton; Assistant Director of Ordnance Survey,

PART I.

NAVAL ARCHITECTURE, It is not unworthy of remark, as being a singular feature in the maritime history of Great Britain, that whilst, during a period of war, vast improvements were being made in its military service, very little was effected for its navy until after the Trenty of Peace.

It was not until a general pacification in 1814 had freed Europe from a severe and terrible military strug-le, that Sir Robert Seppings, then Surveyor of the Navy, brought forward his improved method of navai construction. The lower parts of the frames of ships of war were then for the first time filled in, and no longer afforded interstices for the accumulation of dirt and putrid water; and the frame-timbers of the bottom presented a compact mass of wood from the keel up to about the light water-line. Besides this great improvement, the whole fabric was further strengthened by means of a system of diagonal trusting, which, together with the solid bottom, opposed such resistance to the forces due to the weight of the hall and its contents acting downward, and to the furces due to the displacement or pressure of the water acting ppward, as effectually to prevent the keel from shorteolog, and consequently the ship from hogging or breaking down in the direction of her leugth, as it was liable todo formerly, or otherwise yielding to the forces of pressure under sail, or those of pitching and rolling in a tempestuous sea.

In addition to these first great steps in the progress of ship-huilding, the upper parts of meo-of-war were much improved in form and strength; the stern, instead of remaining open to the fire of an enemy, has been more atrongly built, in a senicircular or rather elliptical shape, better fitted for defence in every direction. The upper decks have also been enlarged, and space gained for working the guns, The building of ships of war has been further improved

in many ways which cannot be explained here. More solidity has been obtained by greater precision in joining

* This Report was written in English by Beron Dupiu.

the various masses of wood constituting the ship. By such means the working of the timbers in a heavy sea is greatly prevented; and both solidity and greater dura-bility are obtained.

Instead of firing the great guns by the same me-chaoism as old muskets, caps and hammers have been adapted to them

Advantages of still higher importance have been obtained by the introduction of guns of very large calibre, mainly due to General Paixhans, which were introduced nearly twenty years ago, and called casons à la Paixhans. At first very few such guns were placed in each ship; but now we find complete batteries of 68-pounders, the effect

of which cannot fail to be tremendous The combination of large masts has been rendered more economical, easy, and solid, by the employment of coaks ur cylinders of hard wood, inserted oue-half of their length into each of the pieces of the mosts, brought

Sir W. Symonds, who succeeded Sir Robert Seppings in 1832, as Surveyor of the Navy, turned his attention toward an improved form for ships of war, and designed them of such figure and dimensions as to require very them of such figure and dimensions as to require very little ballast; this he in great measure accomplished by a considerable increase of the breadth. This system hall many advantages; it gave greater stability, and in sharp ships more space below fur stowage, besides a larger field or deck for working the guns; and although many talented naval constructors and officers considered this form unfavourable to an easy motion at sea, and liable to distress the spars; we have, nevertheless, great came to be thankful to this talented and meritorious officer for his laudable and unwearied endeavours to improve the con-

We are further indebted to Mr. J. Scott Russell, the distinguished Secretary of the Royal Commission, for a series of valuable experiments and researches on the form of least resistance at high velocity; this form being determined by examining the form of waves pro-

duced hy drawing vessels through a cutal at different degrees of speed. Further experiments are being made hy this gentleman in the application of his deductions to sea-going ships, and he has our best wishes for their ultimate success.

The theory of stability, so important to the navy, and which we considered in a geometrical point of view, has been examined, both successfully and ingeniously by the Rev. II. Moseley, the President of Jury V. The stoware of shins has been much improved, of late

years, both in the form and disposal of stores; thus water-casks are replaced, at the suggestion of General Bentham, by iron tanks. The cube or primatic form of these task issues are great economy of space as commercially the support of the contract of the contract of the contract of the contract, have the soluble part of their wood dissolved by the water, causing patriffly, which produces various diseases, especially in hot elimitate.

Equally important with the improvements in keeping water free from taint, must be considered he mades invented by M. Appert for preserving all kinds of useat. The preservation of gunpowher free from hamidity, so necessary for ships of war, is now rendered perfect by the employment of hermsteinly sealed metallic eases, or wood cases with metallic lining; an improvement due to the British number.

In the French mary, great improvements have been made by separating passages for the conveyance of cartridges from the magazine up to the various batteries of the ship. These arrangements were partieularly remarked by the English during their visit to the French fleet at Cherbourg in 1850.

We now come to a series of improvements of the highest importance to the safety of ships. The hempcables formerly employed were very objectionable, being liable to rapid decay, particularly in hot climates. When the mehor was east on a rocky bottom, the cable was frequently cut by the rocks, and very often parted, so

that the ship was greatly endangered.
A captain of the British navy, (Sir Samuel Brown,) introduced enther named of iron links, so arranged as to be easily worked. These chain-cables are now in general nee, not only in ships of war, but also in the commercial shipping of every maritime nation. We shall have enough to have received the highest of our awards, as being one of the greatest effected for the shipping inte-

rests and the preservation of Ilife and property.
The first method for stopping iron cables is due to the
English; let last and best belongs to the expain of the
English; let last and best belongs to the expain of the
Present figured "Jopen". A high execution is due to the
having devised the means by which the chalic-cable can
be worked on the capstan. The various links as they
succeed seads other all into grooves, on the periphery of
a large polygonal typin forming the body of the english.
Large polygonal typin forming the body of the english cable
chalic-cable larve in succession half their thickness todged
in these grooves, and successively dislengage themselves

with mathematical precision.

The improvement in cables unturally leads us to speak of anebors.

Very remarkable improvements have been recently made by Lieut. Roucar, R.N., insuring a better distribu-

made by Lieut. Bonnan, R.N., insuring a better distribution of the metal in the direction of the greatest arrana. The palm of the suckor, instead of being flat, presents much made and the properties of the present and the consequence is, that these new anchors hold much better in the ground. The Committee of Lloyd, so competent to judge of every contrivance likely to preserve ships, have revolved to allow for the suchors of the ships they have revolved to allow for the such or of the ships they have the such as the such as the such as the such as the last the such as the such as the such as the such as the last the such as the suc

Another source of safety, most important to ships, is an efficient application of metallic conductors by which they are secured against the destructive element of lightning. Franklin made the immortal discovery of the identity of artificial electricity and that from the thundercloud, and through the instrumentality of the lightningrod, devised a happy application of his discovery to the

preservation of buildings and ships in thunder storms. he variable and complicated circumstances, however, under which ships are necessarily placed, rendered the use of such rods on ship-board difficult and apparently impossible. The masts—the only parts to which they could be well applied—consist of many distinct portions: these it is often requisite to move one upon another, and sometimes to remove altogether; they are also liable to injury from wind and other forces acting on them. The de-fence of ships from lightning had hence been confided to a small chain or rope of wire temporarily applied along the rigging; but which, from the very nature of the case, fails to afford the full amount of security to be derived from a more powerful conductor permanently fixed along the mast. Sir W. S. Haunts conceived the idea of making capacions metallic conductors an integral part of the masts and hull of the vessel, so as to ring the general fabric into that perfect conducting or non-resisting state it would assume, in respect of the nanter of lightning, supposing the whole mass to be me-tallic throughout; this be has offected by incorporating with the masts and hull a series of copper plates, so arranged as to meet all the varying conditions of the spars, and so tied together that an electrical discharge, striking upon any part of the vessel, cannot enter npon any circuit of which the conductors do not form a part, and thus the ship is preserved from the effects of ning at all times and under all circumstances, without the officers and crew being in any way concerned in the Sir W. S. Harris has shown, by original researches in science, that in whatever position the sliding musts may be placed, a line or lines of conductors pass through the ship to the sea, affording less resistance to the passage of the electrical discharge, than any other arrangement which can be devised. The most perfect security is derived from the plan thus introduced. Sir Baldwin Walker, one of our fellow jurors, has himself experienced the great advantages of this system in a large frigate commanded by him, which was struck, both on the fore and main-masts, by heavy discharges of lightning on the coast of Mexico. In this case, the force of the discharge was such as to partially fuse the metallic point aloft on which the lightning struck, and leave spots of fusion on the surface of the conducting plates, hat without the least damage being done to the spars or hull; and this, too, while the top-gallant-masts were We have given our highest award to this, which we

We have given our highest award to this, which we consider as the hest apparatus for the preservation of ships against the terrible effects of lightning.

Another source of safety in the construction of ships is the substitution of two fire wood. In a century like the substitution of two fire wood. In a century like the substitution of two fire woods. In century like the substitution of the substit

binding of ships of war. The riging, blocks, and mile of ships have been im-The riging, blocks, and mile of ships have been imtered by the ships of the ships of the ships of the construction of blocks is managed with remarkable noney since the invention of the salinishle block machinery by the late Sir J. lambard Brunel, in his youth a French naval offser. We have awarded Prize Medals to lapporements in the countraction of large blocks as tunied excooning in material and as better fitting of their united excooning in material and as better fitting of their hooks and rigging. Rope-making is likewise improved, We owe to British ingenoity the obtaining of equal ten-sion amongst the threads of which the largest ropes and cables are now made, and the operation of laying the ropes, by mechanical power, with mathematical precision.

The commercial marine of France exhibit cordage made in this manner, which is certainly much better than any shown on the English side of the Exhibition. Both countries have improved the texture of their sail-cloths, as will be seen by the Report of the Jury entrusted with

their examination. er examination. We shall conclude these general remarks upon Naval Architecture, with some interesting documents relative to various classes of ships, which we have before ad-

The Admiralty and merchant builders having contributed a large number of models of ships to the Exhibition, for the purpose of illustrating the forms and other characteristics of ships of the most recent construction: we conceived that some record of those ships should be preserved, in order to indicate the present state of naval architecture in Great Britain.

With this view we present a series of tables, con-taining the principal dimensions, and such other mathematical elements, relating to the construction of these ships, as could be obtained.

Table 1, (page 212), contains the dimensions and calculated clements of a complete series of sailing-ships,

from a first-rate man-of-war to a small brig. Within the last twenty years, ships in the navy have constructed with greatly increased width, or lith of beam. To some extent, this increase of breadth of beam. breadth may have been necessary, to enable them to sustain,-without too great inclination under sail,-the increased weight of armament now placed on board ships of war by most naval powers. But the general opinion, founded on the result of experimental trials of these ships, with those of former years, is-that breadth of beam, when carried to excess, contributes to make the

ships roll quickly, and in some cases deeply also. As this is a most serious evil in ships of war, materially affecting their efficiency in the use of their guns, ships of more recent construction have had increase of length as well as of breadth given them; but the latter to a less extent;—thereby obtaining the requisite amount of stability without rendering them liable to those sudden impalses produced by great breadth at the water's suralone, which causes the side to round greatly wards, both above and below the water-line. The ships referred to are, nevertheless, a very fine class of ships; and in the "Queen" we see a first-rate ship, combining with great speed, stability, easy motion, and every other

with great speed, smoothly, easy metric, and except sessential property of a man-of-war.

Table II. (page 213), contains the principal dimensions and other elements of a number of frigates constructed by different persons with a view to competition. Several of these frigates have been attached to the late experimental squadron under the command of Commodore Martin, for the purpose of fully testing their sailing and other properties as ships of war. The results of these trials, in so far as they have as yet been determined, have been indicated in a Report ordered to be printed by the House of Commons, on the 1st July, 1851. The super-ierity of saining was in favour of the "Phaeton" over other frigates similarly fitted. Her superiority was mainother frigates similarly meet. Let appearing in the trim of the rival frigates, the "Leander" and "Arethusa;" but the "Arethusa" had the advantage over the two others in respect of stowage, and she sailed better than the

Table 111. (page 214), gives the principal dimer and other elements of several brigs which have been tried together at sea for the purpose of ascertaining their relative merits in regard to sailing and other necessary qualities for vessels of this class. The results of the trials of the brigs, in Table III., are

" Leander

given in Captain Corry's Report, published in Parlia-mentary Paper, No. 394 (A), Session 1845.

Naval architectore, as far as it concerns ships moved

hy wind and sails, bas thus presented to us many im- very solid and sufficiently light, have greatly advanced

provements. But we have now to speak of progress, by far more complete and important, in ships moved by the power of steam.

A. PADDLE-WHEEL STEAM SHIPS.

Many persons, in various countries, claim the honour of having first invented small boats propelled by steam. But it is to the oadaoated perseverance and exertions of the American, Fulton, that is due the everlasting honour of having produced this revolution, both in naval archi-tecture and in unvigation.

When the general peace took place in 1814, there was not a single steam-ship in the ports of England; Scotland, however, had one small vessel of this kind. For several subsequent years, steam-boats, of small size and with very insignificant engines, were employed in rivers or along the coasts, but the idea of going far out to sea with them was considered very presumptuous.

In 1818, however, an American captain traversed the Atlantie in a steam ship, the "Savanush," tooching first at England, and then proceeding up the Baltic to St. Petersburgh.

About seven years after this steam was applied to railway travelling on shore; and then it was that most important attempts were made to extend the power of steam to long voyages by sen, and to the passage across the Atlantic from England to the United States. In accomplishing this, however, far more powerful engines, and much larger ships than bad yet been boilt, were abso-lutely requisite. The examination and judgment of such engines will be found under the Report of another Jury (Class V.).

Stenm was soon applied very generally, both to the commercial navy and to ships of war; a main object being—the application of such velocity combined with economy and safety as would induce persons to travel

To procure such a velocity, it was not enough to increase the propelling power; it was also indispensable the properties of the vessels, to distinct the vessels, to diminish the bulk of the prow and stern, to reduce the breadth, and proportionally increase the length. In this way the forms of steam-ships have been made very similar to the properties of the province of the properties of the province of the lar to those of the galleys of ancient times; wheo, instead of steam power, human labour was applied to propel the vessel by means of pars; whereas, now, the mechanical force is transmitted by the puddles of wheels or screws acting longitudinally.

Sneb is, at present, the empire of man upon the sea, that calms, contrary winds, and adverse currents, for-merly so detrimental to speedy navigation, are quite overcome. Periodical steam-ships start and arrive on fixed days, and almost fixed bours, at the ports of Liverpool or Havre and New York; as well as from London or Marsellies to Constantinople and Alexandria; and from Sucz to Bombay, Ceylon, Calcutta, Singapore, and Hong Kong. Contracts are made between the Admiralty of Great Britain and steam Navigation Companies, obliging the vessels of the latter to cross the Atlantic and the Mediterranean, at the rate of at least 9 miles an hour, taking all the chance of contrary winds. Great Britain, ever attentive to the preservation of her maritime power, looks upon the great steam-ships, hailt by private Companies, and under contract with the Government, as a valuable reserve in case of war; with this view, special articles of the contracts with the Companies oblige them to build their ships of wood and not of iron, because, with the latter material, they would not be so fit for defence. as we have already explained. At the first signal of war, the Admiralty would, from this source alone, have an anvillary steam pays of 20,000 horse nower! The exauxiliary steam navy of 20,000 horse power! ertious of private speculators, and of the English Governertions of private specialators, and of the ringuist Coveri-ment, during the last filten years, in securing the conveyance of letters, valuable goods, and passengers between Europe, America, Africa, and Asia, are deserv-ing of the highest admiration. The many rich and powerfol Companies engaged in pronouting similar undertakings, by ordering steam ships to be built of great dimensions, either of wood ar iron, so as to be at once

DIME	NSIONS	AND	ELE	MENTS	OF	SAIL	ING	SHIP	s of	RO	YAL	NA	VY.	[0	LASS V
Entomett, 10 Gans,	8 %	3-24 12 3 13 6	0.410	0 0	0-011	33961	35	0.600	25527	0.334	Abaft 0:248	7.10	Abaft 0-005	1.045	36.23
Chan.	9 101	25 E E	0.439	1 0	0-(2)	40926	45	0.282	3448	0.335	Before 0-065	6.0	Abaft 0-cci0	1:14	36-3
Stren. In Course.	34 0	3-220 13 9 14 6	0-415	1 2	0-028	52593	412	0-578	3723	0-321	Before 0-007	0.89	Abaft 0-016	1-008	997-0
Arachus, Gans,	11 8 8 0	3-276 14 0 15 0	0.421	1 1	0.014	29193	478	819-0	4013	0.336	0.000	0.89	Abaft 0.023	76-1	40-16
Bare ml.	8 =	37.405 15.65 17.6	0.411	0-002	010-0	588602	640	0.632	0-804	0.333	Abaft 0-058	99-89	Abaft 0.014	1-022	37-68
Sarcinus, 5 · Gens,	50 10	3-376	0.424	6 1 6	0.016	197361	Nrg5	0.673	9231	915.0	Before 0-tol	6.9	Before 0.003	96.0	33-04
Land, Gam, Guns, Gum,	1. 0	3.568	9 0	2 - 0	910.0	205357	1018	×19-0	97cs 0-823	0.345	Before 1	8.9	Before 1	896.0	34-13 3
land, Sund, Gune,	9 8	3-392	6.639	6 1	900-0	6 161823		102-0	9710	050.0	AbaR 8	99-18	Before I	916-0	0.231
Cups.	200 9 1	3-632	154-0	1 6	0.014	C22292		0-693	11041	0-367	Abaft. 0-000	82.1	Before 0-007	0-988	32-67 3
Guna,	90 0 7	20 E E	0-438	7 1	90.00		1204	0-1-0	10744	0.383	Abaft 0-006	98-5	Before 0.008	0-942	30-57 3
Caral, Garan,	00 00	3-13 21 6 21 6	0.428	1 6	110-11	202011	1200	0-729	0.883	0.349	Before 0-008	86-3	Before 0.000	0-620	0.300
Gone,	58 0	3-577	0.413	0.01	(10.0	150982	1303	0.733	0.847	0.373	Before 0-003	0.0	Before 0-012	0.918	32.55
Albon, Omne,	0 900 0	5 6 8 8	0.410	0 -0	0-1103	200017	1348	0-713	12166	0-374	Abaft 0-mi	9.98	Before 0-014	116-0	30-48 0-198
Quent,	1 100	3-45 21 6 25 05	0-426 6 N	1 9	0.03	305836 2		0-7-0	12112	0.0%	Abañ 0-002	8 +.16	Before 0.011	0.830	0-178
Albert, Cars	82 3 3 60 10	25.55	0-402	1 6	0.015		1399	0-763	13519	0.330	Abañ 0-002	95.7	Before 0.121	198-0	0-176
Specification of the Dimensions, and other Elements.	Length no the losal water-line from the fore part of stem to after part of post, in feet and incless ———————————————————————————————————	cal draught of water, in feet and inches forward	pore-sill from the load water-line,	nide	of the total water-tine, in terms in its wages. The load water-line, of displacement before the middle of the load water-line, in terms of its leastle.	lined to	read of the encumeration of the parameter production of the present of the water-line, and depth from the water-line.	to the lower able of the rabbit of the keel, in square feet if are of the greatest transverse section, in terms of the said; rectangle	Area of the eitenment bed rectangle contained by the length p and breadth of the water-line, the pure feed — — — — 5 keep of the lead water section, in terms of the said rectangle	Depth of the centre of gravity of the greatest transverse, seedlen, in terms of the mean draught of water	Distance of the centre of gravity of the load-water section from the middle of the load water-line, in terms of its	intro of effort of	istance of centre of effort of sails before or abaft the centre of gravity of displacement, in relation to the longth of the load water-tine	celation to the moment of salls shaft the centre of gravity of displacement to the moment of the salls before the said	of the greatest tra

	Course	
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Specification of the Principal Dimensions and Calculated Elements.	Arethau. 30 Gena.	Barigable, 30 Game,	Leander, 30 Guns.	Pharten, 30 Gans.	Raleigh, 30 Guna.	Nemkin, 30 Ouns.	Sea Poremo, 50 Guna.	Theth, 28 Guns.	Igronatani. 36 Guns.	Earydies, 26 Gans.	Spartag. 26 Gans.
Length of the load water-line from the fore part of stem to after}	9	1 20	9 (9)	167. 8	181	187 0	01 081	165.8	191	143 3	13
Part of post, in feet and inches											
factors	52 3	31 6	30 6	† 6 †	49 6	8	20 0	9 94	7	8	9
	3.49	3.54	3.615	8-763	3.66	3.695		3-562	3.56	8-75	3.337
1	21 9	98	200		30.8	21 0	50 8	18 10	18 8	15 11	16 10
up	23 2	7	31 6		90 74	19 25	_	÷ R	19 3		18 0
Mean graught of water in relation to the extrame breadth, at lead	0-431	101-0	0.413	944.0	0.428	0-431	0.430	0-431	0.417	0.455	0.433
	9	0	01	80	0	8 10	9	00	1 00	0 9	5
Depth of the keel and false keel below the rabbit of the keel, ditto	8	6		-	9 1	- 3	9 1	9 1	-	21	-
Distance of the greatest transverse section before the middle of a the load water-line, in terms of the length of the load water-line, in terms of the length of the load water-line.	0.073	0.00	0.034	690.0	980-0	0-000	600-0	0-033	0.072	0.043	0.007
Distance of the centre of displacement before the middle of the load water-line, in terms of the length of the water-line	0.010	0-012	0.013	0.023	810.0	0-002	0-013	0.014	0.020	0.037	0-030
pedon contained by t	213594	195593	192556	201104	120106	200230	117,508	150628	138448	89829	93023
Displacement, in terms of the said parallelopipedon	0.436	0-481	0.437	0-457	0.473	0.431	0-469	0-447	0-440	0.403	0.358
Area of the circumscribed rectangle contained by the breadth of the water line, and depth from the water-line to the lower side	1065	1008	970	1001	973	1008	706	7	797	576	657
of the rabbit of keel, is square feet	0.00	9.4.0		0.70	0	0.000	00000	01690	0,000	0.095	0.00
Area of the circumscribed rectangle contained by the length and	1150	0170	1000	9710	6,000	9489	95.86	2003	23.3		5340
Area of the load water section, in terms of the said rectangle -	618-0	6.8.0	0-R24	0-797	0-83	0.814	0.842	95.0	0.830	0.803	0.810
	0.313	0.356	0.232	0.369	0-349	0.345	9+0-0	0.318	0.370	0.327	0.344
Distance of the centre of gravity of the load water section from	Aban	Abaft	Aban	Abafe	Before	Aban	Before	Before	Before	Before	Before
the middle of the load water-line, in terms of the length !	9.00	0.100	0-005	0.00	0.0501	0-001	9-002	0.005	9.00-0	0.003	0.0
regitt of centre of citors of sails above the load water-line, in feet Distance of centre of effort of sails before or abalt the centre of	75-93 Refere	Fefore	17-75 Refere	26.20	78-70 Refere	Median	B-fore	Before	20.00 Before	Abañ	Alan
gravity of displacement in relation to the length of the load	900.0	0.005	9[0-0	0.00	0.0	600-0	90.0	0.002	0.013	0.011	0.03
Setation of the moment of the sails aboft the centre of gravity of displacement to the moment of sails before the said centre -	616-0	0.977	0.837	1-025	0.353	0-903	926-0	196-0	0.901	1.064	1:180
2	34-42	33.38	38.38	25:17	35.60	35.30	31.63	36-65	37-85	39-40	34-78
Area of sails, la square feet, in relation to the displacement -	0.264	0.257	0.500	0-263	0-210	0.273	0.254	0-392	0.326	0.396	0.388
By whom designed	Symonths	Mc. Wm. Edye.	Mr. Rd. Blake.	Mr. Joseph White.	Mr. Flacham.	Mr. W. O.	N. Rend.	MM. Read, Clark-M	Adminst Hayes.	Admiral Elliot.	Symonds.

TABLE III .- PRINCIPAL DIMENRIONS and CALCULATED ELEMENTS of the Experimental Brids of the Hoyal Navy.

Specification of the Principal Dimensions and Calculated Elemonate.	Flyfng Fish, Er Goos.	Espidate.	Daring. 12 Guns.	Ospery, 12 Guns.	Matine, 1. Gent.	Witch. 20 times.	Pantaloom, 10 Guna.
to often men in feet and inches	9 601	105 3	104 9	100 10	101	0 16	88
	35	31 61	31 01	31 61	31 6	28 10	28 6
1	3.18	3.34	3.33	3.50	3.5	3-15	3.153
Metaltion of Regito to investiga at the possition of Communication	13 6	12 9	120	13 2	20	10 6	=
Load draught of water, in feet and inches (20	14 7	6 91	16 91	- 2	14 20	7	2 2
Mean demands of water in relation to the outrome breadth at water-line	0.440	0.434	0.474	0.431	0.437	0.427	0.435
Mailtha of the Lower word all from the load water-line, in feet and larghes	7	9	+	9	6 +	# ·	+
ie keel, ditto =	-	0	-	0	-	9	-
middle of the load was	0.027	0.010	0.072	0.075	0.001	0.031	0.003
of the centre of displacement before the middle of the load water-line, in terms of it	0.013	0.013	0.018	0.013	0.016	910-0	0.039
f the water-lis	46112	45456	47115	43193	42900	32348	31478
draught of water, in cubic feet = = = = = = = = = = = = = = = = = =	0.374	0.377	962-0	0.395	0.394	0.326	0.335
breadth of the wet	419	301	410	397	387	319	315
	909.0	0.592	0.683	0.633	0.622	0.602	0.595
Area of the elecumeribed rectangle contained by the length and breadth on water-line, in	3270	3318	3227	3176	3194	2623	2536
squary feet a section in terms of the said rectangle	0.761	0.781	0.770	0.785	0-801	0.751	0.769
is centre of gravity of the greatest transverse section, i	0.333	968.0	0.346	0.322	0.355	0.318	0.336
Of water	Aban	Aban	Before	Before	Before	Aben	e fore
length .	900.0	0.00	0.01	0.005	0.000	0.0031	0.0082
Height of the centre of effort of sails above the lond-line of water, in less	Ahab	Alven	Alaba	Abel	Abañ	Aban	Abaft
of the water-line	0.001	970-0	0.003	610-0	600.0	0.013	0.011
the centre of gravity o	1.112	1-195	1.375	1.016	1.016	1.089	1.072
the sails before the said centre	34.00	381.3	33.0	37.3	37-33	39-13	40.3
	0.493	0.521	0.477	0.527	0.327	0.655	0.673

the science of naval architecture. We have to award Medals to several eminent shipbuilders who have presented the Exhibition with models of the excellent steam-

ships which they have lately designed and constructed. We should have been glad if the great maritime nation of America, instead of sending incomplete and imperfect models or drawings of their steam-ships, had fornished us with the requisite data for estimating the degree of perfection arrived at by their best shipbuilders, so as to have enabled us to recognize their incontestable merit. The United States cannot, at present, compete with Great Britain in the number of their great and regular communications by steamers, although on the lines opened by them, they are nothing inferior to their mighty The depth and vantoess of the rivers of United States, such as the Mississippi-the greatness of their lakes, which are indeed so many inland seas, have enabled the Americans to build steamers which may be considered as floating cities, and which satisfy the wants of the greatest way-faring nation of the world. The Americans, however, are to be reproached for their recklessness, and the little care they take to avoid evident peril. Catching fire, blowing up, or foundering from the effects of the latter-accidents which a little foresight might have prevented-are considered and accepted by them as casualties very little to be regarded. hrave these dangers knowingly, and to meet competition with a rival ship. Hence the accidents which occur are with a rival sop. Treme the accounts when over any frequent and dreadful, and still they do not teach the commercial navigators to be more circumspect. The steam-ships of war, however, reserving danger for the time of hattle, exhibit, on the contrary, a prudence which

makes whostly aniswerient to neutril.

In the Bettim say unset has been done, experimentally, for the best application of atom power to matul architecture of the season o

Several French professors, engineers, and naval officers, have made some interesting experiments on steam propulsion, with ships varying in form and size. The exarches and experiments on Means. Boargois and Moll have been already proclaimed and recompensed by the National Incitize of Prance. These gentlemen are still office of the control of the Con

timent did not contribute examples of their naval architecture to the prest Exhibition. The Norwegians and Swedes, those excellent and hold margators, have not sent any models or designs of the ships they emplay either on the ocean or the Baltie. Their shipholiders, inheritors of the science and art of the celebrated Chapman, *would have figured honorably, even in comparison with the most advanced seafaring people.

with the most advanced suchring people.

When the such advanced suchring people.

British, the Angle-Maltene purchase rescharchedisp of
the Greeks, and have them registered with those of the
Greeks, and have them registered with those of the
theory of the such and the such and the such interand will adapted to the malegiation of the such interThe Greeks, beverer, did not und as models of may of
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* The eminent author of Architectura Navalis Mercutoria, Stockholm.

navigation of the Rhone, the most rapid and dangerons of the Freuch rivers. M. Schneider,* of Creuzot, constructed these ships and their machinery.

In twelve years there have been built at Cruzot, for the Rhone, under the direction of M. Schneider, It is steamers, the first of 89 horse-power, and the last of 700, earry 620 loos, and to overcome a mean velocity of the control of the control of the control of the control ing from Arles to Lyons in 36 or 38 hours. Other scenares, built for possengers, under soil quicker voyages. Machinery for war steamers has level constructed for the power, with remarkable species.

SCREW-PROPELLER STEAM SHIPS.

The application of the screw-propeller to ships of war is of comparatively recent date, but has, a now this sanding, been so successful as to lead to the expectation that is till ultimately be generally applied to ships in the mavy, either with full or saxiliary steam-power. The first shap in the navy to which the screw-propicler was applied was the "Hartler," of ses tons, in which, with engines of the "Hartler," or ses tons, in which, with engines of the "Hartler," or ses tons, in which, with engines of the control of the co

The results of the trial of the "listife," with the "Arches," as high lift from the same line, and having "Arches," and having from the same line, and having publishes these, proved as highly fortunate to the street, and the same limited to the street, and the same listing the same listing to the same lis

possessing powers and capamitine in an accordance of ordinary uniting ships,?

The speed obtained by steam-power alone, varies, in these ships, from 64 to 74 knots per hour; and by sail and steam combined, a speed of about twe knots more than that which sail alone would give, is frequently abtained, with the power of sailing closer to the wind.

The forms of "La Hogae," "Bencheim," and "Ajns,"

Intercritis or "La nogue," "bledneshi," and "Ajax, athough more or less altered ability to adopt them for the screw propeller, cannot be regarded as altogether well suited for its effectual operation. Daily experience shows ability of the property of the

tile may with those of the royal navy, it will be seen that screw-ships, for this service, are of still greater comparative length than in the royal navy; and that, in consequence, still better results have been obtained. The following table (see p. 216.) contains the dimensions and some of the calculated elements of a series of

ENUMERATION OF THE AWARDS FOR NAVAL PURPOSES.

screw-ships of the most recent construction,

Council Medals.

 To the Admiralty of Gerat Bestain (p. 544), for a magnificent set of models of ships moved either by rails

 To M. Schneider, when minister, we are indebted for the selection of the thirty-six French Jurors and Associates sent to the Exhibition.

† As some as the conditions of this new problem of narral architecture were known to the public, Baron Charles Dupin, in a report to the French House of Feers, announced in positive and strong terms, the great success to be expected from memodwar so fitted. He pointed out the new services which they could fadili, not merely as harbour guard-ships but no a squadron of attack, for the remotest points of the European seas, and even farther.

T ARER IV .- PRINCIPAL DIMENSIONS and CALCULATED ELEMENTS of SRIPS-OF-WAS fitted with SCREW-PROTELESS.

Specification of the Dimensions, Elements, &c.	6 Acres. (0) Guns.	Agamemon, 30 Gaza.	gomemon, Imperlene. 30 Gaze. 30 Guna.	Arrogant, 46 Guns,	Tribune. 30 Game.	Righdler, 2e Guns.	Archer, 12 tame.	Centre, 16 Gans	Reynand, 10 tunn.
Length on the load water line from the fore part of stem to after part of	240 6	231 6	57	202 4	192 10	191 3	180 6	9	17
e to outside of planking, to feet and inches	55 4	9 99	20 0	45 6	43 0	0 98	33 10	31 10	100
Relation of length to breadth at the load water-line	4.346	4.184	4.203	4-446	181.1	5-313	5-355	5-037	5.358
December of matter in facet and leaders to lead thou 5 forward	21 6	53 6	21 0	19 0	17.3	15 6	13 11	12 0	11 3
augus on marchi su secon anno con famous of a land and angles	25 0	24 0	21 9	20 0	18 9	16 0	14 3	14 0	12 6
Mean dranght of water in relation to the extreme breadth at the lead-line -	0.438	0.423	0.427	0-428	0.413	0.437	0-419	904-0	0.430
Height of the lower port-all from the load water-line, in feet and inches -	9 9	9 9	9 6	9 6	9 4	on =	+ 6	8 8	6 11
Depth of the keel and false keel below the rabbit of the keel, ditto = -	1 0	0	0 1	1 4	0		1 2	1 0	0 11
Distance of the greatest transverse section before the modile of the load, water-line in terms of the length of the load water-line =	0.082	0.013	0.022	0.001	60.00	0.031	0.029	0-002	0-033
Petrace of the center of displacement before the middle of the bod-line, in terms of the length of the load water-line -	0.034	0-023	0.023	0.013	0-033	0.034	0.013	0.024	0.015
Neconnectibed rectangular parallelopipelon contained by the length of load, water-line, breadth on the water-line, and mean draught of water, in cubic.)	322632	304211	229036	173517	149230	105139	86598	66343	46323
solaronent in terms of the said naralleleniselen	0*595	0-348	0.495	0-704	867-0	0.750	90.20	0-700	00-4-00
Area of the eircunscribed rectangle contained by the breakth of the load-	1000	1000	1000						2
ine, and depth from the load-thou to the idear sind of rathin of acci, to	1700	12.23	(00)	120	107	7	440	385	Ť
Area of the greatest transverse section, in terms of the said rectangle -	0-857	0.838	0-725	0.733	0-756	0-862	0.838	0.828	0-804
Area of the circumscribed rectangle contained by the length and broadth on a	13307	12809	10733	9306	8203	988	9019	5103	1001
Area of the load-water section in terms of the said rectangle	0-838	0.865	0.831	0.823	0.831	0.882	0-777	0.798	0-783
Depth of the centre of gravity of the greatest transverse section, to terms of a	0-456	0.413	0-304	6.363	0.377	0-413	0.395	0.315	0-415
section, from the mide	Before	Before	Before	Before	Before	Before	Before	Before	Before
of the load water-line, in terms of its length	0-1073	0.0001	60.00	0.008	0.011	0.013	0-011	0.008	0.0032
legght of eartre of effort of sale above the lond water-line, in feet	25.50	88.13	16.8	0.57	1.02	28.6	20.4	9-80	43.0
gravity of displacement, in relation to the length of the load water-lice - 5	. ORG7	Suorea.	8100.	7610-	1000	+10.	-011	9500.	Delore . 0075
Selstion of the memory of the sails about the centre of gravity of displace-	0.913	0.939	0.987	0.877	1.088	1-109	906-0	1.047	0-947
Arres of salls in relation to the area of the greatest transverse section	27-1	27.5	33.5	6.96	36.5	31-6	31.8	34.4	82.8
Area of sails, to souare fort, to relation to the displacement to enhic feet -	01151	001100	0.010	0.010	0.041	O copp	0.073	0.907	0.00

or by steam, of the most recent construction, some of them not yet finished; consisting of— 1. A series of sailing ships of all classes, from the

"Queen"—a first-rate man-of-war—to a brig of 10 guns (146, p. 344, and illustratioo).
2. A series of screw-ships of various classes, from the "St. Jean d'Aere," of 100 guns, to a sloop of 12

the "St. Jean d'Acre," of 100 guns, to a sloop o

A series of experimental frigates.
 A series of experimental brigs.

A series of experimental brigs.
 Models of bows and sterns.
 Transverse sections.

The Admiralty, by the comparative trials they have ordered, have contributed in a very bigh degree to the most recent progress of naval architecture. They have equally contributed to the progress of bydrography, as I shall explain when speaking of the maps presented to the Exhibition, which are included in this award of the Council Media.

2. To Sir William Snow Harris (150, pp. 345, 346, and illustration). Science and humanity proclaim the merits of Sir W. Snow Harris's inventions. He has exhibited practical models of his system of attaching lightning conductors to the masts or hulls of ships, which has been for

everal years in general use in the British Navy.

As a means of preserving life and property from the effects of lightning, nothing has proved more completely successful and effectual than these conductors. The transmission of the electrical discharge from mast to mast, and finally from the conductors in the hull to the water, is perfectly effected under all circumstances, and in every position of the spars or of the ship when pressed by sail, and without demanding any care or attention on the part of the officers or crew. The mechanical arrangement of the plates forming the conductor, which is of great capacity, is such as to admit of their accomdating themselves to any flexure the spars can sustain. whilst at the same time they preserve a fair and con nuons conducting line. The various branches or subdi-visions in the hall allow of a free dispersion of the electrical agency in all directions to the bottom of the ship, and into the sea, hy which the tension in any one point is so reduced that explosive action is next to impossible. For these reasons a Council Medal is awarded to Sir W. Suow Harris

3. To His Grace the DUKE OF NORTHUMBERLAND (136, pp. 342, 343).—To the humanity of His Grace the Duke of Northumberland, to his unbounded liberality and generous encouragement of practical science, we owe the numerous efforts of able men to construct life-boats calculated to meet the perils of an ocean tempest. They must be easy to manage, io order to accomplish the great object for which they are designed, viz., the saving of life and property endangered by sbipwreck. His Grace, with this philanthropic view, has expended some thousands of pounds in obtaining for the coasts of Northum berland, an improved class of life-boat, designed and huilt in consequence of the premiums the noble Duke has offered. Models of these very bonts figure amongst the most valuable contributions to the Great Exhibition, and furnish a splendid example of liberality in the cause of humanity and practical science never surpassed, if ever equalled Such are the motives nader which we have dged His Grace the Duke of Northumberland worthy of receiving the Council Medal.

Patze Medals.

A. Seif-Building.—British Department, The Honourable the Corporation of London, for

Illustrations of the art of ship-building for the commercial marine, almost all showing the greatest and most important improvements in strength, symmetry, and efficiency; and mostly coming from establishments within the jurisdiction of the port of London,

Mr. T. I. Dyrentons (30, p. 434), for models of paddle and serew steam-vessels, both wood nod iron, designed and huilt hy him for various services, including yachts. Mesars, Gaers (131, p. 342), at Blackwall, for a nodel of the fine merchant vessels designed and built by them for the East findia trade. Messrs. C. J. MASS: and Co. (149, p. 344) for models of fine sailing and steam vessels, both paddle and screw, designed and huilt by them for various merchant services, including yields.

Messrs, Robinson and Russell (193, p. 349), for fine models of steam-boats, designed and built by them. The Royal Thames Yacur Clun (294, p. 359), for models of the vessels belonging to their Club, which are

models of the vessels belonging to their Club, which are of a most interesting character. Mesers. Thomas and William Smith (305, p. 360), for a model of the fine merchant vessel designed and

for a moner of the nne merchant vessel designed and built by them for the East India trade. Mr. Joseph White (38, p. 336), for fine models of vessels, designed and built by him for the merchant

vessels, designed and built by him for the merchant service, including yachts. Messrs, T. J. and R. WHITE (36A, p. 336), for models

of foe salling and steam-ressels, designed and built by them for the merchant service, inclinding yachis, them for Mover Woo an and Soon (66, p. 206), for models of fine chaese of salling and steam-ressels, both paddle and serw, built by them for various merchant services.

French Department.

M. Barnorin, captain of the French Navy (1083, p. 1230), for his improved capstan for ships of war, adapted to the use of chain cables.

to the use of chain cables.

M. LAHURE, of Havre, Seine Inférieure (285, p. 1190), for an insubmersible boat for the use of the military and commercial services, combining very ingenious arrange-

M. Le Gorr, captain of a frigate in the French Navy (1083, p. 1230), for his powerful stopper in the management of chain cables.

ment of chain cables.

M. Schneider, of Creazot (1475a, p. 1246), for a large specimen of the machinery of the steam-boat "L'Oceau," built by him, for the River Rhone, by which great speed

and convenience have been obtained.

M. Sconzy, engineer of the French Navy (1478), for his valuable apparatus for distilling suit-water on board ships of war.

M. ROCHER, of Nantes (991, p. 1226), for his large ap-

nocenes, or some self-up, p. 1226), nor me large apparatus for distilling self-upter on board stips of war, and for his inexhaustible submirrine condenser.
 American Department.

Mr. S. M. Pook (446, p. 1464), and Mr. W. Darron (449, p. 1464), exhibiting through the National Institute of Washington, for several models of ships of war and large merchant vessels.

B, VARIOUS OBJECTS CONNECTED WITH THE NAVAL SERVICE.

Mr. C. Asskil (185, p. 348), for a gunning pant, on new principle, for fowling purposes.

a new principle, for favoling parpores.

The Rev. E. L. Bearmon (19th, patchasing headand levels of the patchasing head and
levels of the patchasing head of the patchasing head
and levels of thins. 2nd. Of his patent clionoreter, for
a howing the inclination and trim of ships. 2nd, of a
howing the inclination and trim of ships. 2nd, of a
declaration of the patchasing head of the patchasing of the
strength, capearity, and lightness; and which under
many circumstances might be found most serviceable,
where rivers have to be crossed. When it is country
where rivers have to be crossed.

Sir Sauter. Baow N. Capt. R.N. (334, pp. 331, 332), the inventor of the chain cables introdeed in sea service, for suspension bridges and piers, and for a model of largeniously disposed slips for the purpose of hauling up ships to repair.

Mr. ALPRED Fox, for fine specimens of nets, seines,

&c., for pilebards.

Mr. J. J. (incom, for fine specimens of deep sea fishing lines and books.

ing-lines and hooks.

Mesers, Jeffert, Walsh, and Co. (188, pp. 348, 349), fin the marine glue, most successfully used as a substitute for pitch in the sense of decks, as well as for uniting

large timbers for naval purposes.

Lient, Janes Rigmaturn, R.N. (291, p. 359), for the model of his plan of lanyard plates for setting-up the standing rigging of ships.

Lieut. W. Rodgers, R.N. (336, p. 361), for his very remarkable improvements in the form and proportions of anchors Mr. J. E. Saunders (Class XXIX.) for the model of a

smack for fishing, fitted with an auxibary screw pro-peller, being a new application to vessels of this descrip-

Messrs. J. and T. W. SIMMENS (124, p. 340) for the model of a "Mount's Bay" fishing-boat, which is a very fine description of boat for its purpose.

Mr. S. Sattu (125, p. 340), for a model of a spring machine for modelling ships of any dimensions, offering au ingenious and ready means for setting up a design in

Mr. G. Turr (Class XXIX., 185), of flye, for the mo-del of a "Hastings" fishing-jugger, which is also a very good description of boat for its purpose.

The following competitors for the prize of one hundred grainent, offered by His Grace the Duke of Northumberland, to mark our sense of the excellence of the models they furnish :

they furnish:—
Mr. Janes Becchino (136, p. 342), Mr. Henry Hines
(136, p. 343), Mr. William Teamle (136, p. 343), Mr.
J. Plenty (p. 343), Mr. E. Pellew (p. 342), Mr.
J. Plenty (p. 343), Mr. B. Pellew (p. 342),
Pecusiary Rewards.—Mr. Joseph Bothway, for improvements in the construction of blocks combining strength with much less weight, and other advantages,

Mr. David Harvey (159, p. 346) for the excellent execution of the small model of the "Victoria and Albert," royal yacht, 401.

Mr. ALEXANDER BIRNIE, of Peterhead, for nets, lines, and hooks, 5%. Mr. H. DEMPSTER (174, p. 348) for an ingenious sys-

tem of signals for merchant ships, 204.

Messrs. Thomas Bibas and Co., of Rotherhithe, exhibit a model illustrative of a novel arrangement of the timbers, with a view to increase the strength of the fabric of merchant ships, and add materially to their durability.

Mr. Joseph Weln (186, p. 348), of Lulworth Castle, shows a model of a 12-oun brig of war, with a view to

snows a movel of a 12-gun orig or war, with a view to obtain, scientifically, the advantages of speed. Messes, J. and J. Loxo and Co. (7t, p. 387), present several plans of steering wheels of very simple construc-tion, giving to the helassman a perfect control over the rudder.

C. NAUTICAL INSTRUMENTS.

This Jury had but a part of the collection of " Philosophical instruments in use for the navy," left to its exination, the other portion being remined by Jury X. We would particularly refer to an azimuth compass, coming from the Compass Department of the Admirally (p. 344). This instrument, for making observations at sea, combines improvements in workmanship, suggested

hy long experience; the centering and adjustments are This excellent piece of art merits a Prize very good. This excellent piece of art merits a Prize Medal, but being a Government instrument no award has been made to it

We award a Prize Medal to Mr. E. J. DENT (Class X, 55, pp. 413, 414), for his marine compass. It has long been a desideratum to construct a compass that should not be disturbed by the motion of the ship, or by the firing of the guns. One of Mr. Dena's compasses has been, by order of the Admiralty, repeatedly tried at sea, and particu-larly on board the "Excellent," as to the effect of cannon pon it. Even during heavy weather, with the sea any chere before the beam, the reports are highly favourable. The firing of heavy cannon within nine feet of the compass had no visible effect upon it; whilst the ordinary compasses deviated several points. In boats, the same instrument has also been found particularly steady. The particulars of this instrument are-first, excellent

workmanship; its card is fixed upon a vertical spindle, instead of upon a pin resting in n cup, and it is retained in its horizontal position by the bowl having a pendulum action. The disturbing effect which both gravity and dip would have upon a magnet fixed on a spindle when out of the perpendicular, has been considered by Mr.

Dent, and a compensating power applied. instrument of similar construction, but with a double needle apon gimbols in the centre of the spindle has been also presented by Mr. Dent, but it has not yet been tried at sea. Here the motion given to the needle, if duly

balanced, seems to be an improvement,

A third instrument of Mr. Deut's, a portable azimuth compass, is worthy of notice as an ingenious invention to overcome errors in the centering of the needle, and in the direction of the magnetic axis as placed by the maker, by n method of inverting the box, not hitherto in use.

in internal or intering the sols, not afthere in Messre. NAPIER and Sox of Lambeth (Class VI., 108, p. 285), for an instru-ment for registering the magnetic course of a wessel as actually steered. The card, as usual, is placed upon a cup centred in a brass plillar; but this pillar, instead of being attached to the bottom of the bowl, protrudes, and is attached to machinery which partakes of the mo-tion of the bowl. Every three minutes the pillar carrying the eard is raised by the muchinery, and the card receives a puncture from a fine point placed above it, in the direction of the ship's head, and attached to the how! inside the glass cover, after which it descends immedistely to its former position. In the course of twentythe card towards its centre, passing over twenty-four concentrio circles which mark the hours; so that not only is any alteration of the course detected, but the hour at which it occurred is also shown by the card. This compass, with the aid of the log, may be said to form a traverse table of the ship's route for the day.

Honourable Mention is given to Mr. HUGHES (Class X., 691, p. 472*), for his compass in spirits. Such au instrument has been found valuable in heavy seas during the firing of cannon, and especially in boats; but hitherto the necessity of leaving a space in the bowl (which has, until now, been of metal), has produced an injurious effect apon the needle and apon the steadliness of the fluid. Mr. Hughes has overcome this evil of the airbubble by an elastic bottom. His instrument is further recommended by its cheapness,

American Department,

Mr. Sr. Janx* of Buffilo (95, p. 1439), deserves the Prize Medal for his compass, which, to the ordinary one, adds two small needles placed upon pivots over the east and west points, with indices pointing towards the centre of the card, and each having a graduated circle marked E. and W., on either side of their zero points. These small needles are called satellites; their object is to show the presence of any disturbing force upon the needle, and also to indicate, by the mean of their readings, the amount of the deflection; but this last desideratum in amount of the detection, that has a source and ingenious, and if it could be improved in this respect, it would become an instrument of great practical importauce on board vessels, especially in those of iron,

D. INSTRUMENTS FOR MEASURING THE RATE OF A VEN-SEL THROUGH THE WATER

One instrument of this kind is mentioned for an award in the section of Naval Architecture, and belongs to the Rev. E. L. BERTHON.

Two other instruments for measuring the rate of a vessel through the water are due to Mr. Sr. John (542, p. 1448), who received a Prize Medal for his company. One of his instruments consists of a rotator, which acts npon a spindle protruding through the bottom of a vessel by means of a copper cylinder in the hold rising above the water-line of the ship. The other consists of a small instrument connected with and disengaged from the ordinary log-line, by the turning of the glass which measares the interval.

Mesers. Ellior and Soxs, of the Strand, London (320, p. 413), exhibit two small convenient instruments for measuring the rate of running water. They are very

* This exhibitor has been awarded a Prize Medal by the Jury of Class X., in whose list his name appears,

portable, and have been used by civil engineers with

E. INSTRUMENTS FOR MEASURING THE DEPTH OF THE

A Prize Medal is given to Mr. Enicsson,* of New A PTIZE Mean in given to Mr. Enterson. of New York (Cl. X., 146, pp. 1442-1446) for his instrument for measuring depths, by the compression of atmospherie air. It is a modification of the one known in the British Navy as Ericsson's Sounding Lead. Capt. Beechey, R.N., one of our fellow-jurors, made use of it for several years in a ship under his command; and experience has shown him that it was a good instrument when the depths were under 50 fathous Mr. Eriesson attributes the idea of under 50 fallooms. Mr. Erresson attributes the idea of his instrument to Mr. Agden. But seventeen years be-fore it came out, Sir Humphry Davy's seater-bottle was in use in the polar expeditions; an instrument upon the same principle, although greatly inferior to Mr. Eriesson's in the extent of its scale.

fu 51 easts, extr	eme differen	e of Ericsson's l	end; +2
in 47 ditto	ditto	ditto	+2
In 49 ditto	ditto	ditto	1 -14
			(+2
In 47 ditto	ditto	dittu	1 -1
In 48 ditto	ditto	ditto	1 -0
In 51 ditto	ditto	dítto	{ ±1
In 51 ditto	ditto	ditto	{ +1

All the depths here mentioned were under 50 fathoms. F. APPARATUS TOR SAVING LACE

Having already awarded medals to the inventors of boats for saving men's lives and property, we have here to consider other means for effecting the same object.

1. By effecting a communication to and from a Ship in peril and the Shore.

We must, in the first instance, mention here Capt. W. G. Maner, R.N. (22, p. 335), so long known as the introducer and zealous promoter of the object of saving life from shipwreck, by means of firing a projectile, with a line attached to it, from the shore to the ship, which has been used with grent success along the coasts of Great Britain, and has rendered remarkable service.

M. G. DELVIONE, of France (473, p. 1200), employs a howitzer to obtain the same result as Captain Manby, This invention involves this new principle, that a portion of the line to be carried is contained is the projectile. The idea scems capable of successful application.

Captain Jerningham (21, p. 335), of the British Navy, has an ancoor of a particular form, which he proposes to

fire from a Manby's morter, in sufficient numbers to afford the means of hauling a life-boat through the surf. Prize Medals have been awarded to the above three Exhibitors.

EXHIDITORS.

Mr. GREENER (59, pp. 336, 337) exhibits a method of discharging a rocket, with a line attached, from a harpon gun. When discharged the rocket ignites, and is said to prolong the range to a greater distance than would be effected by cither the gan or the rocket alone. The gun is distinguished for its lightness and efficient

Mr. A. G. Carte (29, p. 335). This exhibitor has been distinguished by his great real in carrying out the object of saving life by means of a rocket. His plan is, to employ a war rocket, instead of the well-known rocket of Dennett,

2. By meens of Rafts, &c.

Mr. W. G. RHIND, of Ross, Herefordshire (290, p. 359). presents various models of deck-seats and benches for This artifictor has been awarded a Princ Madel by the Jury of Class X., in whose list his name appears.

steamers, so constructed as to be readily formed into rafts, each one sustaining eight persons. A Prize Medal is awarded to Mr. Rhind.

3. By means of Buonast Air tobes. Mr. S. W. SILVER (195, p. 350), exhibits buoyant mat-

tresses, naunfactured according to Mr. Laurie's inven-Mr. Silver connects approcross waterproof tobes. partly distended with horse-hair, woollen flocks, or coconunt fibre, in such a manner, that in case of accident happening to one or more of these tubes, the others may be sufficient to sustain the required weight on the water. The tubes are made up into mattresses, pillows, and also into floats, to be pinced under the thwarts of boats A mottress, weighing only 17 lbs., sustains in the water 284 lbs. A pillow sustains 28 lbs. Muttresses for

emigrant vessels, sold at St., sustained 96 lbs. in the water for five days, without being in the least affected. A Prize Medal is awarded to Mr. Laurie as the inventor

Mr. A. G. CARTE (29, p. 335), already mentioned, exhibits a very simple, cheap, and efficient life-baoy, which has been in general use since 1838, and is reported to has been in general use since 16-38, and is reported to have preserved 400 persons from drowning. A Prize Medal is awarded to Mr. Carte. Messrs, Esdalles and Maronave (126, p. 340) exhibit

floating mattresses, filled wish cork shavings; worthy of praise.

PART II.

MILITARY ENGINEERING, ORDNANCE, ARMOUR, AND ACCOUTREMENTS.

When I first visited Great Britain, very soon after the general peace in Europe, I found a very strong prejudice ngainst the value of military institutions, and everything belonging to the army of this country. It may be easily conceived that foreigners would be anxious to learn everything connected with the navy; but nobody imagined that the land forces could present models deserving the closest attention of military observers. Having visited, bowever, the great arsenal of the Ordnanee ni Woodwich, the schools for the engineers and their traops at Chatham, and the school of the general staff at Faruham, I was deeply convinced that, on the contrary, Great Britaiu merited the most attentive observation in order to appreciate doly the bigh value of her land military forces institutions, and exercises. At this period she possessed the best system of land-artillery, a system which united solidity, simplicity, security, and rapidity. The carriages for field-pieces allowed the gunuers to be carried along with the guus, as rapidly as light cavalry, as well as the caissons which contained the necessary ammunition. All the wheels, before or behind, of every kind of earning for the field batteries, being equal and identical, could be replaced most easily; the draft being more easy, and the overtbrow of the carriage more difficult.

Such were some of the rare qualities, due to the exertions of General Congreve, of an artillery which all the military powers adopted very soon after a description of it had been published.* To General Congreve also is due the employment of rockets, in the army, as projec-tiles,† They wanted at first the most important quality of precision in the direction. A better construction by degrees overeame this difficulty. The French, the Germans, the Prussians, &c., have studied this new kind of weapon, and tried the use of them in warfare; but not

with very great effect. Fortifications did not present novelties of so high a value, but still they deserved to be studied in Great Bri-tain. Medeis of the ancient and new fortifications in Grent Britain were presented to the Exhibition, No.

* In the Force Militaire de la Grande Bretagne, Paris, 1820, 2 vois. 4to., with arins.

† There were two Congresses, father and son; the former

Introduced great improvements in the construction of artillery carriages and indicated rockets. The son (the late Sir Congreve), undertook to develop their construction and application.

inventions relating to the attack or defence of places have been sent in; so that we cannot speak of the merit either of officers or workmen employed in military engineering, however eminent they may be. We have from other nations, some remarks to make on the subject of ordinance.

A. CANNON, AND THEIR CARRIAGES. The articles exhibited under this head are few in nur

ber. It has, apparently, been felt, that since it is the main object of the Exhibition rather to suck shows the progress and to promote the stre that said to the comforbe explaine simpleyed in war, such engines employed in the complex of the complex of the complex of the comception of the complex of the complex of the complex bere. Thus it is that France, no capable of illustrating all that relates to the branch of the art of war, continlated that the complex of the complex of the complex of the British next anything. If from other countries we have received some articles that seem to belong to military warfare, they appear to have been sent malars as sampleof manufacture and of matericks, that for their original.

These observations are specially applicable to the very remarkable spicinisms of wrought-tron guns, presented by Spini and Turkey, not as the best pieces of ordinance that can be produced, but as very extraordinary samples of energy and ingenuity of production under circumstances of accessity and difficulty, where recome could not be had to ordinary manufactories, and where these serviceable notification of the production of the constrained of the control
grader upon it than upon casi lono or a blussar, anticically fight to be carried upon camede. Both these game are forged loss dismaked but, is the means of the game are forged loss dismaked but, is the means of the protect, and the development of five upon the surface is very boundful. Both are publicated, the smaller is very boundful. Both are publicated in the malter is a very boundful. Both are publicated in the malter is a very boundful. Both are publicated to the surface and the property of the surface of the publication of the said. They were forgotal telezonous, list, it with many other, by order of Abban Packs, the Turkhi Camrellity or the butter of North. They can only be regarded as a substitute, in time of occussity, for the graded as a substitute, in time of occussity, for the stricter, and the workmanhip, are constantly.

Belgium has sent from its celebrated foundry at Liège, seven pieces of ordnance of east iron, of the models of the full pring countries:

Pounder.		When ra
Holland 30 of the weight of	2,746	1843
Prussia 24	2,710	1849
Belgium, short 24	900	No da
Belgium 12 (model of the Marloc)	1,670	1834
Belgium 6	886	1530
	520	1832
Belgium (Eprouvette mortar, cast on bed a	198	No dat

The 1st, 3rd, 5th, and 6th of these guns have been subjected to continued firing, and the number of rounds austained by each is marked upon them, viz., the

	30 pc	under	(Holl:	(ban	-	-	-	-		2,000
hort	24		(Belgi			-	-	-		3,649
	6		Belgi	nm)	-	-	-		2,372	
	AR	er which	h the	vent	WEE	гене	wed	-	3,700	
			Mak	lagh	n ali	-	-	-	-	6,002
	6-ln	ch how	itser	-	-	-	-	-	-	2,118

The vents exhibit a greater or less colargement; but there is no description of the internal figure, nor nat the particulars given of the charges or rate of firing. All these pieces appear to be well mannfactured, and of very good material, and they are clean from the sand, without being turned.

Praisin has presented a c-pounder field-gen, 34 fort long, of a new suterial-mainty cast steel, forged hybe thammer, mounted on a carriage of 3 feet site, and unsurfictured by Mr. Kurry, of Esser, neer Dunseldurf. The merits of Mr. Krapp, and his ability in working from and steel, are pre-kinged, and will be enumerated in common we movely mention here the remarkable beauty of the workmanking of the piece of orlangence alluded to.

Besides the above the Jury have noticed the follow-

Captain TYLDEN, R.A. (275, p. 558), has presented a series of fine models of the constructions of guns for the English service, on the scale of 1½ inch per foot, with a sea-service 13-inch mortar, a 10-inch howlizer, and 32-pounder gun, on garrison carriages, and a light 6-pounder field-gan and limber. These are all well executed, hat without any novely of construction.

MUNRO, J., Jun. (282, p. 358), two very correct and finely-finished models of a 9-pounder field-gun and limber, and a 24-pounder gun,

and a 24-pounder gun.

The Honormank East India Company (pp. 911, 912) have exhibited a series of models showing the construction of artillery used in the East Indies for siege and field service, on the scale of 14 inch per foot. These models are well executed; but they do not appear

present any particular object of preference.

There are also several camel-gans, as well as some hrass field-gans, of Indian construction, proper to illus-

trate the modes of Indiao warfare.

The Hon. Captaio FITZ MACRICE (283, p. 358) exhibits two models to illustrate his mode of pointing, applied to a carriage-gun and a mortar, by means of a horizontal

to a carriage-gun and a mortar, by means of a horizontal endless screw, acting at the segment of a wheel. Messrs, C. A. and T. Fergusson (84, p. 332), of Mill Wall, Block and Gun-carriage Manufactory, two pieces of ordnance, mounted for sea-service, with particular dispositions.

B. SMALL ARMS. A great number of nations have sent small arms to the Exhibition; several of them such as are used for war,

but by far the greater number being for sporting penese. Three nuitoes are promisent for the construction of small arms, the English, the French, and the Belgiums. Small arms for war and for the cheer, are mannefatured at Ifraningham, the one with due solidity, the others with refinements of workmanship. This last class is, however, sparing of ornaments.

Liège is the Birmingham of Belgium, and has a large

Bowever, sparing or ornaments, Liège is the Brimingham of Belginm, and has a large monnfactory of both kinds of guns. The Belgians, on account of cheapness, combined with good execution, sell a great quantity of small arms to other nations, particularity to Russia.

of Three, for the manufacture of small arms for war, is now perhaps more advanced has no yorken naises. St. Eliens, the iron principally employed in the manufacture, and the small properties of the control of the con

United Kingdom.

Prize Medals:

Brazura, J. and Sox, Wolverhampton (206, p. 352).

Excellent locks for best gaus.

Drank, Arams, and Drank, London (223, p. 352).

Double and single gaus and pistols, perfectly finished.

WILLIAM GREENER, of Birmiogham (59, pp. 336, 337). Guns very well made, harpoon guns, for whale fishery, &c. Col. P. HAWRER (205, p. 352), for improvements and

perfection in poot-guns.

Lang, J., London (226, p. 354). The same merit in the fibrication of their arms, Mr. T. E. Mortimes, Edichurgh (267, p. 358). The

Mr. T. E. Mortiner, Edinfurgh (207, p. 358). The same kind of nrms, equally well executed. Mr. Henry Neemian, Lordon (200, p. 358). Gans, rifles, and pistols, earefolly executed.

Mr. W. Parson, of Swaffham (270, p. 358). The same

merits as the two preceding gentlessen.
REEVES, GREAVES, and REEVES, Birmingham (244, p. 355). Beautiful collection of swords and other field arms, admirably embellished.

KICHARDON CHROCKERSON. SON. Birmingbam (240, p. 355.)
Best guns and sportiog guns, of excellent quality.
W. and J. Kronv, Doblim (236, p. 354). The same
merits as Trulock.

and pistols, of good workmanship, highly ornamented and finished. E. TRULOCK and Son, Dublin (222, p. 353). Best guas WILKINSON and Son, London (200, pp. 350-352, and

illustration). Best guns and rifle pistols, of good work-manship, and swords highly ornamented and huished. Honourable Mention has been accorded to-

THOMAS FLETCHER (255, p. 357). Gnus, rifles, and pistols. WILLIAM GRAINGER (278, p. 358). Locks for guns.

MANTON and Son (217, p. 353). Guns, rifles, and pistols. ROBERT MOLE (248, p. 356). Swords, side-arms of all kinds, and sword-blades. T. H. Porrs (207, p. 352). Gans, pistols, and rifles. Powerle and Son (249, p. 356.) Gans, rifles, and

pistols, Tipping and Lawden (247, p. 356), Gods, pistols, and rifles, and collection of trade arms

WITTON and Daw (203, p. 352). Guns and rifles. United States.

Hopourable Mention is awarded to-Rifles and pistols, of very good quality, by Mr. Saweel Colf., Hartford (321, pp. 1454, 1455, and illustration): Mesers. Robanns and Lawrence (328, p. 1456); and Mr. W. R. Palmen (347, p. 1457).

Hononrable Mention is awarded to-

DEUTSCHER (114, p. 1013), for a Tyrolean target rifle; and A. C. Kenelsen's Nerhew (116, p. 1013), for pistols mounted in carved ivory stocks, with accessories. Belgium.

The undermentioned are deemed worthy of the Prize Medal :--MM. ANCION and Co., Liège (143, p. 1156). plete and varied collection of arms, very meritorious in a manufacturing and commercial point of view.

MM. N. BERNINGLIN and HEOTHER, Liège (150, p. The same exhibition as the two former geatlemen, M. A. Jansen, of Brussels (139, p. 1156). Collection

of sporting and ornamental guns.

M. N. C. Lamursons, Liège (151, p. 1156). A target rifle, of first-rate workmanship, with accessories of every ind, nusually well fitted and adjusted.
M. Lerace, Liège (145, p. 1156). The same exhi-

M. N. Plombeur, Liège (146, p. 1156). Best guns, rifles, and pistols, of faoltless manufacture. M. RENRIN, BROTHERS, Liège (141, p. 1156). Numerous collection of sporting and ornamental guns, M. H. Torraxy, Lège (155, p. 1156). An ornamental double gun, the master-piece of a guu-maker; guns and arms of excellent workmaship.

Honoorable Mention is necorded to the following:-Falisse and Traphann (154, p. 1156), for specimens of military fire-arms; collection of nipples, L. MALHERBE (147, p. 1156), for collection of orna-

mental and sporting guns,

J. THONET (144, p. 1156), for a double gun, J. M. TINLOT (152, p. 1156), for a double gun.

France

The Prize Medal has been awarded to the following M. HERTONNET, Paris (58, p. 1174). Sporting guns nd nrms, carefully executed M. P. CLAUDIN, Poris (1057), Best guns, rifles, and pistols, of faultless execution

M. DEVESNE (166, p. 1181). Sporting guns and arms, executed remarkably for taste and goodness of workman-M. Gastinne-Renette (1611, p. 125), bines, and pistols, of very good workmanship.

M. Gauvain, Paris (1612, p. 1254), Pistols, admirable

in form and execution; sporting guns of excellent qualit M. H. HOULLINE BLANCHARD, Paris (1628, p. 1255).

Pair of pistols, with necessories, chased and encrusted with gold, with a case richly sculptured, in boxwood, showing an extraordinary degree of perfection in work-M. LEOFOLD BERNARD, Paris (1547, p. 1250). Double and single-barrelled guns of beautiful damask, and of

excellent workmanship throughout, M. LEPAGE-MOUTIER, Paris (1364, p. 1241). Sporting guns, of excellent quality, ornamental gons of exite workmanship, swords and side-arms of the Due de Luvne's damask, of remarkable unvelty; bucklers and objects of art.

The under-mentioned have received Honourable Men-M. F. BERGER, St. Etienne (418, p. 1198). Fancy fowl-

ing pieces, of various kinds, of excellent workmanship.
M. B. Bentnoer, Paris (1546, p. 1250), for good fowling-pieces,
M. Albert Bernard (1075, p. 1229). Excellent Damasens gup and pistol barrels.

M. Delacora (1582, p. 1252). Swords and sabres, imitated from various countries, &co M. PRELAT, Paris (1681, p. 1257). For collection of pistols, ornamented.

Z.llverein. Prize Medals are bestowed on the following:-Messrs, A. and E. Hollen, of Soliogen (637, p. 1083), Large and varied collection of swords, blades, and side-

arms, of great excellence, M. CARL AUGUST FISCHER, Lübsck (5, p. 1141). Doublebarrelled rifles and fowling-pieces. The under-noted exhibitors are Honography Nex-

tioned:-SCHNITZLER and KIRSCHBAUM, Solingen (480, p. 1078). Infantry and cavairy swords, &c.
Schwolz, Wh., and Co.*, Solingen and Berlin (673, p. 1087). Collection if swords.
W. and G. Pisron (481, p. 1078), for a rifle for carry-

ing pointed balls.

M. C. V. HEINLEIN, Bamberg, Bavaria (20, p. 1099).

A ride, carved and ornamented in the old German style.

J. A. KUCHENBEUTER (21, p. 1099), for pismbs.

MM. WERER and SCHULTHEIS, Frank fort-on-the-Maine , p. 1121). Single and dooble-barrelled rifles. M. I. Schmipr, Mecklenburg-Schwerin (2, p. 1134).

Guns of good workmanship,

Don E. ZELOAGA, of Madrid (264a, p. 1346), is re-

warded with the Prize Medal for his fire-arms and pistols, most magnificently chased, engraved, and incrusted with gold ornaments of very graceful designs. ROYAL MANUFACTORY of TOLKDO (266, p. 1346) is hunnarably noticed for sward cuttery, richly ornamented, Switzerland.

M. V. SAUERBREY, of Bayle (68, pp. 1270, 1271), ob-. These exhibitors have been awarded Prize Medals by the Jury of Class XXI., in whose list their names appear.

tains a Prize Medal for a large rifle, mounted, fitted, and furnished in the most perfect manner. Honourable Mention is made of-

M. JEANNET, of Locie, Canton of Nenfchâtel (5, p. 1265), for n rife with steel harrel. M. Fischer, of Chur (265, p. 1283), for a double American ritle.

J. Vannon (69, p. 1271). Target rifle.

C. TENTS

A Prize Medal is given to Mr. B. Engingros (302, pp. 359, 360) for the tents exhibited by him. One is 12 feet by 8, with poles 6 feet high, proposed for officers or emigrants. Another is for troops, travellers, or emigrants, 12 feet square, sapported ou one coatre pole, like the round tent of the British service; but its figure is a pyramid, instead of being a coae. The angles are pyramid, instead to bring a cone. The angree are strengthened from the head of the tent by 1-ineh tarred rope, to which the canvass is boltest, and which, being secured to strong pegs in the ground, constitutes the principal support of the tent. In the middle of two oposite sides a sort of porch is formed, sustained by a light 6-foot pole, giving entrance to the tent, and affording the great advantage of a thorough draught of air. It is also ventilated at the top, and the orifices secured against the entrance of rain. The centre pole, which is 9 feet 10 inches long, divides into three parts, the small ones into two, and the whole packs into a value 40 inches lung, by about 13 inches in diameter, the weight of which is 864 lbs. The two porches and the very complete wentla-tion they afford are improvements of great value, parti-cularly for the sick, when the large hospital tents are not carried

Mr. Edgington proposes, for military use, to employ bleached canvass, and to tan it, for preservation from mildew, a measure deserving of consideration. To his larger tent he has attached a portable stove and cooking apparatus, well adapted and arranged for the use of emi grants, but not so portable as necessary for military service.

D. DEPENSIVE ARMS.

A Prize Medal is given to M. Faten Kaupp (677° p. 1087), of Essen, for having exhibited a cuirass of German native cast steel, the material of which is so much improved by manufacture as to attain a high de-gree of resistance to the balls of fire-arms, though it bas not yet been determined whether this resistance exceeds that which would be afforded by east steel made from eemented steel. M. Krupp's success, however, is deserving of reward.

PART III

MILITARY, NAVAL, AND OTHER MAPS. This Jury has been charged with the care of examining the various kinds of maps executed in consequence of surveys made for naval, military, or geological porposes.

The Council Medal is awarded to the Annialty of GREAT BRITAIN (p. 344), under whose superintendence and directions accurate surveys have been executed, aut only of the cossts and ports of the three kingdoms, but

of the coasts of the greatest part of the globe. Drawings of great accuracy are executed, according to these surveys, by the Hydrographical Board under Admiral Beaufort. Afterwards, maps confined to the indications that are indispensable for navigation are published nad sold at a very cheap rate to the officers of the merchant service.

It is anderstood that the Council Medal granted to the Admiralty for models and improvements in ship-huilding, with the combination of the forces of wind and steam, -and for the improvements of the azimuth compass,-shall be united with the same award for the pass,—shall be united with the same awaru for the eminent services rendered by the surveys, calculations, drawings, and publication of bydrographic maps, under the direction of the learned and liberal Hydrographical Department of the Admiralty.

* This exhibitor was awarded a Council Medal by the Jury of Clars I , in whose list his name appears.

French Department.- The science and practice of hydrography owe much to France, having been brought in perfection by the celebrated Beautemps Beaupré. drographic maps were andertaken from surveys made by the celebrated hydrographer, M. Beantemps Beanpré, in the time of the Emperor Napoleon, along the coast of Flanders. For thirty-five years afterwards that undertaking was continued along the French coasts of the ocean, and the Mediterranean, including Corsica and Algeria. The French survey presents the most complete escription of the shores, and of the ground under water, for a great distance, with the configuration of any existing danger. The calculations were carried on, as exsuing magger. The calculations were carried on, as well as the survey, with the lieft of the hydrographers staff, under the direction of M. Beautemps Beaupee, and with the attemst precision; the drawings, as well as the engravings, are worthy of this notice. It was in this way that the magnificent Atlas, or "Neptune of the Cayasts of Prancy," was produced, the fluxest specimens Coasts of France," was produced, the fittest specimens of which have been presented to the Exhibition.

The Council Medal to be delivered to the Dirior Gif-

NEBAL DE LA MARINE (128, p. 1177, France) in Paris, as an acknowledgment of the scientific labours evinced in the hydrographic surveys of France, and also of those of M. Beautemps Beaupre, and the engineers associated with him

M C. E. Collin (426, p. 1177), the engraver of the Hydrographic Dipôt of France, has exhibited maps in his own name, very remarkable for the skilfulness and necuracy of their execution. The Prize Medal is granted

The Ordnance Department of Great Britain, having the command and direction of the scientific bodies of artiflery and military eaglacers, was, very properly, charged with all the operations necessary for the survey, calculations, and drawings of the land map of the three kingdoms. This yeat enterprise is now in a state of great forwardness, and is one of the scientific monnments most worthy of the British aution. For the copperplate etchings, and for the use of electrotype process in reproducing the plates, our culogium is justly due to the establishment at Southampton, where they are exe-

The Council Medal is granted to the OADNANCE DEPARTMENT (128, pp. 341, 342), who exhibited the maps, as a just and honourable tribute to the meritorious and scientific officers of that department who prepared

A map of England and Wales, engraved by himself, is exhibited by Mr. Curculey (74, p. 541). The map is on a scale of half an inch per mile.

The French Minister at War has presented numerous sheets of the aew map of France.

The French map of Cassini was as perfect and comlete as such an undertaking, by a single person, could plete as such an undertaking, by a single person, be: this map already more than a century old, so longer represents the superficies of a country in which such euormous changes have taken place. As early as 1816 a scientific commission, under the presidency of the illustrious Laplace, planned the undertaking of a new and improved map of France; combining the most precise astronomical observations with an accurate general triangulation. Two parallel lines were measured, the one from Brest to Hungary, through Strasbourg; the other, following upon the globe the parallele mayer, was carried to the south of France, and continued through Italy to Finme. These lines, accurately ca culated, spread new

light upon the figure of the earth In the French map each place of importance is given with three elements, necessary to determine its complete geometrical position, the longitude, the latitude, and the

altitude above the level of the sea,

The operations were at first executed by the body of Military Geographers; but this body having been united to the Corps Royal d'Etat Major, they continued, under a new title, their scientific andertakings; some of them going spon the ground, each summer, and returning to the Dépôt de la Guerre, to complete the calculations, and execute the drawings.

The man of France is justly admired for the beauty of

lines, which prevents all confusion to the eye, and gives the best idea of the form of the ground,*

The Council Medal is granted to the Deport DE LA GUERRE (804, p. 1219), in Paris, for the scientific body employed in executing the land map of France. Austria has presented maps of Italy and of the Duchy of Austria, equal to the best of England and France. Iudeed, the maps of Italy were undertaken by the Freuch

wheo they were possessors of that peninsula.

The Council Medal is granted to the Military Geo-onaphical Institute (363, p. 1028, Austria), Vienna,

which presents the maps, Geological Maps.-Some years ago, Mr. Greenough, a distinguished geologist, executed a geological map of England upon a scale not larger than that of France, Sir Henry De la Beche had the courage to undertake a new geological map upon the great scale of an inch per mile. This large size rendered it possible to add scientific information in the ordinary map, to present in great de-tail the cature of the stratifications, to apply his map to agricultural, metallurgical, and mining studies, and to give the delineation of the metalliferous and other veins, Sir Heury De la Beche, alone, executed the geological maps for Corawall, Devonshire, and a part of Glamorgamshire. An official corps des mines was subsequently created, under the direction of Sir Henry De la Beche, with the name of "Geological Survey," which directed and ecotioned the great geological survey of the three kingdoms. Sir Henry De la Beche being the super-intendent of Jury I., 'to whom this subject naturally belongs, the adjudication on the marits of the geological

The Council Model The Council Medal is given to the Gentoutcat Sta-ver (159, Class I., p. 137), is honour of the excellence of the work and of the staff of officers charged with the execution of the map, under the direction of Sir Henry

Du la Bacha + De la Becne.7.

The geological map of France, a public underinking, has been executed by the "Corps National des Mines," and we oust add, principally, by two members of the lustitute of France, both General Iospectors of this body, MM. Dufrenoy and Elie de Beaumont, M. Dufrenoy, one of our French Jurors, was charged with the north-castern part, and M. Elic de Beaumont with the southwestern part, and st. fare we remained what the sound western part of France. Both employed thirteen years in exploring the ground, and four years is the labour of the cabinet, as well as in the classification of more than 30,000 specimens of minerals which they collected in their local investigations, for which they travelled more than 40,000 miles on foot.

The French geological map, executed on a scale of hith, is an excellent reduction of the great official map dering the great importance of such a scientific undertaking, granted their quinquennial Wollaston Medal to

its authors. The Conneil Medal is granted to the ECOLE DES MINES. in honour of the Corps National des Mines, whose en-

seer executed the map of France. M. DE RÉNEMEUL, the ingeoious foreman of the Lithographic National Press of France, was the invastor of the excellent process for colouring maps. He deserves the Prize Medal now granted to him,

The priocipal geological maps were coloured by the hand, but the chef de la lithographie at the National Press at Paris, has discovered so simple and ingenious a pro-ceeding for eolouring with the press, that all is done now by machine process. So perfect, indeed, is the operation, at, with a magnifying-glass, the colours are seco to follow rigorously the lines forming the limits angraved

the engraving, and the system of etching, hy horizontal upon the map; and in on part do the colours exceed or remain behind that limit.

DUPIN, REPORTER, Paris, November 1851.

APPENDIX. Sureneer Cove 9

The articles belonging to this Class, recently sent from

Sweden, comprise-1. A cust-iron shell-gun, of 8 9 inches calibre (Euglish), and 9 feet 6 inches long, made on the construction of Barou M, you WAHRENDORFF, to load at the breech, and mounted on a carriage and slide, also of cast iron, adapted to a casemate. The gun is io weight 9,671 lbs. Swedish (Victualie Vigt), or 81 cwt. 0 qr. 4 lbs, English, and is marked Aker, 1850, No. 4. The charge and weight of projectile are not stored, but the gun is understood to be intended for spherical projectiles, and is not rifled,

the intended he specified projections, and a not intended he specified proportions, the solid shot would weigh about 94 lbs., and the shell 70 lbs.

2. A cast-iron Swedish 6-pounder field-guo, 5 feet 54 inches long, and in weight 856 lbs. Swedish, V. V., and to 7 weight 7 weight (64 lbs.) equal to 7 cwt. 0 qr. 19 lbs. English.

3. A Danish 6-pounder field-gun, also of cast iron

5 feet 34 inches long, and in weight 931 lbs. Swedish V. V., equal to 7 cwt, 3 qrs, 6 lbs. English, Both these guns are from the iron-works of Aker, and bear the date of 1851

4. Two models of 12-ponoder and 6-pounder field guns, with limbers and ammunition-boxes, &c., complete, on a scale of one-eighth,

scale of one-eightn.

5. Lastly, the model of a 30-pounder long gun, on a carriage and slide of wood, for easemates, also on a scale of opposite hth

Shell-Gan.-The chief condition on which this gun has been constructed (next to that of loading at the breech), appears to be that its recoil should limited, and that it should not require to be run up. is accordingly mounted on a cast-iron earriage and slide well suited to those conditions, and of ingenious construction, traversing on a pivot placed about 18 inches in front of the head of the slide, and therefore in the throat of the embrasure. The axis of the gun is four feet from the ground, and the total length of slide from its head to its extremity (being the distance it would occupy in a easemate), is rather less than 10 feet, or from the pivot 11 feet 6 ioches. The extreme brendth of carriage and slide is in front 2 feet 104 inches, and in rear 3 feet 2 inches.

The weight of the carriage is 5,215 lbs. Swedish V. V., or 43 cwt. 2 qrs. 12 lbs. Eaglish, and thot of the slide 3,537 Swedish V. V., or 29 cwt. 2 qrs. 6 lbs. Eaglish The gnn and carriage together being 124 cwt. 2 qrs, 16 lbs.

English.

Though not requiring to be run np, the gun is not oo n non-recoil principle, the slide being so constructed as to admit of a motion of the guo and carriage when fired, of obout 3 feet 6 inches, which at first is horizontal, and then for about 3 feet on an inclination upwards of 1247 by means of which the force of recoil (the weight moved e 64 tops oearly) is gradually resisted and overcome. be 64 to one ocenty) is gradually reinsted and overcome. From the point to which the gun and carriage is thus raised, it desecods by its own weight, and, after a few inches horizontal motive, is received by one elastic cushion, formed of aftects of hirch bark, placed vertically, and therefore perpedicularly to the direction of the force, making a hiskness of 9 inches. By this cushion all the remaining motion is absorbed. The angle of resistance of cast-iroo on cast-iron being about 94°, and the motion of the descent ending horizontally, the impression on the cushion is rendered moderate, and all shock is avoided. The surfaces or bearing points, on which the carriage rests upon the slide, are eylindric, of about 34 inches radius.

A carriage and slide of the same description as that exhibited, but enrrying a 32-pounder gun of Baron Wahrendorff's construction, was tried at Shochury Ness,

Already 145 sheets are published, 63 are in the hands of the engravers, 52 more will conclude the work; so that it the engravers, 52 more will conclude the work; so that it will present 290 attas sherts when complete.

† The "Museum of Practical Geology" possesses rish and usique mineral collections, furnished by the three kingdoms, and put in the most excellent order by Sir Henry De is Brebe, who opened the lustifution to the public shortly after the opening of the Great Exhibition.

The subjects introduced in this Appendix arrived after the dispersion of the Jury of Class VIII.

in 1850, with 30 rounds, at 52, 102, nod 152, and stood perfectly well. It is, however, probable, that the motion of so great a weight, on surfaces of very limited extent, would, in time, cause the latter to become disintegrated, and to require renewal.

Altogether the arrangement of the carriage and slide, apart from the consideration of the material, and the strong objections to it which exist, is very ingenious; but its value is obviously entirely dependant on the question to which it is subordinate-whether or not there is any advantage in loading at the breech

On this point a very decided opinion has been formed in this country. In 1842, trials took place of two 24-pounder guas of Baron Wahrendorff's construction, similar to that exhibited before the Select Committee at Woolwich, and on board Her Mujesty's ship "Excellent at Portsmouth; the result of which was the opinion that there would be no advaotage in adopting such a gun into Her Majesty's service.

More recently, in 1850, the trial above mentioned, of a 32-pounder gun of Barou Wahrendorff took place, fol-lowed by an extended trial of another 52-pounder to load at the breech, proposed by Major Cavalli, of the Santiminn Artillery, and constructed at the works of Baron Wahrendorff, in Sweden, from whose method it differs in the mode of closing the breech by a flat, instead of a cylindric plug, transverse to the axis; in being rifled, and in carrying a hollow projectile of a cylindro-conical figure of 64 lbs. weight, or double that of the round shot of the same calibre. Major Chvalli's carriage and slide, like that of Wahrendorl's, were both of iron, but differed from one another in some details not necessary here to The views of Major Cavalli are fully explained in his

" Memoire sur les Canons se chargeant par la culasse, et sur les Canons rayés," published in Paris, 1849. After a long course of experiments at Shoebury Ness, in 1850, with a gun of his construction, which showed by the increase in the weight of the projectile a very considerable increase of range might be obtained, but no other soaterial advantage, the experiment came to an end by the whole breech of the gun flying off in one piece, giving way at the passage of the transverse plug by the explosion of the charge. In reference to this result, it should be observed, that the construction of Wahrendorff has greater solidity, and is superior in strength to that of Cavalli

The Committee, after giving the whole subject a very careful consideration, adhered to the opinion expressed in 1842 on Baron Wahrendorff's 24-pounders; and with

reference to those of Major Cavalli, they came to the conclusion that gams loading at the breech cannot be considered safe, and that those in question were in their essential qualities " greatly below the ordinary guas of the service

It appears, however, that in Sweden, Baron Wahrendorff's construction has to a certain extent been adopted; and that the fortress of the island of Waxholm, which forms one of the defences of the approach to Stockholm, is arneed with guas in casemates, similar in all respects

to that sent to the Exhibition.

Without doubt, then, the Swedish artillery must have become satisfied that this construction possesses advantages over that in ordinary use. Yet it is not evident in what these consist, more particularly when, apart from the question of the resistance of the material, so great a danger is always present as the possibility that the breech has not been securely closed. To ensure this operation in the heat of action must demand great care and attention, for which time is necessary; and it would seem to be requisite that it should be performed by the man who Looking at all the operations to be performed, it fires. does not appear likely that any material advantage can be gained as to rapidity of fire. And in respect to the number of men required, they cannot well (making no allowance for relief) be less than three per gun, a number which is sufficient to keep to action a gun of the ordinary construction, and of similar weight.

Upon the whole, admitting the arrangements by which Baron Wahrendorff closes and opens the bore to be most ingenious, they undoubtedly render the gun to which

they are adapted much more liable to derangement and rruption than can happen to those usually employed. And since the effect of heavy artillery depends infinitely more on precision than on rapidity of fire, it would clearly be preferable, supposing (which, however is not appn rent) that there is an advantage in facility of service, to number of the guns, rather than to rely upon a me-chanism liable to be put out of order, and that possibly may thus become fatal to those who use it.

In material, Sweden possesses advantages in the great strength and resistance in the cast iron produced from the pure and rich mineral, smelted by wood charcoal, that she employs, which no other country can command; and were we in England to attempt, with the cast iron from the coal formation, the same forms and dimensions as those employed in Sweden, we should, without doubt, encounter still more frequently the same result as attended the trial of Cavalli's gun.

This observation does not, however, in any way detract from the merit of Harou Wahrendorff's constructions sent to the Exhibition, which must be admitted to be of great ingenuity and interest; and taking it for grunted that his guns have been submitted in Sweden to trials that have proved satisfactory, they solve an important problem.

Whether, however, these constructions, and that of the gun in particular on which they are dependant, are such

as may be generally and advantageously applied, is another question, into which it does not seem necessary further to inquire.

No drawing or papers have been transmitted to show the construction of the ensumnts and embrasure in which the gun is mounted, but it may be presamed that they resemble, more or less, those of Cavalli's system.

Iron Field-Guns.—The Swedish and Danish cast-iron

field-gons are excellent samples of those which are employed in their respective services, in which they are preferred to brass, and with good reason, so far as the more perfect preservation of the bore and consequent accuracy of fire, are concerned. The bore and vent, however, require to be carefully attended to and pro-tected from oxidation. The weight of the Swedish gun is a hundred-weight and a few pounds more than that of the English brass light six-pounder; but the former 57 inches longer, and the bore 16 inches larger than the Finglish gun. The shot is consequently beavier, and the English gun. The shot is consequently heavier, and the charge of 2 lbs. Swedish exceeds by 7 ounces that of the English gun, Cast-iron field-guns have been in use in the Swedish service since 1805, and recently their horse artiflery, who were armed with brass gans, have ex-changed them for iron.* There seems no reason to doubt that cast-iron field-

guns of so excellent a material as Sweden produces, may in many climates replace those of brass of the same weight; but within the tropics, and where they could not receive continued attention, the action of the atmosphere and of the sea-air would render them less durable

in the vent and cylinder than brass.

Models of Swedish Field-Guns.-These models, extremely well executed by BERGQUIST, an artist of Stockholm, exhibit in wood and iron, and in full detail, the psculiar construction of the Swedish field-artillery, as established in 1831. They show all the arrangements of the draught, and the method of attaching to the limber which gives a power of locking round, or of altering the direction of the march, of 80°. They are very deserving of attention

30-pounder Long Gan on a Carriage and Stide for Casemates. - This model, by the same artist, and on the same scale of one-eighth as above, is also very well executed, hnt presents no mechanical feature of importance. It is on a front pivot, and has ingenious mechanism for traversing by a small wheel and winch, within the bind trucks; but this refinement is not wanted, and there is altogether a character of complexity that does not properly belong to machines for military use. The gun appears to be 10 feet 2 inches long, and the whole length of slide is 14 feet 10 inches,

* Jacobi, Etat actuel de l'Artillerie de Campagne Spédoine. Paris 1819.

CLASS IX.

REPORT ON AGRICULTURAL IMPLEMENTS.

Ther Majorty's Commissioners concented that this Reyert should be published in the "Jeanual of the Royal Agricul-num's Society's a Committee appointed by that bethy facing noted as the English persion of the Jury, it accordingly opposers to the Number published in January 1852. The figures after the Names (between parentheses) refer to the Kalibitors' Numbers and to the Pages to the Organical Discarriers and Interpracta Caratagers.

Jury.

P. PCHY, M.P., F.H.S., Cheirman and Depoter, Passy, near Farriagolon.
Col. Chatactorn, H. Chaelen Steept, Berkeley Spanser.
Col. Chatactorn, H. Chaelen Steept, Berkeley Spanser.
A. Hastonov, Neutrae, Swaff Jaan, North, School,
Bernsten Hotani, Jodiffrenia.
Bernsten Hotani, Jodiffrenia.
B. F. Jordove, United States, Secretary of New York Agricultural Society.
C. M. Lawrow, United States.
Performed Hazmary, Austria.

W. Mizza, M.P., Leigh Court, near Bristol. L. C. E. Mott, France; Professor of Agriculture at Conservatory of Arts and Manufactures. Baroo Mizzres n Oerrs, Belgium.

Professor Ray, Zollvareln; Professor of Political Economy, J. Villiegs Snelley, Marcsfield Park, Sussex, H. S. Thompson, Most Hall, near York. e Chevalier DE KLEYLE, Proxy for Professor Illinbeck.

Associate. Sir Joseph Paxton, 36 Gloucester Place, Portman Square.

In endeavouring to fulfil the command of your Royal Highness, that each Reporter should describe, as to its general state, the brauch of industry which falls within his department, my task will lead me not to balance the claims of rival inventions, which are far better shown hy the results of the trials given in the words of my colleagues, nor yet to portray their construction, which can seagues, nor yet to portray their construction, which can hardly be conveyed in words, or even by drawings, but in state plainly, if I am able, the practical effect of agri-cultural machinery upon the soil or its products; and so, it may be, to further the designs of that Exhibition which your Royal Highness purposed not for a gorgeous spec-tacle only, but, as it has worked itself out, for a focus in which the various nations might combine and compare their scattered rays of realised knowledge.

As our implements are intended not to bring about new conditions of soil, nor to yield new products of any kind, but to do with more certainty and cheapness what had been done hitherto by employing the rude implements of former centuries, certainty and cheapness of action are evidently the standard by which their merits have to be tried, and chiefly the latter property, which forms the superiority of the spinning jenny over the distaff, namely,

The yearly shows and trials of the Royal Agricultural Society have certainly done more in England for agri-cultural mechanics in the last ten years than had been custural mechanics in the last ter years than had been attempted anywhere in all former time. Yet, though the inventions are many, they may be reduced to a few simple classes: in reviewing those classes, it will be most con-venient perhaps to follow the order of cultivation, begin-ning with the instruments of tillage, and, among these, with the plough.

I. INSTRUMENTS OF TILLAGE.

It was found about twelve years ago that in many parts of England ploughs drawn by four horses were still used, while in the same neighbourhood, or even parish, other ploughs were at work equally easy for two horses. The emnhrous plough, resting on a heavy gallows and wheels, had been adapted to the clay soils when those soils were the chief source of corn to the country, and had been handed down from father to son, after the heavy lands

had been widely laid down to grazing ground, and the former downs had become our principal arable land. Not only, however, did these obsolete monuments survive -it was also discovered by Mr. Handley, that the inventors of new ploughs, by rejecting the wheels as well as the gallows, had produced, especially in the north, a as the gallows, had produced, especially in the north, a plough which, burgh flushoushed mader the mane of plough which, burgh flushoushed mader the came of the plough which the plough of the plought of the medical control of the plought with two low briefs, and with model-burds adapted to different soils. Means, Howard indeed, which missing each else of earth (farrow slice, from its fat position gradually through an apright our, consecution of the plought of the plought of the control of the plought of the procured that covery and displayment. The true allowed procured both crowdy and displayment, The true allowed the procured both crowdy and displayment. is founded on mathematical laws, but, as in a somewhat similar case of displacement, that of water by the bow of u yacht, is doubtless best determined by actual trial. The test of perfection in the work of a plough is, that the furrow-slice shall lie, after being turned over, in a perfeetly straight line, not only unbroken, but even un-cracked. It is by patient attention to this point that Mr. Busby, with the aid of an excellent farmer, Mr. Outh-waite, produced the beautiful mould-boards of his prizeploughs. This unbroken furrow-slice requires some length of mould-board; and it is arged, on the other hand, in behalf of short monid-boards, that they pulverise the soil while they ture it over. Practical farmers, how-ever, know that to pulverise is not the immediate object of ploughing land; but as the length of the English of plonging tank; but as the length of the English mould-boards emprised foreigners, it may not be useless to state a further reason for that apparently excessive (longth. Ours also were, in fact, made short and hollow for our new ploughs, until at one of the Koyal Agricultural Society's trials all the selected ploughs were brought to a stand in attempting to work a strong clay. The cause of the fulture was this; the chief resistance to the horses in ploughing proceeds not from the weight of earth moved, which is insignificant, nor, unless the ground be unusually taked, from the act of severing the earth, but from two other causes, namely, friction, and ou certain soils still more from cohesion. Now, if the

soil contain sharp sand, there will be no cohesion; it will work freely off the mould-board, which will be kept bright, and the shorter its surface the less will the friction For such soils, therefore, as are common in Scotland short mould-hoards may be the best. But most English short unusld-boards may be the best. But most English soils contain so much chy as will adhere to and fill up the hollow of a short monid-board, so that the furrow-slice will have to work not upon an irom surface, but apon the unst disadvantageous of all surfaces, one of rough loam, and the draught may thus be easily doubted by friction and cohesion together. Hence, our English mould-boards have been very properly lengthened, the more properly, I suppose, because the same soil will mere often have to be worked in a moist state here than in continental Europe.* Many of the foreign ploughs, it should be said, behaved, under all disadvantages, exceedingly well, and were, no doubt, better suited than ours for their respective loca-

Ploughing, itself, is certainly a singular instance of great skill acquired by a body of men who scarcely, as was remarked by Lord Ashburton, receive the credit due to that skill. A good ploughman will set up a pole a marter of a mile distant or more, and keeping this mark. almost invisible, steadily in his view, will, ou land perfeetly smooth, trace up to that goal, until his horses knock it down as they pass on each side, a furrow so true that no eye can detect noy divergence from absolute straight-ness. If one saw for the first time a field of short green clover converted in a few boars into a surface of clean brown soil in regular ribs, it would be regarded as a triumph of art, I mention this, the rather because in speculative writing, the plough is sometimes depreciated, and the spade is extolled, though this very operation of preparing our wheat land could scarcely be excented at all by spade, since it is necessary that the existing sward should be perfectly harried. The eaution seems nure necessary, because, as we have seen in the Exhibition Building, ingenious attempts are being made at steam digging, as well as steam ploughing. be result of the trial of ploughs will be found in the

following report of Mr. Shelley.

RESELT of TRIAL of PLOTORS AT PUREY, By WILLIAM MILES, Eq., M.P., and John V. Shelley, Esq., assisted by Mr. T. P. Outawares.

The English and Scotch ploughs, eighteen in number, were put to work in the first instance at a depth net exceeding five inches the laod a young clover-ley, in excel-lent condition for the trial of light-land ploughs. The ploughs consisted of nine 2-wheel, three 1-wheel, and six

* Since the above remarks were written, I have received the subjoined report from Baron Mertens; but from my own former experience in dynamomatrical trials, I am bound to say that I should not draw from a single summer trinl may inference even us to the lightness of a plough in trmi may latercease even as to the lightness of a plough in ordinary work, still less as to its espacity for general work. When land is hard and dry, cleavage is the principal element of resistance; the friction is limited, and the color-sion, of course, null. Hence our English ploughs which seemed the lightest were brought in a former trial to a dead stand on moist clay. The American ploughs are very elegant and light, but seem hardly steady enough for

The work of the 2-wheel plonghs was swing-ploughs. The work of the a-water proughs was generally good; for the first test, not exceeding five inches, we found the following meet deserving of commendation in the order in which they are placed :-

No. 1. Ball's. No. 2. Howard's, marked XX. No. 3. Howard's, marked XXX.

The same ploughs were then put to work at a depth not

less than seven inches, when we found the following did the work best in the order in which they are pinced:... No. 1. Bushy's. No. 2. Howard's, marked XX. No. 3. Howard's, marked XXX

No. 3. HOWERS, MARKEY, A.A.,

Ball's plough, which at five Inches appeared No. 1, broke
the load too much at the extra depth, owing to the formation of the mostle-loand pressing too heavily on the furrow,
moderate, especially that by the Society in the property of
moderate, especially that by the Society in the Markey,
Mr. Howard's, and Mr. Ball's, were then taken to the heavy
lead, and were subjected to a very secret text. The work land, and were subjected to a very severe test. The work there was satisfactorily completed, and we place the plung hs according to the following order of merit:-

No. 1. Busby's, No. 2. Howard's, No. 3. Ball's,

Mr. Howard had one plough only triad on the stiff land. The ploughs were tested as before—first, at not less than five inches deep, and then at not loss than seven inches, and the same result appeared at both depths. The objection observed in the plough of Mr. Homard was, that there observed in the plough of Mr. Howard was, that there appeared to be too much currenture in the tail of the mould-hoard, which camed the land to break up in turning, and a great advantage was thus given to the plough of Mr. Bushy: at the same time, the work dama by Mr. Howard's plough was very good; that of Mr. Bull's good; but that of Mr. Bull's was very good; that of Mr. Bull's good; but that of Mr. Bull's was superier.

Three 4-horse ploughs were tried in the lighter land at a

depth of from nine to ten inches; they appeared on that in ollowing order of merit:-No. I. Bushy's; No. 2. Heasman's; No. 3. Howard's. Six subsoil ploughs exhibited: No. 1. Beutoll's; No. 2. Grey and Sons; No. 3. Comins';

No. 4. Colemao's, In the latter an improved system of adjusting the lever appeared, the construction of which we consider to be

In the turn-wrist ploughs we considered that none were exhibited deserving of remark. Lowrock's one-way plough could not be worked, owing to a portion having been tost on the milroad; but having tested it on former occasions, we recommended it as worthy of notice.

breaking up an English clover-ley. The Belgian mould-board is good, though the frums-work would be as ansuited to our workmen as our even would be to theirs, -Pu. P.

4 London, July 29, 1851.

"Lookin, July 23, 1831.

"The trial of the following prize plonghs with Bentall's dynamometer took place on the 25th Instant, at Mr. Mechl's farm, near Kerkedon, Faucs, before Colonel's Challoner, Mr. Johnson, and mayelf. Morin's dynamometer (French) could not be fried, on account of the rain. The trials were attuded with great success, as you will perceive by the followire results. lowing results :-

	Plunglas.				Name.				Points of Beristance.	Remarks.								
	1. Be	lgian	-	-	Odenrs	-	-	-	597	Land very be	ard g	olng	np	hill;	coming	down in	Ball's	plough's
	2. An	erica		_	Hale and	See	20	-	530	Land hard.								
	a. En	glish	-	-	Busby	3	-	-	540	Land worked	well							
	4. Fr	nch	-	-	Beshin	-		-	5461			-		-	-	-		
	5. Du	tch	-		Jeuken	-	-	_	550			-		-	-	-		
	6. Be	gian	_	-	Delstanel	bo	-	-	568	Ne ploughma	us to	use t	here	well				
	7. En	arlish	-	- 1	Bowani	-			560	Hand land.								
	8. An	ericar	n	-	Prouty as	od 3	lean		579			-		-	-	-		
	9. Fr	rnch	-	-	Talbot	-	-	-	590			-		-	-	-		
		rlish	-	-	Balt -	-	_	-	646	Very hard gr	ound	: 100	Y E	ood fi	arrow.			
II. English as as					Business and Man													

BARON MERTENS D'OSTIN. C. B. CHALLONER. BARON MERTENS, for Mr. JOHNSON."

The test of the six Belgian plonghs exhibited was that of Rv. Olears, which not the sis de leaves and left the six-leaves worked accellity, and was easy to blade, and the test service worked accelling the six of the six

JOHN VILLIERS SHELLI

It should be remarked that plought united for common unit for deep plouging distinctly have for some time been separately encouraged by the Boyal Agricultural Society. There can be no doubt that on most soils it is useful occur in four years, when the root crop means, to give the hand should, in each field, get come at least, if selly once field and thould, in each field, get come at least, if selly once field not satisfied for this purpose, since the soil cambles back into the farmer. One such deep plough, therefore, as feltware in water with four or even as herees.

2. Harrow.

The harrow has been made, I suppose, with square burs, and threefers straight-set testle, for an many centuries at it has been used; but it is difficult to make the test of such a larrow work always in different tracks, although the harrows are drugged from the corner. This imperfection has been remedied within the hast few years, may have the support of the contraction of the contraction of the contraction of the contraction of the new relation of the contraction of the contra

A third novelly has also been produced and rewarded-Mr. Coleman's expansing laurawe. The harst a every Mr. Coleman's expansing laurawe. The harst a every loose pis, on which they work freely. Thus the wish to be the coleman of the bank to bright of the harveer on he becomes of emblanch, and the totax, according to the enter of the bank to bright the coleman of the coleman of the bank to be the mainst soldiers on the child's top. It is true Mr. Coleman's harveer looks rether combiness; but not are mainst soldiers on the child's top. It is true Mr. Coleman's harveer looks rether combiness; but not a behavior from the coleman of the coleman of the coleman whose, which are easily let down, and were to more the harveer from one field to another. This is a further than the coleman of the coleman of the coleman of the theory of the coleman of the coleman of the coleman of the theory of the coleman of the coleman of the coleman of the theory of the coleman of the coleman of the coleman of the theory of the coleman of the coleman of the coleman of the coleman of the theory of the coleman of the coleman of the coleman of the theory of the coleman of the coleman of the coleman of the coleman of the theory of the coleman of the coleman of the coleman of the theory of the coleman of the coleman of the coleman of the theory of the coleman of the coleman of the coleman of the coleman of the theory of the coleman of the co

3. Rollers.

Not many years since the landlord was often asked by his tenant for some old tree to convert into a roller. The tree roller, when manufactured, had its framework loaded with rough materials to give it weight. But it soon were and cracked, so as to produce in a year a most nogainly instrument. Sometimes the tree was manufactured into what was called a check-roll, that is to say, a roll without framework, but with an iron peg driven into each end, to which pegs the horse's traces were fastened. We have now very excellent rollers with iron cylinders, which last for ever; but it does seem that for rendering the soil fine thir regular form has this disadvantage, that they pass so equally over small clods as merely to press, not to grind them. A more squeezing notion seems to be wanted. Mr. Claes, of Belgium, exhibited a roller intended for narrow round ridges, but which seems to possess the germ of this very squeezing motion which we require. The roller consists, in its breadth, of four separate rollers of equal size; these do not work on a fixed axle, but contain a central circle of iron, within which the common axle lies for the four rollers to play freely upon.

The common axis rests, in fact, always on the lower surface of the internal circle of the four rolls, which thus more irregularly with the freedom desired. The ruller has lowerer, here uncorneded in its face.

The roller has, however, been superseded in its function of clod-crusher by the instrument which bears that name, though we still see farmers engaged in the hope-

less attempt at breaking, by the alternate use of roller and harrow, clods which refuse to be broken. The burky crop of course suffers thereby in quality as well as in measure.

4. Clod-crushers. Norwegian Harrow.

Mr. Chossella's clod-crusher is well known as one of the most popular of our new inventions. Its principal use is in breaking down turnip-land which has been fed off by sheep in wet weather and afterwards baked by the sun. Notwithstanding its jagged iron teeth, it has been found, too, the best presser for young wheat in March, when the soil has been swollen and the roots thrown out by alternating frosts and thaws. Thus applied it also arrests the wireworm, and, if it wound the tender blade, sureros use wereworm, and, it it womm the feuder blode, the wheat differs the better. By using it necording to its intention, especially in the preparation of barley-hand, we may avoid sowing on cloddy ground, or save three weeks, delay of the sowing, and in either case may gain that the source of the source at least one quarter of bariey per acre; thus paying for our implement in the first season. Mr. Gibson's cloderusher, now first brought out, is oun different construction, being formed of two rows of very narrow wheels, alternating with each other. Mr. Crosskill's has the assermaning with each other, par, crosskill's has the defect of clogging when the soil is moist. Mr. Gibson's of pressing the ground rather tightly: it is between these two weak points that a choice must be mado in selecting a clod-crusher. There is a third implement-the Norwegian, or, as it should be called, the Swedish barrowwhich neither clods nor kneeds, but then it will not press, and is heavier for the horses. I should not besitate to choose the clod-crusher if I could afford only one such implement; but from experience of both in barky sowing, should be extremely sorry to be without the Swedish tool also, which has been lately much improved by lengthening its teeth, while its draught has been lightened by one horse in four.

5. Scarifiers, Grabbers, or Culticators.

Numerous as are the forms of this implement, and it agreems in see from every you', in this reverselences agreem is not form every you', the first even seed in the even seed not agree the even and not upon system, whereas, this was to death that, important the even seed on the even seed on the even seed on the even seed on the even seed of the

of plonghing on a common stock firm, seconding to the unail fluor-course given, must be shortly stred. After the wheat ene, the inid, being fall of running with other operation, thrier more in the spring, until it appears to be clean, when the turning are sown. In the next spring it is sloughed by many good firmers brice may be supposed to the spring, until it appears to be clean, when the turning are sown. In the next spring it is sloughed by many good firmers brice making with the solid, and so the growth of the Sariey le readeder regular. The bild ene, clear, sown with the badley, given a pear's rest to the tunns until it is bedoer crop, is sown. The exceent will stand this:—

| Ploughings | Root crup | - - | 4 | Barlay | - | 2 | Clever | - | 0 | Wheat | - | 1 |

Now, it has been found that if immediately after harvest the wheat land be not ploughed, but pared at n depth of 2 inches only, the couch, the cause of so much labour, is intercepted before it has penetrated the ground, and nll that future toil becomes needless. This work is done with the scarifier. The saving of inbour is easily cal-culated, if we only compare the breadth of the scarifier, whichever it be, for there are many of them, with the breadth of the ploogh. Thus our ploughs make a farrow nearly nine inches wide, and are drawn by two horses, Coleman's scarifier, one of the best for hard ground, is 5 feet wide (seven times as wide), and is drawn by six horses. These three pair, therefore, will cover is much ground as seven pair at plough, and the labour, accordingly, would not be half of one ploughing. labour, accordingly, would not be fast of one prougning. There must afterwards be one good ploughing given to lay up the land for the mellowing effect of the winter's frost. In the spring the land can be once more stirred with a wider scarifier (Biddle's, 6] feet wide), which would go deeper, the land being looser, with four horses only. As this implement is equal in width to 84 ploughs, four horses would thus be doing the work of sixteen. The operation will in labour be only a quarter-ploughing.
There are saved, besides, in spring, infaite harrowings and rollings, which will defray the expense of drilling

Again with regard to the barley-sowing after turnips, it used to be good farming, as I have said, to plough twice. But in order to save ammonia, it is still better to pare the land as quickly as the sheepfold is shifted, This may be done by Kilby's or Bentall's paring-plough, and may be set down as a half-ploughing. The frost mellows the surface, and four horses scarifying at seedtime will make it fit for the drill. This last operation may be set down as one-third of a ploughing. We may now examine what saving of labour has been produced by this new class of implements:—

Thus it appears that cultivators will spare just onehalf of the horse labour employed on the plough, doing the work, too, as well or better. Adopting the standard of economy as the test of their merit, we find that, if a plonghing be valued at 8s, they can save 7s, an acre yearly over the whole of an arable farm. And we may yearry over the whole of an arable farm. And we may adopt this calculation in their favour more confidently, because by other means an equal saving of horse-work can be made at other seasons in other descriptions of work. Some exceptions to this general use of eultivators will occur of course to every farmer; but the substitution of them for the plough has long been known to many good farmers, though probably it has not as yet been carried out upon system by any one of them to its fullest

These implements were not originally intended for stirring hard ground, but were gradually developed ont of the harrow, which was mounted on wheels, view to the raising of loose couch out of ploughed ground, a use which nutumnal cleaning will soon, it

may be hoped, make obsolete

may be hoped, mase ousorers.

Of the prize cultivators, Biddle's, by Messrs, Ransonz, is one of the oldest, and still one of the best. The width gives it great steadioess, and its leverage is good, though wearing an awkward appearance. Many attempts have been made to remove this defect, but none so successful as the simple straight levers by which the other prize scarifier, Coleman's, is lifted out of the ground. Sioce the trial I have used Coleman's implement, and find it superior to other wide scarifiers. For these implements have hitherto had two defects. partially ont of the ground, and sometimes swerve in their course; thus in each case missing a part of their | Part axvii., p. 126,

Hence prises often the necessity of dragging them a second time crossways over the same piece of ground. Coleman's scarifier never rises or swerves, hat does its work as true as a plough, doing it therefore once for all. This is a decided advance, and greatly facili-tates the substitution of the scarifier for the plough. For the mere paring of a very tight surface, however, even Coleman's may be sometimes too broad, and Beneven Coleman's may be sometimes to that purpose. Its long tall's narrow one is excellent for that purpose. Its long snout, like a swordfish's horn, is an ingeolous which it is enabled to adhere to the land. This cheap implement has also received a prize as a subsoil plough; and though it be a good rule that no implement should do more than one thing, an exception must be clearly unade here

Another cheap paring plough, Kilby's, should be mec-tioned though not in the Exhibition, because it has the peculiar merit of turning over as well as paring the land. In limiting, as has been done above, the number of ploughings, the new system of winter eropping has been passing over, because those extra crops, green ryc or tares, winter peas or beans, would more than pay for their extra ploughing. Taking the old system simply, and working it with new tools, we see that common stock land ured be ploughed twice only instead of eight times in four years-coce after elover, when the greeo leaves must loar year-occe after elover, when the green leaves must be turned down and the dung perhaps be covered in, which the plough only can do, and once, in order to stir the had deeply for root ereps, and lay it rough for the wister frosts. I will venture to add what may appear theoretical—that, if ever stemn be successfully employed in cultivation, it will probably be less by ploughing or digging than with an implement like one of these cultivators, because they are able to work so much wider a space as they pass loog in their course. This plan of space as they pass loog in their course. This plan of antunn-cleaning is the more valuable because it is a practice of actual farmers. When we hear of wheat being grown on alteroate perions of the same field every year, such an experiment in highly interesting in a scien-tific view, yet we feel certain that it cannot become general; int when we know that good farmers are yearly extending the practice of antunn-cleaning apon stock land, we are assured that whatever be its advantages they will be generally available upon land of that character From the preparation of land we may now proceed to

II. INPLEMENTS USED IN THE CULTIVATION OF CHOPS.

1. Drills.

The sower with his seed-lip has almost vanished from southern England, driven out by a complicated macline, the drill, depositing the seed in rows, and drawn by several horses. Here, at least, one would suppose that there must be an increase of expense in the new operation, and, above all, an increase of borse labour; hat even here there is, or may be, sometimes at least, on the contrary, a diminution. For though we observe only the one seedsman striding over the fallow, he is followed by much locy—the drags and the harrows—which, though simple enough, yet, as they repeatedly traverse the land run up to a formidable amount the horse-work expended

in this primitive method of sowing.

In Mr. Haxton's Prize Essay upon Oats, which is just published,* we find the following passage:—

published,* we find the following passage:—
Saving and Harrowing.—The general practice in Scotland
is to sow easts broadcast on the winter furrow, and to cover
to the seed by two, three, or four harrows coupled together
and drawn by as many horses. . . . Six barrows, three
and three together, and drawn by the broadcast of the the
tun men, follow the sower, and give a double stroke in the direction of the ridges.

Three more strokes, five altogether, suffice, as Mr. Haxton informs us, on frinble hand, but on an old sward, the amount of horse-work expended is really wonderful. Old tough lea or wet-ploughed land requires a fir greater amount of harrowing than this to bring it into a proper tilth. Two double strokes are given in the direction of the

* Journal of Royal Agricultural Sorlety of England,

ridges to break the farrows and prevent the turf from being torn up by the cross harrowing; and it is seldem that the operation can be properly accomplished with less than six double strukes or twelve harrowings.

Thus a harrow has to be drawn twelve times over the same ground by a horse. If we imagine it to be drawn once by twelve horses, we shall see at once the vast saving which would be effected by the Wohorn drill, of about which would be effected by the Wohlord druit, of account the same which with the harrow, drawn by two horsest-only, yet burying at noze more of the seed, and followed, as it has been preceded, by a light harrow—a saving of eight horses in twelve, or two horses in three. This is, however, an extreme case; but we should not be far wrong in saying that by the Wohnra drill, which will come presently under our notice, two horses in four, or one-half, might be saved to the farmer who has been in

the practice of broadcasting. There is also a saving in seed by the use of the drill; but it is further interesting to observe how the drill dove-tails, as it were, with our last class of implements, the searifier. When drilling was unknown, great stress was laid upon so ploughing the land that the furrow edge would stand up sharp at the exact angle of 45 degrees, in order that the harrows eatching those edges and crombling them down might properly cover the seed. No one would have dreamed of sowing corn upon scarified land. Now, on the contrary, the surface may be perfectly smooth; on the contrary, the surface may be perfectly smooth; and wheat may be drilled after turnips in winter upon land which has been only breast-ploughed, pared, that is, half an inch deep, for the seed, if drilled, is perfectly covered, and wheat prefers u firm bed. The drill again is indispensable for the use of many new artificial unanures, distributing them by special coulters beneath the nures, distributing when with earth, that their excesses ground, and overing them with earth, that their excesses strength may not injure the seed, which is deposited, above, that of all. The benotiful system of borse-hoeing depends too, of course, entirely on the use of the drill, which may be a the key of the new system. We ought, be regarded as the key of the new system. We ought, then, to regard the whole as a system; not, using the drill, retain ancient conrises of ploughing which were meant for the seedsman, nor, on the other hand, fall short in the consequences of the drill-use it, that is, as some farmers do, but with no artificial manure, and without a horse-hor to follow.

As to particular drills, there is the general-pur drill, a very complete implement, capable of drilling, with or without manore, wheat, beans, and turnips at the different intervals suited to those plants respectively, from 2 feet to 7 inches. It comprehends, in fact, two drills, the parts of which are substituted for each other at pleasure; yet admirable as is the implement, one may question whether, as corn seldom requires manure to be sown at the same time, it be not better to buy two drills separate, one for eorn, the other for turnips. One improvement should be used with all drills as most conducive to the ease of the carter. Formerly, drills went upon one pair of wheels, but after they were made to carry a large weight of manure, it became hard work for the earter, who, in his zeal to keep the work straight, while leading the thill horse with a stick, stended the shaft with th other hand, which was almost benomied when he reached the end of the furrow. A fore-carriage was therefore added by Messrs. Garrett, which is noder the command of the earter, who, by a lever keeps, without exertion, one wheel in the rut down which it previnosly passed, so that the rows must be perfectly parallel. This steerage is the carter's friend, and the horse's friend too, as it removes a heavy lond from his back. Messrs, Hornsby have since adopted, and perhaps improved on the principle.

. Journal of Royal Agricultural Society of England, xxvii., p. 126.

Report on Deills.—Nearly twenty of these implements

were selected and sout down to Pusey for trial. Mesers. Hurnsby and Son had five drills: their ten-rowed corn and general-puryone drill was a highly-finished and well-made masshine, which are not improvement, patential by them, of India-rubber tubes for conducting the seed down to the clannel massle by the coulter, which I consider a whalshe improvement upon the old pian of a series of cups, made of the, working one within the other. This drill also has

The excellence of all Messrs, Hornshy's and Garrett's drills is well known. The Wohurn drill of Messrs.

another improvement, of two coulter bars, by which an equal pressure is obtained upon every coulter, and the double-action lever enables the manure to be deposited to any depth, and covered up previous to the seed being depo-sited. The price of this drill is 44.

A ten-rowed corn and seed drill, peculiarly adapted to drill corn on side hills by a highly-finished and logenious contrivance, of extending or contracting, hy means of a screw, two legs, similar to the governor of a steam-engine, attached to the side of the drill, and by which (the drill being hung by or superied on the centre) it can be rega-lated while in motion. It has also improved sides for re-gulating the quantity of seed delivered; it has the improved being rules takes are sdia-rubber tobes and coulter bars, like the former drill : also a very excellent fore steerage, with a rack and pluion attached, by which it can be goided with great exactness. It did its work extremely well; and we awarded it a Council

Medal. A three-rowed drop drill, which can be used either on ridges or flat ground. If the capable of depositions pair tolkeds, in given quantities from 10 to 50 bathelis per acre. The seed can be dropated with the manure, or the manure covered up with old said absect dilivered on the manure covered up with soil and the seed dilivered on the west of the seed of the seed of the seed of the seed of well. Piete 34. We assessed it a Consull Medal. A New-rowed turnip drill on the flat, for drilling turnips of manufack-west well on manure. This drill carriage of manufack-west well on the manure. This drill

embraces a variety of improvements—the reliefs being made in sections capable of being adapted to a larger or smaller ridge of the proper form to receive the seeds, and the second concave rollers follow, and leave the ridge in a perfect form. The drill is now so perfect, and did its work so well, that we awarded it a Council Medal.

Messrs, Garrett and Son exhibited their well-known meral-purpose drill, with the improvement of a simple method of regulating it so as to work on the sides of hills. There is also a slide for the regulation of the feed of the

There is also a slide for the regulation of the feed of the manure, with an index to show tha quantity delivered. Price v2. This drill did lis work remarkably well; and we considered it cuttiled to a Council Medial. A four-rowed turnip drill on the flat, embracing the im-provements of the general purpose drill, was also put to a severe test with other drills; but, upon the whole, we con-sidered it to do its work a shade better than those brought against it, and we awarded to it a Council Medal.

A land-barrow drill—the construction and excellent workmanship exhibited in the implement morited the un-

qualified approbation of the jury-distributing gress-seeds broadenst in an excellent manner, by means of two com-partments in the same box, that the quantities of each may be regulated as desired, the clover and ryo grass being mixed in their transit to the grooms. We considered it a very useful implement, and recommended it as worthy of a ucil Medal.

Coöncil Medal.
Mestra Bansomes and May, of Ipswich, exhibited a very
well-constructed drop drill, which did its work excellently,
well-constructed drop drill, which did its work excellently,
drop drills; and, for the ingenuity of contrivators and
superfortly of workmanship, we awarded it a Frize Medal.
Mr. Bashy, of Nex Ion-le-Wildow, care Bedale, exhibited
a drill which be called a ribhing drill, which is well constructed, vary shipple, and strong, and does its weck exstructed, vary shipple, and strong, and does its weck extremely well, making a broader seam to lay the corn or seed in, which is considered by many, and especially by foreigners, as a great advantage. Price 14t. To which we awarded a Council Medal Messrs, Hensman and Son, Woburn, Bedfordshire, exhi-

bited a self-adjusting steerage corn drill. This drill varies from the generality of drills, as it is drawn from the centre by whippic-trees instead of shafts; and the drill-man behind can steer or direct the drill with the greatest nicety, can steer or carect the drill with the greatest helety. The corn-bus of the drill is ontherly self-acting, and delivers the seed equally well going eliber up or down bill. It is also capable of horse-hoeing, by attaching hoes to the levers, instead of the coulter elsares. This implement works very well, and the price from 184, to 204. We awarded it a Prize

Cines, of Belgium, exhibited a nine-rowed, very M. Ches, or neutron a mine-rower, very simple, well-made Belgian drill. It did its work extremely well. The conters mado a broader seam to receive the corn than the generality of English drills; and the harrow which is attached to the drill covers the seed with fine HUMBRES and Soy has also obtained a Prize Medal and has this peculiarity .- Is all other drills the coulters, which distribute the manure or seed, hang from the carriage. In this shall the earriage rests upon the coulters, which are like the trons of skates; it may be said, indeed, to run on four rairs of skates. Hence this drill's nower of penetrating hard ground, and of giving a firm bed to the wheat-seed in soft ground. Each drill conlice, however, preserves its independence as when suspended This self-adjustment is required by the inequality of tilled ground, and is thus obtained : each pair of coulters is fixed to the end of a balance beam, these again to

others, and they to a central one. Thus each coulter, in well-poised mak, gives its independent share of support. Hence this drill is simpler in management than any other, for, resting on its own base like a plough, it is also other, lot, resting on its own once time a prosum, it is now guided from behind like a plough; and any man who can hold the stilts of a plough for a straight furrow can steer this drill with a pair of horses only and reins. Hence, too, its convenience; for if you wish to now close up to the sheepfold, instead of ordering out a drill and four, as it were in state, you merely keep back one plough from

the field.

Hitherto we have been dealing with corn drills intended generally for seed only. In end-avouring to fill up the picture of the point of development at which agricultural mechanism now atands, we come next to turnip drills, in which manure is also distributed as well as seed, generally which manure is also distributed as well as seed, generally books or superphosphate. As in well known, there are two ways of gowing turnips, the ridge and the flat. In the ridge, or Northambershall netched, the ground is thrown into ridges by a two-sided plough, "a double Tom," and, damp being laid in the intervals, the ridges

are split, and the new ridges enfold the dung. It is on these ridges that Mr. Hoassn's prize drill works, depositing manner-dust and seed, and reducing the ridge, by concave rollers, to a compact rounded form.

The ridge system, however, is most at home under our cool northern and maist western skies-in Northumberland and in Laneashire. In our drier districts, as in Lincolnshire and Berkshire, it is found better with the bulk of the erop, when rain does come, to make more expedition. Using a turnip drill, therefore, 6 feet wide we sow four rows at once with some light manure, and nre thus enabled to sweep rapidly over our ground, while the seed finds a moist hed fit for germination before the

dust begins once more to fly.

Still, however rapid the four-row turnip-drill, southcountry farmers are often obliged to wait in July for a soaking shower-waiting, indeed, often in vain, until it is too late to look for a bulky turnip erop. A south-country farmer, Mr. Chandlen, of Market Lavington, Wilts, has produced a machine to deal even with this defect of our elimate. His water-drill pours down each annure coalter the requisite amount of fluid, mixed with powdered nathe requisite amount of fluid, mixed with powdered nin-nure, and thus brings in the plant from a mere bed of dust. Having used it largely during three years, I may testify to its excellence. Only list July, when my build had cented turnip-sowing on account of the drought, by directing the use of the water-drill, I obtained from this later sowing an earlier and a better show of young plants than from the former one with the dast-drill. Nor is

earth as soon as it is dropped. There is no part of this drill likely to be out of order: It can be worked with cost horse; and there appears oo part of it that, in case of accident, could not be repaired by a common blacksmith.

Price 10t. In consequence of its combined merits, sim-Price 19. In consequence of the consequence merra, simplicity and cheaparen, we awarded it a Prize Medal. Liquid-manure Distributor.—Mr T. R. Revers and Mr. J. Bratton, of Westhury, exhibited in liquid-manure distributor, which did its work in an extraordinary manner. distributing equally manure-watere or the thickest sewerage lu the most perfect manorer. From the construction of the machine, it is impossible to else in the delivery of the thickest slush. It consists of a series of backets or troughs that are attached to a metal chain or band, and which works round two rollers as the eart goes on, the wheel giving the metiva power to the rollers. The price of this admirable nater-eart, complete, in 164. We awarded it a Prize Medat. C. B. CHALLONER

there any increase of expense, if water be within a mode-They must be mixed with ashes that they may be diffused in the soil. Now, the expense and labour of supplying these ashes are equal to the cost of fetching mere water and, apart from any want of rain, it is found that this suction of moist diffusion, dissolving, instead of mingling

only, the superplosphate, quickens its action even npon damp ground, and makes a little of it go further. There is yet one more kind of drill. The common drills economize manure by concentrating it in lines along the rows of the turnip plants. Thus, instead of slovelling lones from carts, as was first done in Lincolnshire, at sixty husbels per acre, we came to sow only sixteen bushels of bones in lines, or more recently but three hushels perhaps of superphosphate, prepared either from bones or from the animal remains of geological ages, mmong which Liebeg told us, and told us truly, to search for our phosphorus. But though turnips are sown in lines, and come up thickly in lines, no sourer are the thriving young plants well marshalled in green array than nineteen in twenty are ruthlessly cut down by the hoe, so that the field appears for a time once more bare. The roots must, of course, be allowed ample room in the row, but some manner will have been wasted in nonrishing the plants doesned to perish. Hence, Mr. Hornsby's dropdrill, avoiding this wholesale massacre, is made to drop the seed and the manure, by a second step of mechanic fragality, rally at these points in the lines where the ines fixed points, for their distance can be varied from 9 inches to 18 inches asunder, and the intervals between the rows can be equally varied from 15 to 30 inches. The dose, again, of mixed monare can be varied from ten to fifty bushels per acre. Such is the elastic, yet accurate plinhility, with which in agriculture mechanism has seconded chemistry. Having now gone through the various kinds of drills—corn or turnip drills, ridge or flat drills, dry or wet, line or drop drills—we may pass to a kindred but entirely new class of implement.

2. The Top-dresser, or Manure Distributor.

Although, as has been said, wheat is seldom sown with the manure-drill, being usually provided with its chief requisits, nitrogen, through farm-yard dang or through sheepfolding, no plant is so liable as wheat to break down from its first promise; and on inferior soils, whether too light or too heavy, one might almost say that wheat always looks well before Christman, and always looks ill before Lady-day. Our predecessors, to refresh its flagging strength, used to spread soot or pigeon's dung, both containing ammonia, over it, especially on the lower sides of the ridges near the water-forrow, where the plant was perhaps almost killed by the lodgment of rain. But their practice was, of course, limited by resources so narrow. We, having guano and nitrate, can deal out liberally the timely supply. But if sown by hand, there very light manures, especially guano, are carried away before their descent by a strong wind; and sometimes when half a gale has been blowing, it has seemed to me that I was samuring my neighbour's field quite as much as my own, A usnure-distributor was therefore required; and the agricultural meeting at Excter brought out eight com-petitors, the winner being Mr. Holmas's, of Norwich,

I rejoice to find that we have not only a good invention one. but that it is being actively used. The machine. bere, but that it is being actively used. new as it is, and involving a new outlay for artificial manure, is employed very largely in the western division of Norfolk-the classic ground of improvement-for distributing a small quantity, such as three bushels per acre, of game or nitrate of soda, or a larger quantity of superphosphate and rape-cake, on wheat in the spring of the year. This fact deserves the more to be known, because the convincing argument for any agricultural change is that it has become a practice somewhere or other argument that answers where reasoning fails. The other aryoment-that, namely, founded on quick return-is also not wenting, as it has lately been shown that nitrate so applied on poor land will sometimes yield double its own value, -nearly a quarter of wheat at a cost of 20x, per acre,

It is curious, indeed, that this very cheap and simple machine is on some soils superseding the more costly and intricate drill. In the words of Mr. Holmes, its inventor .-

They were used very much last turnip-sowing season, and considerably more this season, for sowing manure (rape-cape, malt-coombs, and guano, about 8 or 10 bushels (rype-cspe, malt-coombs, and grame, about 8 or 10 bushels per sere, and in some instances as much as 20 bushels to the acre, when a quantity of burnt earth or ashes are mixed) into the furnows of the ridged termip-land, at 24, 25, and 27 inches apart. The ridges are then turned over on to the manner by the double-to-easted plough, and the manure is envered sufficiently out of the way of the seed, although distributed equally around, so that, Instead of striking immediately into the whole body of manure—as is the case when drilled in with the manure—it eatches it gradually in its different stages of growth.

This plan proved highly satisfactory to all those who ied it last season, which has induced many others to pursue the same course this season, not only as regards the erops themselves, but also in the labour required to put the erop in. Our manura distributor will cover 3 or 4 turrows erop in. Our manurs distributor will cover 3 or 4 turrows at 127 inches apart, if required, and is worked with one horse. It is followed by a light drill aspressly for turnips and manged-wurzel, which is also worked by one horse. Thus it will be resulty seen that a great so ting of horse-turnips and the second of the secon place of the drill.

This saving of horse-work is indeed great: but it must not be disgussed that there is inconsistency between the principle of general diffusion here recommended, and the concentration which is the aim of the drop-drill. Each method, in fact, has its merits for different purposes,concentration for pushing the young plant, extension for feeding it in its later stages. The question, like many others, must be decided by longer experience; but the most perfect method would probably be the combination of both plans. To return to our present subject, the young growing wheat, it may not only be revived in spring by additional food, but is usually, on light land, settled down in its bed by

3. Press-rolls.

On some soils, especially the calcareous, the ground alternately frozen and thawed in winter throws the roots of the whest plant almost out on the surface. For this mischief and that of the wireworm, flocks of sheep were ouce driven over the wheat; but we have long had the well-known wheel-roll, and, as has been said, Crosskill's clod-crusher is a still better presser when it can be used, but is not a perfect substitute, as it requires the land to be The new clod-crusher, however (Gibson's), must serve, I suppose, for both purposes equally well.

4. Horse-hocs,

Machinery can do but one thing more for the growing erop. The hoe not only clears away a bost of young weeds, but, by loosening the erasted surface, admi air, and stimulates the growth of the true crop. Even vineyards are thus found to be relieved during long drought, and hence it is said that iron should be always between the rows of our root-crops. Ridged root-crops have been long hood by a single horse, one row at a time, farrett's horse-hoe cleans four rows at ence of turnips, six of beans, nine of wheat. To hoe wheat thus is a de-licate operation: to hoe even turnips so, when their lines . are hot just distinguishable, or again, when the leaves almost meet, requires not only a first-rate implement, but a steady hand and cool head to steer it. This tool will stand well the test of economy, for it will go over ten neres a-day canily, with two horses (sometimes coe), a man, and a hoy, at a cost of, say 10s. The work could certainly not he done otherwise for less than 2s, an scre, 20s. altogether, even if you could find hands to do it, in harvest-time. This estimate accords, I find, with the report of the Judges at the York Meeting, practical farmers, who thus speak of the implement:—"The work done by it is far superior to any hand-horing; it can also be done for less than half the cost: indeed, so highly do we value it, that we think no farmer can farm as he ought without it." The cross, after horing men corn the The crops, after hoeing, soon cover the

ground, and are thus beyond man's interference until time, the ripener, summon him to the operations of

III. HARVESTING INPLEMENTS. 1. Reaping-Machine.

At the opening of this century it was thought that a successful reaping-muchine had been invented; and a successful reaping-muchine had been invented; and a reward was coted by Parliament to its author. The muchine was employed here and abroad, but, from its intricacy, fell into disuse. Another has been lately deferred to the control of the control wised in one of our colonies, which cuts off the heads of the coru, but leaves the straw standing, a fatal defect in an old-settled country, where the growth of corn is forced by the application of dung. Our farmers may well, therefore, have been astonished by an American implement which not only reaped their wheat, but performed the work with the neutness and certainty of an old and perfect machine. Its novelty of action reminded one of eeing the first engine ron on the Liverpool and Manchester Enilway in 1830. Its perfection depended on its being new only in England, but in America the result of repeated disappointments and untired perseverance. The United States' Patent Commissioner says of Mr. M'Cormick's Resper-

In agriculture it is, in my view, as important, so a lubcorsaving device, as the spinning-jetny and power-loom in manufactures. It is one of those great and valuable inven-tions which examence a new era in the progress of im-provement, and whose beneficial influence is felt in all coming time.

Besides difficulties common to all inventions, the machine could be tested but for two or three weeks in each

was applied to the instrument the barvest was over, and the new form had to wait a whole year for its trial, when some fresh failure required a fresh year's postponement of final success. It seems right to put on record Mr.
M'Conneck's own account of his progress, or some extracts at least from a statement written by him at my request :-

My father was a farmer in the county of Rockbridge, State of Virginia, United States. He made an experiment in cutting grain, in the year 1816, by a number of cylinders standing perpendicularly. Another experiment of the same knall was made by my father in the hervest of 1834, which satisfied my father to abandon it. Thereupon my attention was a father to abandon it. Thereupon my attention and and put in operation, in cutting late case on the form of John Steele, adjaining my father v, those parts of my present respectable the platform for receiving the core a straight blade taking effect on the corn, supported by stationary fingers over the edge, and a reel to gather the corn, which last, however, I found had been used before, though not in

the same combination. the same combination.

Although these parts constituted the foundation of the present machine, I found in practice innumerable difficulties, being kindled also to a few weeks In each year, during the harvest, for experimenting, so that my first patent for the resper was granted June 2 tith, 1834. During this interval I am offers ordinarily no decades it, and I am offers ordinarily no obscales it. and pursue my regular business, as librly to be more profetche he having given me a farm. No machines were sold until 1840, and I may say that they were not of much practical value until the improvements of my second patent, 1845. These improvements consist in reversing the angle of the These improvements consist in reversing the sngle of the sischie-teeth alternately—the improved form of the fingers to hold up the corn, &c.,—an iron case to preserve the sickle from elogriging—and in hetter mode of separating tho standing corn to be cut. Up to this period nothing but loss of time and money resulted from my effort. The rais has since steadily increased, and is now more than a thousand

One merit of the machine consists in the extreme simplicity of its cutting part-a straight saw, vibrating rapidly right and left. The teeth however, incline niternately in each direction, so that at each vibration half at them are inclined in the direction of the motion, as is

As to the practical working of the Braper, two horses drew it at the trial very easily round the outside of the

crep until they finished in the centre, showing that they could cut easily fifteen acres in ten bonrs, drives sitting, and mother stands on the machine to rake. It is hard work for him, and the men ought sometimes to change places. The straw left behind at the trial was cut very regularly—lower than by reaping, hat higher than by fagging. The inventor stated that he had a machine which would cut it two inches lower. This is the point, I should say, to attend to, especially for autumn cleaning. Though it seems superfluous to bring this ma-chine to the test of economy, we may estimate the pre-sent cost of enting fifteen acres of wheat, at an average uf 9s, an acre, to be 6d, 15s. Deduct, for horses and men 10s, 3d., and for hinding 2s, 6d, per acre; the account will stand thus :--

The saving of wages, however, would of course be an imperfect test of the Reaper's merits, since in bud seasous and late districts it may oftcu enable the farmer to save the crop.

Since this statement was written, fresh trials have been made of Mr. M'Cormick's reaper, as also of one by Mr.
Ilussey; and as the award under the Commission has been called in question, it is right that some statement should be made on the subject. In the first trial at Tip-tree Hall, Mr. M'Cormick's resper worked well, and the other did not act at all. As the corn, however, was then green, it was thought right to make further trial, and special lenve was obtained from the Council of Chairmen to give two Council Medals, one to each Reaver, if, on further trial, their respective performances should be found to deserve one. The object in our second trial was not to decide which was the best implement, but whether either or both were sufficiently good to receive the Council cither or both were sufficiently good to receive the Conneil.

Medal. Mr. McOrmick's in this trial worked—as it has since worked at Circucester College and elsewhere—to the admiration of practical farmers, and therefore received a Council Medal. Mr. Husser's sometimes hecame clogged, as in the former trial at Typree, and therefore could not possibly obtain that distinction.

Purther trials, however, have since been made by other

parties, elsewhere, in which Mr. Hussey's machine worked well; and one of our colleagues. Mr. Thompson, informs me that it has been used for a week by a practical farmer on his own form, who was perfectly satisfied. Its in-ventor states that at the trials for the Commission the failure arose from the mal-adjustment; and Mr. Thompson informs me that st one of the subsequent trinls a similar mal-adjustment impeded its action, until Mr. Hussey arrived to set it right. I am bound, then, to express my own individual opinion that the merits of the machine are such as critito it to a Council Medal, and my regret

that it should be formally disqualified to receive one We have, then, two good American renping-machin Their respective merits time will discover: but there is one caution which applies to the introduction of both into Eugland. They both cut by a sidelong vibration, the frequency of which must be determined by the number of straws to be ent in passing over a given space. Naw, as the acreable yield of England nearly doubles that uf America, our straw it is probable stands much thicker than in the crops these Respers have been seenstomed to deal with, so that both implements when applied tomed to deal with, so that coun imprements when appared to heavy crops must be adapted to the superior farming they will have to encounter. At present, we only know tant Mr. M'Cormick's machine is best for harley and oats when not intended to be bound up in shenf : Mr. Hussey's when her intended to be bound up it seems all the separate for corn lid by the weather, or standing upon steep ridges. Mr. Hassey's can cut rushes, as was shown in Windsor Park. Mr. MCormick's last received a prize this autumn in the United States for cutting prairie grass, competing there with three others.

2. Horse-rakes.

These are very neat implements, about 8 feet wide, nning on low wheels, drawn by one borse rapidly be tween the rows of cocked barley, cats, or hay, and upped from time to time, while they move on, hy a man who follows. One of them must do the work of 10 or 15 woman. They are common in many counties, yet in others unknown, or, when made known, not adopted.

3. Hoymakers,

Every one has seen these machines tossing the hay high above them: instead of this rapid action, if the movement of the frame be rovereed, they gould yiel the grass without lifting it from the ground. The saving of labour must be on great as with the horse-rake, and the work is far better done.

4. One-horse Carte.

It is proved beyond question that the Scotch and Northumbrian farmers, by using one-horse carts, save one-half of the horses which south-country farmers still string on their three-horse waggons and three-horse dungcarts, or dung-pots, as they are called. The said threehorse waggets and dang-pots would also cust nearly three times as much original outlay. Few, I suppose, if any, farmers by these expensive luxuries now; though it is wonderful they should keep them; for last year, at Grautham, in a public trial, fee horses with five carts were matched against five waggons with ten horses, and the five borses heat the ten by two loads. It appears that some of our one-horse carts, not being well made, carry the corn less stendily than the waggons; but this last defence of the primitive waggen is broken down by the curved form which Mr. Ilmby has given his barvest rails, as is well explained by Mr. Thompson, of Mont Hall, a high authority on these matters, in the following interesting

Curts and Wogons.—The Jurers appointed to examine these classes of implements were considerably influenced in their selection by the opision that really good early ought to be capable of easy adaptation to all the kinds of work for which agricultural wheel-carriages are required, thus rea-dering wagnons unnecessary. The great majority of carts dering waggons unnecessary. The great majority of carts are, however, Ill adapted for harvest work, and this is, no doubt, one reason why such slow progress has been made in substituting light carts for waggons. It may, therefore, be useful to mention the leading points which ought to be kept in view in the construction of harvest carts, or harvest

In view in the construction of harvest carfs, or harvest frames analyzed for common earth. General capits (see incommon earth. General capits) (as it is been upon one pair of whech intend of two, it is negocid to much more velocist trains of its powers of colesion. Nevery slight alternation of positions of the bowns of the capits of the of which expedients causes a waste of time, which can lil be spared during barvest; and, in spite of such precautions, seeldents frequently occur. To remedy this fault, some makers have constructed harvest frames with one bar only makers have constructed harvest transes with one has rape. as it is the front and back, attengthened by leven stays, as in the state of Bushy's earl, where the ends and sides all slope towards the body, so as to condense the load by the motion of the eart. The fact that miscel ends have a tendency to con-dense the load was first pointed out by the judges of earts at the Norwich Blow of the Royal Agricultural Society in 1849; and in Mr. Busby's eart three suggestions have not only been adopted, but improved upon, by raising the sides as well as the ends

Another important point is, that carts should be few, not only for the sake of diminishing the isboar of leading, but to lower the centre of gravity of the load, and thereby keeps the great inequality of pressure on the horse which In experienced in high outer when going up or down his trans diminates the shaper of support in congruent congruent to the configuration of the configuratio

ary importance, which may be vested to the waste of the purchaser.

2. Crosskill's whasls are deserving of notice, being made by machinary, and accurately fitted. His operations being conducted on a large scale, he is enabled to furnish them at

a monitoring price.

The properties of the price of the p

registrophics. Stiffmills to ensure value and few segments to the state of the way of the state
express purpose of deciding the point. The gran necessity at present existing for the introduction of every practicable economy will doubtless oventually substitute light carts for waggons, and in the meanwhile something would be galard by introducing light, cheap, pole-saggons in the place of the cambrous shaft-waggons which are too frequently met

"In the Cresibility wageon was considered a very good specimen of an insproved wageon, being light, too, and chessy (price 264, including both pole and shafet). The advantages of a pole over shaft as exp, that horses can draw a greater weight when yoked abresst thus at length; that in the contraction of the contract

Mr. Banby, it will be observed, by placing his shafts on the side of the cart, has lowered his cart. It has howed it as much as one in fluor, thereby diminishing the tool of filling carts with dung, stones, earth, &e., to the amount of one quarter. If we calculate how many throusand arms are employed in this way throughout Dagland for many simple as it is, will save no small aggregate amount of manapplied strongth to the country of large.

massiplined strength to one country in mage,
Having gone through the three chases of implements
with which the land is first prepared, the crops next caltitude, and the grain afterwards harvested—and having
found them to stand well the test of country by which
all machines must be tried—we have now to examine the
fourth, by which the corn is lastly made ready for
market.

PERPARATION FOR MARKET. Moreable Steam-regions.

Every visitor of the agricultural department usual have been struck with the little steam-engine, which, though the mean the steam of the steam of the steam of the recer, showed the same compactions of form and the assess disposition to work. They seemeted the ruder tools of hastendry with modelinery fitted for more instruted to the steam of the steam of the steam of the team-engine tax we been hear used in Northenderland has its allichiumer. These movemels estam-engine have been called forth by the Royal Agricultural Society to the steam of the steam of the steam of the steam been called forth by the Royal Agricultural Society to the first engineer, for the fallowing reasons—

If a firm he a large one, and especially if, as is often the case, it be of an irregular shape, there is great waste of labour for bornes and men in hringing home all the corn in the struct to one point, and in again carrying out the dung to a distance of perhaps two or three miles. It is therefore common, end should be general, to have a second outlying yard. This accommodetion cannot be reconciled with a fixed engine.

reconcise with a taxed supplex.

If the farm be of n moderate size, it will hardly—and
if small will certainly not—bear the expense of a fixed
engine: there would be weate of capital in multiplying
fixed engines to be worked but a few days in a year.
It is now common, therefore, in some commises for a man
to invest a small capital in a moveable engine, and care
his livelihood by letting it out to the furner.

But there is a furtire advantage in these movember interpolation in the property of an all known. It illustron comcapines and the improved threshing-machines we can explore and the improved threshing-machines we can will be said. How every only the said of the one as well only. The maxwer is simple. Notice can you may will be said. How every only the said of the one as well of P. The maxwer is simple. Notice can you may the work of the save threshing-machines, but it takes no the work of the save threshing-machines, but it takes no threshing in also far pleasanters and healthier for the threshing in also far pleasanters and healthier for the threshing in the free pleasanters and healthier for the threshing in the free pleasanters and healthier for the threshing in the free pleasanters and healthier for the threshing in the free pleasanters and healthier for the threshing in the free pleasanters and the same and the follows to be transit not inconsiderable: that then these machines are also as the same and the same and the follows the transit not inconsiderable in the three three processes are also as the same and the buildings. Instead of three or more barns clustering round the homestead, one or other in constant want of rapair, a single building will suffice for dressing corn and for chaff-cutting. The very barn-floors saved will be no tenganecalt item. Now that outsings are required for new purposes, we must, if we can, retrench those buildings whose objects are obsolete. Open-air threshing may appear visionary; but it is quite common with the new muchinery; nor would any our perform the tedious new meannery; no wound any one per to the the con-manageure of setting houses and men to pall down a rick, place it on carts, and boild it ma again in the barn, who had once tried the simple plan of pitching the sheaves at once into the threshing machine. These moveable steamengines have been gradually improved by the yearly trials of the Agricoltural Society. It will be seen by Mr. Carr's Report" that such yearly trials are still needed, as the worst of those exhibited consumes three times more coal than the hest. Mr. Locke, M.P., whose engineering ex-perience gives weight to his jndgment, thinks that in other respects, too, they might be still further improved:-

To P. Peser, Esq., M.P. London, 11, Adam-street, Adelphi,

DEAR SIR, July, 1801.
The detailed report of Mr. Carr, of the rasults of the experiments made on the portable steam-engines, has already been presented to the Jury over which you provide; and as you desired from me a short statement of my views of Mr. Carr's report, I beg to send you the following:—
You will find in the tabular statement of the consumption of fuel, that the several makers stand in the following order of excellence:-

					P	leg home	-posets	
Mesers.	Hurnsby and Sons					6.79		
	Tuxford and Sons					7.46	79	
	Clayton, Shuttlewo	rth	ap	4€	ъ.	8.63	11	
	Barrett, Exell, and	A	ndr	8 TK		9.20		
	Garrett and Sons					11:65	99	

* The mode of ascertaining the sumunt of duty done and * The mode of ascertaining the anomat of datay data and weight of coal comments, in a given time by each engine, was the same as that adopted by the Boyal Agricultural and the same as that adopted by the Boyal Agricultural and Machinery; and the dynamous-time runed from the time and Machinery; and the dynamous-time runed from the time and Machinery; and the consulting engineers, movely of patients and almost different consulting engineers, movely of plating their plinder and working parts in a wronghi-iron box at the end of the boiler/a baying a part of dozen to be the above up where not in work, which if certainly their a ground them, and if many particular water-certainfielding.

this, the tubes at the smoke-box end were rendered difficult There were two ougines brought to the trial to be got at. yard upon this construction, one a 6-horse direct-action upright cylinder, the other a 4-horse oscillating; but the former worked out the most duty with the least fuel.

Messrs. Hornsby and Son were distinguished by placing thoir cylinder inside the upper part of the fire-box, the whole of which, together with the rest of their boiler, was carefully felted and lagged with wood; and they had a wall-constructed water-heating apparatus in their smoke-hox, which also helped to produce the satisfactory result of

great aconomy in fuel. Messrs. Garrett and Son, in their engine, had made a great effort to combine lightness with strength, having subgreat effort to combino lightness with strength, having mix-structed venogist for east non in the bearing for erank shaft stated venogist for east non in the bearing for erank shaft bearing surface, but the fire-loos, to insure greater strength and e leas smooth of fifst surface expend to stem pressure, was made partially eval, and considerably smaller than leaves and the state of the state of the state of the level of many of the tabes of the boller, and the finner hav-ing to descend over a bridge, the manufacturer approach themselves quite savare that this construction of fire-loor themselves quite sware that this construction of fur-box would present their studing quite so well as some with respect to fact consumed, but considered that superior promote, that close of ergion seldow solving more than a form months in the year, and having to be conveyed from form to farm. And I certainly econdered this engines that the promote the superior of the superior to the superior of the superior to
In a subsequent trial, however, made to test the strength of Liangenneck coal with Mesers. Shuttleworth's engine, it appears that both engines burnt precisely the sumo amount of fuci; and Mr. Carr has deduced from this circumstance, that, but for some accidental derangement in the slide, in the main in bulated experiments the consumption of Mesors. Garrett's englise, which was 11-65 lbs. per horse-power, would not have been more than Mesors. Shuttleworth's, or 8.63 lbs. per horse power.

This mode of reasoning is, I think, liable to objection; and I allude to it with a view of preventing an undue im-portonce being attached to it. liesides, I do not entirely concur in the remarks made by Mr. Carr on the construction of these two engines.

Mesers Carrott's fire-box is, in my opinion, decidedly in-ferior to Barrett, Exall, and Co.'s; and the workmanship generally is not superior. It is lighter, and so far it is better; but whether the smallness of the fire-box, to avoid weight, may not entall other disadvantages, is a question on which a doubt may fairly arise.

As regards the engine of "Ransomes and May," which

As regards the engine of "Ransomes and May," whech, from some accidental defect, did not go through a trial, I would beg to say, that is point of workmanship it is equal, it not superior, to any of the engineer tried, I think the first the engine of the engine of the engineer the engineer other respects it is, I think, a good, serviceable equine. As regards that other engines, I spreae entirely with the remarks made by Mr. Carr. If I might be permitted to suggest as milled satives to the makers of these engines, I would hep of them to attend more to the proportions of the varieus working parts, and less to external ornament. There is a want of good proportion in several of the engines; and this, to a mechanic or an economical farmer, is of more importance than a profusion of hrace. JOSEPH LOCKE.

Much progress, however, has been made, as our best eugine new consumes less than 8 bs. of coal per hour per horse-power; whereas an engine made by the winning manufacturer of four years ogo consumed 28 lbs., that is, four times as much fuel for the same work

Liangenneck and Newcastle coals, she worked oot to a decimal the same number of peands of coal burnt per berse-power per hour as her competitor, which, allowing for the proved difference in the strength of the coal in forour of the proved difference in the strangth of the coas in notons on the Welsh, would have given Messrs. Gurrett 8:63 lbs. of that coal burnt per horse-power per hour instrad of 11:65, as shown in the tabular statement; which more favourable result I think them oulte entitled to, as the democratent in the slide was parely accidental.

Messrs Clayton and Co.'s engine was exceedingly simple, and worked well; the governors had perfect control during the trial, which was passed through with great steadiness and eredit to the makers. As regards the other engines, I will proceed to notice

As regards one order as tested:—
Messrs. Hensenan and Son's 4-hors, of moderate workmanship, was evidently the production of a novice. The
boiler was too small for the power, and the consumption of fuel more than as much again as most of the first-class

engines.

Mr. Butlin's 41-horse: workmanship moderate; arrangement of working parts simple; and duty done for coal con-sumed fair when compared with others of its class. Mr. Caboris 9-hors: workmanhlp moderate; arrangement of engine III designed; and entire weight far too great to be generally suitable for a portable engine. The beller being a large one, with enniderable heating surface, the

being a large one, with considerable besting surface, the duty done are consparatively good, and with the surface of the duty done are comparatively good, which we have a surface mainting neederste. The cylinder and creak-shaft hewing in this conjugate price of the surface of the surface of the was bothed in the boiler, an arrangement giving superior and the surface of the surface of the surface of the surface was been as the surface of the surface of the surface of the was bothed in the surface of the surface was large for the size of the engine, and the duty done for eval consumed has more nearly approaching in first-class computings; in this, as whole, I cannot peak let with iavourably of the engine.

Mr. Barrall's 6-borse: workmanship fair, and arrange-ment of working parts simple and good, and contemption of fuel comparatively moderate; so that in this case also I must raport favouably.

Mesars. Ros and Honson, Strand, London, 4-horse; workmanship very inferior; goneral arrangement ill-designed

2. Threshing-machine.

This is the most complicated agricultural machine in general use; but, though it has also been long in use, and though repeated trials have been made of competing threshing-machines at our great agricultural shew, it was threshing-macmine as our great agricultura succes, it was not till the Nerwich Meeting in 1849 that a very singular discovery was made of their great imperfection. It oc-curred to the consulting engineer, Mr. Amos, that the draught of the common threshing-machine worked by horses, should be tested when empty; and it was ascer tained that some of the best 4-horse machines required no less than three horses, putting out their strength as when at plough, to keep the machinery in motion withent threshing at all. In ether words, of the four horses dragging round in their weary circle, three were overcoming the resistance of the machinery; nue only was coming the resistance of the machinery; me comy was threshing the own. Technically speaking, the duty per-formed was 25 per cent, ealy. So little, too, had the makers atudied the principle of construction, that this coormous waste of power was capriciously divided be-tween the burn-works and horse-wark. To quote Mr. Thompson, of Moat Hall, whose reports always show that he has mastered his subject-" The machines of Messrs. GARRETT and Woods furnish an excellent illustration of this point, the whole friction being in these cases 2:78 and 2.81—all but identical; the friction of the barn-works being, however, 2.07 and .46, while that of the horse-works was .71 and 2.35." Thus the makers were working so much in the dark, that, if the two best of the correlative parts had been put together, one horse in the four would have overcome the resistance, and the duty of trial. 75 per cent, would have been achieved; but if unfortunately the two werst had been mated, the resistance of the se machine would have amounted to four herses and a half before any corn was put in for threshing, and there

would have been ne duty at all.
The same rigid trial was applied to the threshing-machines above at Exeter in the following year. It then
all reduced their dead resistance from 2 for 1/1, er enchalf. Yet there was still found a vast difference in the
power required by the computing machines. For threshing 100 sheaves in a minime, the two extremest of prover
them which required triple power was inferior to that of

and climsy; and cast iron used freely in the place of wrought. The coal consumed for duty done was three times that in the best engines. Messer, Ronsomes and May brought an engine to the

that in the best engines.

Messes, Ransonice and May brought on engine to the
trial yard, but from some cause it could not be made to
work. It was a trunk cugine, which, in so small a power as
5-bose, weuld give rise to much extra friction.

the machine which required least power. This short summary of what has been done already seemed necessary in order to show the interest attaching to the following report by Mr. Thempton of the trial in the third year for the present occasion:—

1. Threshing methlers may be divided into two classes—these objects for team or water power, and them increade make the most of the continue of the many of the most object for the many of the most object of the many of

works. The recompanying tachear form shows the results obtained, which were extracted at the tacklosing way:— The recommengine electred to drive the three-laing meablines. The recommendation of the recompanion of the recompanion of the represented conselvers power. An appearing was then astacked to it, which registered on a coancer the reculations of tried, the maker was saked how many better-power in tried, the maker was saked how many better-power in tried, the maker was saked how many better-power in territorial, the maker set as a calculation was made of the pressure of a term required. In each case, and the pupils of the pressure of a term required in each case, and the pupils of that the exclusion of possion was midatationed during the

On reference to the tabular startment, it will be observed that cell, given the "somital heter-power," as stated by that cell given the "somital heter-power," as stated by the power of steam set until required during the trial. The figure in lates eclosures for the most part identical, it for the power of the start of the state of the state of the social between the power of the start of the state of the social between the power of the power of the start of timel power, which is recorded against them in cell. 2. In whilst therefolling the attention of the start of the start whilst therefolling the attention of the start of the start 3] cest. Cell 4 shows the set pressure of steam at which calculated from the data show methods. Cell 5 shows

At the close of the trials, two engines, via., Messrs, Garrett's and Messrs, Clayton's, were put through a second trial, to test the difference as stempenenting power between the Linugenneck coal nated in these trials and the best Newcastle, when the difference in favour of the former was found to be as 8:63 to 11:3 lbs. of coal burnt per horse-power per hour.

TABULAR STATEMENT OF RESULTS.

	annes or	Man	nfact	utetu				Nominal Hone-power,	Time getting up Steam.	Coal need in getting up Ni cam,	Bumt per Bores peac per Bour.
-				_		-	-		Minutes,	Ibe.	The,
Tuxford an				-	-	-	-	6	53	56:68	7.46
Ditto t				-	-	-	-	4 :	415	35.60	10.80
Hensman a				-	-	-	-	4 1	33	29:00	18-75
florasby ar	d Some	-	-	-	-	-	-	6	49	33:23	6-79
Butlin -	-	-	-	**	-	-	-	48	50	42:00	14:71
Garrett am	Son*	**	-	-	-	-	-	5	42	25+50	11:63
Caborn -	-	-	-	-	-	-	-	9	44	52:00	12.48
Ciarton, St.	attlewe	orth.	ate	Co	., N	0, 1	-	6	32	35:40	8.63
Ditto		ditte	i.		N	0. 9	-	6	42	Withs	leawn.
Barrett, E.	all, and	i Ar	dre	11.1	-	_	-	41	26	25:56	1 9:20
Barrell -		-	-	-	-	-	-	6"	28	35:00	13.10
Remourance o	nd Mar	v.	-	-	-	-	-	5 1	70	With	frame.
Noe and H	neen	-	-	-	-	-	-	1 1	83	75:20	25.80

11. S. THOMPSON.

the comparative time of performing the same amount of the comparative time of performing the same amount of work. This, it should be mentioned, is not the observed time, but the time calculated from the registered revolutions of the engine. The pressure of steam and the number of revolutions per minute which were equivalent to the horse-power applied to each matchine having been sceralized, the whole number of revolutions made during the trial. the whole number of revolutions made during the trial, divided by the calculated number per minute, gave the number of minutes required for the performance of the work at the specified power and spect of drum. The figures in col. 6 represent the heree-power that would have been required in each case to do the work in one minute; and show therefore, at a giance, the performances of the several machines in respect of speed and power combined. The lowest figures represent the most estimatory results. Col. 7 lawest figures represent the most satisfactory results. Col. 7 shows the quality of the work done in respect of the three points of "clean threshing," "broken grain," and "state of straw." In cach case a number is assumed to represent perfect work, which is considered to bear a proper proportion to the imperiment of the point—on that the total number obtained by each machine, as shown in the lest column, may riy represent the comparative goodness of the work. The second trial was conducted in precisely the same manner as the first, the only change being that barley was

threshed instead of wheat. Those machines only were allowed to compute which had acquitted themselves satisfactorily at the first trial.

For the guidance of those who are not in the hahlt of For the galaxies of mose who are not to see mann or examining tabular statements, it may be useful to point our that the two columns to which attention should be particu-larly directed are those numbered 6 and 7—the latter belong the most important. On ascertsining by the "total" num-ber in col. 7 that a machine has done its work well, col. 6 ber in co.[†] that a machine has done its work well, co.[†] a should next be consulted to accertain whether under that should next be consulted to accertain whether under that head it received a high or low figure; if the former, it must be either slew in its performance or heavy in its draught; but, if the latter, it may be inferred that it had threshed when well, and the second trial would be referred to to ascertain its capabilities with respect to forty. An exami-nation of this kind will show that the machines which stand first in order of merit are those of Messre, Holmes, Hens-

mnn, and Garrett; and their performances having been in all respects satisfactory, Medals were awarded to each of then sem. The slaker attached to Messrs. Holmes's machine was receilly commended as being very efficient, and yet adding little to the draught of the machine.

FIRST TRIAL-WHEAT.

				1	2	3	4	5	0		7				
						Revela-		Mussies in Threshing	Here pour		Quality of Work.				
	_			Nominal Horse- power.	Horse- power required whilst	tions of Univerg- pulley, as shown	Presure of Steam in Re-	of Wheat- sheares at the specified power	Thresh 2; cut. of Wheat- shearen in	Twenty represent perfect work	Twelve represent perfect work	Fight represent perfect work.	Total		
					Transmig	counter.	an post	and speed of drum	one minute.	Clean Threshing.	Broken Grun.	State of Straw.			
	Hornshy					414	15:76	usta. ecc.	16-88	10			T		
1. 1	Blythe	-	-		1 :	616 407	15.20	2 411	11:76	18 10	12	1 1	31		
2. 2	Garrett	-				260	32:00	2 21	13.96	18	12	1 6	23		
3. (Crosskill	Ξ.			1 2	302	19:00	9 27	9-84	16	12		35		
5 1	Hensman			7	1 7	338	17:50	2 40	10.67	20	12		40		
5. 6	Caborn	_		i i	6	417	26:00	3 5	18:48	20	8	, A	38 36 40 33		
7. 1	Barrett &		. 1	6	6	335	26:00	2 58	17.88	16	10	s	31		
3. I	tansomes	-	-	4	6	368	26.00	2 44	16:44	18	6	6	30		
	Holmes	-	-	6	6	248	28:50	2 0	12:05	20	12	7	33		
0. 8	enith -	-	-1	3	6	505	21:00	4 0	24:00	20	111	7	38		

SECOND TUIAL-BABLEY.

1. Garrett	160 32:00	1 27 8·72	20 10	8 33
	316 19:00	2 47 11·15	20 11	8 30
	168 28:50	1 20 8·19	20 12	8 40
	195 17:50	1 27 6·62	15 12	8 33

The difference, as shown by the Table, in the power regard by different threshing-machines for threshing a given quantity of straw, which was 1 to 3 at Exeter, is out much less now, being still as high as 1 to 2½. The speed, however, with which the straw is passed through the machine must not, of course be made the sole test of excellence. Clean threshing is a most material point, in which some muchious are very deficient, as is proved after rain by the grassy verdore of a straw-heap so threshed. Thus the easiest-working machine, Mr. Crosskill's, seems to have gained that case at the expense of its efficiency, as appears in the column which registers the eleanness of the threshing. On the other hand, clean threshing moy be threshing. On the other hand, etcan threshing moy be obtained by beating the sheaves too roughly, as must be the case with Mr. Hornsby's, which bruises the straw, and what is worse, breaks the grain. Still, the power required by the three prize machines averages only about 12, while the maximum of power required is just deable, namely 24, by Mr. Smith a, which, therefore, of course wastes half the power, whether of horses or steam, that may be applied to it.

A separate trial it will be seen, was made with barley.

sters io most counties refuse to boy barley unless threshed by the flail, because most machines bruise the grain, and destroy its power to germinate. The assertion that maildestroy its power to germanue. The saserino tous mani-ing barley could be threshed by machine, would in many parts of England simply be disbelieved. Yet where the best machines are used, the mainters no longer object to barley so threshed; so that it is most important to test all threshing-machines with barley. Enough, however, has been oow demonstrated to convince farmers that they should no longer huy blindly the threshing-machine which comes nearest to hand, buying thereby double or perhaps treble labour for the same or worse work, and leaving their barley, which is, probably, half their corn-erop, to the tedions work of the fluid though the labourers themselves begin to regard that work as too irksome, There remains only in this class of machinery to apply

Loug as the threshing-machine has been known, the malt-

the test of ecocomy, and compare the cost of threshing by flail, by horse, and by steam. In the two former cases the rick must first be removed into the barn by eight men, a boy, and two horses-I take the numbers as they bave been employed on my own farm, because it is difficult to 13/ 10+

ascertain such figures, and the comparison will at least be a fair one:-

Cost of barning - - 17 6 The price of threshing wheat hy flail varies, with the The price of threshing wheat hy flash varies, with the yield and the district, from 2z. 6d. to 4z. a quarter. Three shillings then will not be an unfair average. If the rick hold forty quarters, we must add 5d, for barring, and the cost will be 3z. 5d, per quarter. In threshing with the unimproved machines, I find on

inquiry that ueither my neighbours nor myself have hitherto got out more on an average than thirteen quarters a-day. The supposed rick would take, therefore, three days to thresh :-

4 women, at 8d		-			0	2	8
1 boy					- 0	0	6
4 horses, at 3s	-	-	•	-	0	12	0
					1	2	0
							3

3 days' threshing	-				3		0
Barning	-				0	17	6
					-	-	-

The whole system of horse-machines has cost us, there fore, 2s. a quarter. But improvement has been carried further: for steam-threshing we require additional hands, sixteen instead of ten, but we get over three times the work, passing the rick is one day, not three, through the machine. The figures on steam-threshing will be then as follows:—

1 engineer (head carter) - - - £0 2 6 10 mea, at 1s. 4d. - - - - - 0 13 4 5 women, at 8d. - - - - 0 3 4 Coals, 34 cwts. - - - - 0 3 6 £1 2 8 If we make up this sum to 30s, for the use of the engine,

the cost of steam-threshing will be 9d.; the saving as compared with hand-threshing, 2s. 8d., or with horse-threshing 1s. 3d.; an average of 2s. per quarter of wheat —a large saving certainly to be effected in one only of five main departments, but not larger, I believe, than may be shown to arise from the use of improved machinery in most, if not all, of the four other departments as well, It may be objected that credit is given for the value of the borses' labour: and though in valuations horse-work is often charged high, we are ant. I know, as farmers, to regard each particular use of horses as costing us nothing. This view may be even correct on small matters occurring at leisure seasons, but it would be false if applied to a demand like the present, large in itself, distressing also for the horses, and liable to occur at all times of the year. It can have no truth in it at all, when we endeavour, and by reformed implements in all other departments are enabled, to reduce the permanent staff of horses kept on the farm: fur this plain reason, that, if we do not carry the reducition throughout, we either press the horses unduly at one time, or require harses to be kept which are madeau at other seasons. useless at other seasons.

Since the trial for the Commission, a fresh trial has been made at Bridliagton. There the prize was awarded to a machine by Messrs. Clayton, Shuttleworth and Co., which not only threshes out 50 quarters in a day's work, but dresses the corn also to a great extent at the same time, yet requires, as the makers state, only fourteen hands for both purposes; not more hands, therefore, than we have employed to get out with our horso-machines, and afterwards dress 13 quarters:—

> Six men, at la.4d. -Six women or boys, at 8d. - - - -Coals, 5 cwts. - - - - - - -£1 9 0

If we add 7s, for wear and tear," we find the wheat to to we had 1s, for wear and tear, we may the whent to be threshed and wismowed for the almost incredibly low sum of 7d, only per quarter. Messrs, Clayton, therefore, have now taken the lead in the improvement of threshingmachines.

3. Winnowing-machines. Even winnowing is become a refined process; for instend of trusting the corn to the wind, it is now placed in a machine so discriminating that the best of these, Messrs Honssay's, required, on the part of the Judges at the York meeting, specific terms for describing its work more than are easy to understand; but the Judges' account is than are easy to understand; but the Judges' secount is for that very reason worth quoting:—"Several machines," they say, "were tried, but could not get through the grain, shorts, straws, and chaff, as it came from the three-ling-machines, without being choked or requiring much more time than Horanshy's, which did its work well, parting the whole into best corn, good tail, tail, whites, screenings, and chaff, at the rate of about fifteen quarters an hour, and dressing over the second time at the rate of above twenty quarters per hour, parting the whole into six parts, as before, in a workmanlike manner." Such masterly mastication and digestion, making the contents of our supposed wheat-rick, forty quarters, in five hours

resdy for market, must be appreciated by farmers; and Mr. Hornsby's winnower has not lost character at Kensington, as appears by the Judges' Report :-Winnering-machines.—Messrs, Hornshy and Son are, above all others, the mast successful in these machines, dressing more than double as much corn as any other in a rough state. Theirs is fitted with a spike roller, working through a gratlug, and forms a sort of hopper, separating the earn from the chaff in the rough paley state, as it conce from the threat-inc-mackine, without being previously riddled; and can be adjusted to sait earn citter in rough chaff or in any other state; the second time over, a slide-board is adjusted in the front of the grating, and is excellent for finishing the corn for market. We therefore awarded it a Medal. Price

Mr. Goocu exhibited a machine which did its work well, but too slow.

C. B. CHALLONER, The eorn being now fit for the miller, the task of a reporter on agricultural implements fifty years since would have ended; nor is it within this branch to enter

on the new process of grinding, by which the finest flour is produced from ordinary red wheat; but though the preparation of food for man belongs to another department, there is an entirely new class of implements be-longing to this Jury which must not be passed over. V. MACHINES FOR PREPARING THE FOOD OF STOCK. Formerly onr farm stock was fed with hay, or turned

out to pick over straw, sometimes with whole turnips thrown to them. But practice, anticipating Baron Lie-big's hrilliant discoveries in animal physiology, found that the labour of the jaws wasted the beast's muscle and thus retarded his progress. Our stock, therefore, are saved even from that exertion, and distinct machines have been invented for mincing each description of food with which the animals are made ready fur market. The most common of these is 1. The Turnip-cutter.

The test of inbour saved cannot, of course, he applied where the labour is applied to a new object. These machines, however, have recommended themselves to widely, that to prove their advantages is almost idle. Still it descrees mention that, in the opinion of good farmers, lambs fed with the aid of a turnip-cutter would be worth the country of the course of the c more at the end of a winter by 8s, a-head than lambs fed ou whole turnips, the cost of using the machine being but Is, per head, and of the machine itself 51, only. If this be true-and it has not been disputed-this simple instrument gives a saving of 70s, an acre upon the turnip crop, Hitherto the Banhury turnip-cutter has stood almost alone,

I am told that this would be a fair allowance for wear and tear on a farm of 500 acres, where the steam-engine is used for chaff-cutting, grinding, &c., as well as threshing.

thousands, I believe, being sold in the year; but in the Exhibition Building it has at last found a rival,

Turnip-enters.-Three of these implements were tried; that of Mesers. Burgess and Key is upon n different prin-ciple to those generally in use; their implement cuts a very large amount of roots for sheep and heasts at the same time. exceedingly well, and requires a very small amount of power. There is a great facility of changing any of the kuives that may become blunt or breken; and there is a very simple and ingustens method of letting stones or gravescape before coming in contact with the knives. Price 54. Both for novelty and usefulness we awarded it n Prize Medal

Mr. B. Samuelson (successor to the late James Gardener. Mr. R. Samnechou (successor to the late James Garcheers, Clashury) has very much improved that well-known in-plement. The framework is made of east-iron, light, pert-names the properties of the facility of getting at, repairing or adjusting the knives. Price 5C. We assured a rize Mrail. Surelported was tired, but could not compote allier in construction or work with the other two.

2. Chaff-cutters.

These instruments, which cut straw into very short lengths for feeding stock, are so called because there not being enough natural chaff for the purpose, artificial chaff was made in this way. At first the straw was cut in a rude box, with a chopper raised by the hand, and cost 2d. per basket; then with a circular movement, costing 2d, per basket; then with a circular movement, cosing idd; and may now be cut by steam-power at not much more than 4d, per basket. The process makes, too, an arable farmer independent of natural meadow; for sheep, it is well known, especially breeding ewes, require much dry food; but this artificial chaff mixed with rope-cake, takes the pince for them of hny, or hay may be ent with the straw. It is also worth while to cut hny, though consumed by itself. Even in the new circular chaff-catters we find a difference as to the labour required by them for preparing a given amount of chaff. The difference, indeed, was so great in the trials at York, that it is worth while to quote some of the figures :-

Weight of Power

A. t. 4. He. the. Corner - II O O 14,125 Did its work well. 112 Garrett-10 10 0 112 Crosskill 18 0 0 44,800 This machine made very rough work.

This table is most instructive; for we find here three first-rate makers staking their reputation in a public trial on their respective instruments, one of which nevertheless requires three men to do badly what another enables one man to do well. Surely farmers must learn from such results a more careful choice of their implements. It is due to the two makers last named to mention that the lesson was not thrown away on them.

Chaff-cutters,-Mr. Cornes, of Burbridge, has, in the trials at Kensington, mainjained his previous reputation for the greatest economy of power in proportion to the work per-formed; also the machines of Messrs. Garrett and Son, and Messrs. Smith and Co , of Stamford (171.), are worthy of the highest communication, the latter for an ingenious applica-tion of a spring lever to throw the rollers out of gear when starting the machine. To these three we have therefore starting the machine. nwarded a Medal, C. B. CHALLONER.

3. Linseed and Corn Crushers.

The same extraordinary disparity of power required was found also two years since, at the Norwich Meeting, in this class of implements :-

> required. Ibs.

Stanley - - - 112 W. Nicholson - 112 24,239 one; so that to obtain the same work four men must turn one machine, while a single labourer turns the other, Linseed and Corn Crushers .- Mr. Stanley, of Peterboron

at present stands unrivalled with this machine. By his recent improvement of a lever in front to relieve the pressure when the corn is first let in upon the rollers, he has perfected this machine, which was much needed, as machines on this principle have been made by various other makers, but have always been subjected to the inconvenience of being choked with the corn at starting. On these trials Mr. Stanley's machine required less power is drived it than others; and was, in consequence, awarded a Prize Medal. Mesers. Barrett and Exull's creater merits commendation,

Messrs, Garrett and Son have introduced some additional motions, and have thereby added considerably to the friction of their machines.

C. B. CHALLONER.

4. Oil-cake Bruisers. Not being able to procure the thick cake, the machines

Not being these to precure me them come, one amounts were tried with the small 3-th, caker, exhibited a machine, Mr., Nicholson, of Newark-on-Trent, exhibited a machine, the price of which was 5d, which this did its work very well. Messrs, ilorasby brought two very excellent machines (I think the larger one is to be preferred), breaking for beasts, sheep, and manure equally well. To each of these exhi-bitors a Prize Medal has been awarded. Others, on the same principle, were tried, but did not do their work so well.

C. B. CHALLONER,

5. Mills for grinding fine Meal.

Mills for privating few freed.—The best metal mills that have been produced for the operation are those of Mesars. Hurstood, of Daywich, and Mesars. Crosskill, of Beverley; that of Mesars. Hurstood, which is composed of a series of cutting rings served upon a cast-free paich, having the dress somewhat resembling the common millstone; the drift increased from the centre, to enable it to clear itself.

increased from the courte, to caable it to clear itself. The court court with its great advantage over the old mills. This mill did six bestiest of bearing per hour, with a power of a tittle more than tree boves, and it propietable to beats, a tittle more than the court of the propietable to beats, Mosens Croeklill's is an American Investion, consisting of a masker of caucition plates truesd up in circular of a masker of caucition plates truesd up in circular of a masker of caucition plates truesd up in circular guided, and faired accentric, which gives them a next of ellip. The mill requires great power, and should be driven at great speed. By changing the plates it will grind anything from lieseed to flur-stones. In the trials at Kensington it ground linseed, barley, beans, and outs very well. Price 28t. ground inseed, bariey, beans, and outs very well. Price 28t, We awarded it a Prize Medai. Mr. Bentali, of Woodbridge, exhibited a suntil steel mill, requiring very little power, which split beans very well, at the rate of ten pecks per hour, and deserves commendation.

Price 61, 6s. C. B. CHALLONER.

6. Gorse Braisers.

These implements have reached a high degree of per-fection, but whether their application has increased in proportion, or has been found profitable, there is no sufficient information at hand, Mr. Burrell's, of Thetford, did the most and the best

Mr. Burrell's, or ancincin, on the more man work; and although it consumed rather more power than some others in bruising the gorse, it did outs and limseed at

some others in brushing the gorne, it did out and lisseed at molecular aimoust of power. We therefore warsheld is a molecular aimoust of power, we therefore warsheld is a Messes, Harrett and Exall, of Reading, subhilded as Messes, White, of Hubbres, exhibited a median worthy of communication. Price 23. Amedican the Messes, White, of Hubbres, exhibited a but required to the communication of the power of th

the trials. C. B. CHALLONER.

7. Steaming Apparatus.

Besides the various modes of subdividing, it has been often preposed to cook the food of animals; but the prac-In fact this is the greatest difference we have found to spread widely, and the advantage must be yet in any machine worked by hand, being about four to regarded as doubtful, excepting as regards the steaming of potatoes for pigs; but even diseased potatoes, if not too far gone, by being thus treated, may be rendered good victuals and be stored up for mooths. It seems hardly worth while to set up capensive fixtures for this purpose only, especially as we have an excellent apparatus, Mr. STANLEY'S, which, like Soyer's magic stove, may be used when and where it is wanted. When tried at York, it when and where it is wanted. When tried at York, it heated 126 gallons of water, while another heated but 70, little more than half, with the same allowance of fuel; vet this inferior one had been the best two years before,

Cream. Time.

Exhibitors

tural Society was not satisfied with the butter so rapidly made. The time in the present trials was reduced to two minutes, and even to one minute, but in the letter case with eream which, having come from Jersey, had been already balf churned by the steam-packet.

Thirteen churus were tried in the first trial, with ordinary eram of good quality; the anusacd tabular form will give the results. As will be seen, many of the churns worked equality well, and some of them which did not do so well would perhaps have shown a different result in an atmosphere more congenial to the making of butter. However, in both The poor of the chura was first aereterised by the American Companies of the companies of the chura was first aereterised by the American Companies of the comp

Form of Chara, Thermometer,

Quality.

FIRST TRIAL OF CHURNS. Butter, | Besidue.

	Quarts,	Min. sec.	Ibs. or.				Air.	Cream
Wilkinson	4	11 0	3 5			Wood,		1
Tytherleigh	10	18 0	9 2		Soft	Tin	70	69
Destrey	4	16 0	3 12		Do			
Ditto	9	11 0	8 12		Do			. 1
Patrick	10	20 0	9 4		Do.			
Burgess and Key	4	10 0	3 12		Second best -			
Drummond, America o	6	9 0	5 2		Not made -		72	71
Lavoisy	2	2 0	1 13		Third best -	Tip.		1 i
Dalphio	6	9 0 2 0 8 0 7 30	5 0		Soft.			1 1
Atlen	6 6 6	7 30	4 2		Do.		77	74
De Pourquet	8	9 0	2 6		Do.			1 1
Duchéoe	19		7 9		Not all made.			1 1
Smith	5 1	22 0	4 10		Indifferent -	Centrifugal.		
					- Mary Control of the			
		Високр Т	THIAL, WI	ти Јина	T CREAM.			
(1 1
Wilkinson	4	1 45	4 0			Wood, box -)	1 1
Burgess and Key	4	1 45	4 2		Very good -	Do. do	1	1 1
Lavolsy, French	2	0 45	2 2		Third best -	Tin	72	75
Ciare, Freuch	1	1 45	1 01		Good	Do	1	1
Duchène, Belgian -	30	3 30	27 0		Second best -	Barrel, wood	,	

VII. DRAINING.

This last class of machines, those connected with draining, ought perhaps to bave formed the first class, inasmuch as draining is the only road to good culture on land which lies wet; but es much land does not require drain-ing, and as it does not belong to the reguler task of the farmer, but is a work to be done once for all by the landlord, the machines employed in this mode of improvement have been reserved to the end.

1. Tile Machines.

Twelve years ago draining-tiles were made by hand, cumbrous arches with flat soles, costing respectively 50s. and 25s, per 1,000. Pipes have been substituted for these, made by machinery, which squeezes out clay from a box through circular holes, exactly as macaroni is made at Naples, and the cost of these pipes averages from 20s. down to 12s. per 1,000. The old price was almost probihitory of permaneut drainage, excepting where stones were at hand; the new invention has reduced this permanoent improvement to a rate of 4l, or 3l, per nere, not exceeding in cost the manure given to a single turnip crop in some bigh-farmed districts. This result has been obtained by a most spirited competition among mechanics, as no less than thirty-four different tile machines com-peted in 1848 at the York Meeting. Since then the struggle has been practically between three only, on

The trial of Mr. Stanley's apparatus was overlooked accidentally, because a trial was thought unnecessary, there being no moveshie apparatus in competition; but the Jury having decided that no price abould be ewarded without trial, the oversight could not be remedied. There was also a fixed arearetus which could not have been tried.

which, in the present year, we have the following re-

Trial of Tile Machinery.—I recommend to the considera-tion of the Jury the Tile and Brick Machines of Mr. Clay-ton, Mr. Scragg, and Mr. Whitchend.

I first tested their capacity in screening the earth. The result of this trial was that in five minutes

I give the preference to Mr. Claytoo's screen, as it clear light the pertion rejected consisted almost entirely of small stones, &c.; whereas the screens of Mr. Whitebead and Mr. Scragg retained a large portion of elay.

and Mr. Seregg resisioned a large protion of elsy.

In the manufacture of large pipes, intellude in diameter, by bostnasia destrey and the use of a vylindrical base.

Mr. Seregg is much shapished the internal arrangement of bit matchine by substituting a claim for the reck and parameter of the protion of the state o machine.

A. HAMOND.

The pipes so made are placed under ground with narrow spades; but in the form of the narrowest spade, if I mey venture to speek from my own experience, it is clear that, so far as regards clay authority, a step has been taken backword in substituting a concave tool for the old trian-gular lance-heeded tool of Essea, with which fer more work can be done, by less exertion, too, on the part of the labourer. There is hope, however, that on clay soils manual toil will be superseded by the use of

2. The Draining Plough,

Bot for the American Reapers, Mr. Fowner's draining plough* would have formed the most remarkable featore in the agricultural department of the Exhibition. Won-derful as it is to see the standing whent shorn levelly low by a pair of horses walking along its edge, it is hardly, if at all, less wonderful, nor did it excite less interest or surprise among the crowd of spectators when the trial was made at this place, to see two horses at work by the side of a field on a capstan which, by an invisible wirerope, draws towards itself a low framework, leaving but the trace of a narrow slit on the surface. however, to the other side of the field, which the framework has quitted, you perceive that it has been dragging after it a string of pipes, which still following the plough's snout, that hurrows all the while four feet below ground, twists itself like a gigantic red-worm into the earth, so that in a few minntes, when the framework has reached the capatan, the string is withdrawn from the neckince, and you are assured that a drain has thus been invisibly formed under your feet. The Jury decided as follows:-

The implement went through the trial very well, laying in the titles with great apparent case, worked by two horses, with a capetan which was firmly and easily fixed into the round, and afforded a firm traction to the plough by means ground, and alteriors a minimum or the property of a wire rope and pulley. Progress has been made, since the implement was exhibited at Exeter, in rendering the level of the drains in a degree independent of the level of tha surface; but there is still room for further improvement in giving to the drain a uniform incline.

The award, therefore, of the Jury was Honourable Mention. Since that trial I have thought it right to make further inquiry into the work of the draining plough. In the first place, the trial drains were opened and laid bare from end to end. Straightness is of course one requisite, and the pipes were laid straight; closeness of contact another, and they were perfectly joined. In they were perfectly joined. In level, the point on which the Jury doubted the perfection of the work, there was some deficiency, which, on entirely fint ground such as this, was a decided fault. That fault, however, has since been remedied for clay land at least, As the plough was shown last year at Exeter, it could not possibly lay a level drain, because, its under and upper parts being fixed at any unvarying distance, any uneven-ness of undulatory surface must be faithfully copied by an andulating drain below. This year the two parts were so connected that the workman, by turning a screw, can raise or lower the underground snont which barrows out the drain. But at the trial the use of this serew depended on the workman's judgment, which cannot give the drain absolute accuracy. A balanced level, however, has now been added to the plough, by which the changes of surface are made plain to his eye. Other improvements have also been made in the implement. The horse-power re-quired has been reduced by a fourth, and the windlass at which the horses work need now he shifted only once in As to the economy of using the draining the day. As to the economy of ming use unaming plough, it is too expensive to purchase, unless for a large landowner, but it may be hired by the year or the month. Its inventor is also ready to excente work at his own risk by contract, at a saving of from one-third to twothirds on hand labour-the greater the depth, the greater being the saving. I have only seen the actual cost of two drainages that have been made by this plough. They were were both without tiles and shallow, being only 24 feet deep. Taking the highest of them, and adding the cost of tiles, the price of tile-draining land at that depth, and at 33 feet apart, would be 14s, only for work, and with 14-inch pipes, at 15s, per 1,000, 18s, 2sf, for tiles, all together 1f, 3s, 2sf, including horses and hire of machine, The plough goes as well, however, at a depth of 4 feet,

The machinery is made by Mesurs. Fowler and Fry, Templepate, Bristol.

nor coold the additional cost be material. The plough Depth ft. in I S with piper S O ditto. S S ditto without pipes. 40 from 2 ft. to 4 ft , with tiles. Mr. Harris, Bullington . . now working 3 &

has worked on the following farms :-

In clay subsails, with a gentle fall, the success of this new implement seems to be beyond doubt, and in all eir cumstances the inventor is ready to undertake the risk of the execution

In now closing this Report, I shall be permitted to sathat, although it is impossible adequately to valoe any prodoctive machinery without detailing its objects and estimating its power to diminish human toil, or to increase the results of that toil, I could not have ventured to enter so far into the practice of husbandry, but for the interest your Royal Highness has long taken in these parsuits, and, above all, from the high concern enterta by you in the welfare of that important class among Her Majesty's subjects to whom agriculture affords the means not of harmless or neefal amusement merely, but of anxious subsistence, not unnecompanied now with serious misgiving. A sure conviction, founded on no short experionee, that those new implements which in the great Exhibition afforded not the least complement testimony to the advance of English skill in devising mechanical means for the abridgment of labour, can practically afford to the English farmer, if rightly understood, important, easy, and immediate assistance, has emboldened me to easy, and immediate assistance, the consonance in a pursue the necessary chain of evidence with, I fear, tedious minuteness; but that minuteness will, I trust, be excused, if it shall have established any definite truths, which, as affecting the prosperity of so important a body which, he interest are property of so imposings a only of men, may be thought in some degree to claim even national importance; and the claim alone will, I well know, have secured your Royal Highness's indulgent attration.

It seems proved, then, that within the last twelve years, since annual country shows of implements were established by Lord Spencer, Mr. Handley, and others yet living, old implements have been improved, and new once devised, whose performances stand the necessary inquiry as to the amount of saving they can effect. To ascertain the successive stages of management, and seeing that the owner of a stock farm is enabled in the preparation of his land, by using lighter ploughs, to east off one horse in are tand, by disagg againer prongers, we cast our norse in three, and by adopting other simple tools to dispense altogether with a great part of his ploughing—that in the enlarge of crops by the various drills, house-labour can be partly reduced, the seed otherwise wanted partly saved, and the use of manners greatly economised, while the horse-hoe replaces the hoe at one-half the expense-that at harvest the American Reaper can effect nearly thirty men's work, while the Scotch cart replaces the old English waggon with exactly half the number of horses-that in preparing corn for man's food the steam threshing machine saves two-thirds of our former expense-and in reparing food for stock, the turnip-cutter, at an outlay of i.e., adds 8s. a-bend in one winter to the value of sheep
—lastly, that, in the indispensable hat costly operation
of draining, the materials have been reduced from 80s, to 15s.—to one-fifth namely, of their fornor cost; it seems to be proved that the efforts of agricultural mechanists have been so far successful, as in all these main branches of farming labour, taken together, to effect a naving on out-coings, or else an increase of incomings, of not less than one-half.*

* As mere reasoning seldom carries conviction, I may be ermitted to mention that whereas in estimates by excel farmers 12 horses are still assumed to he necessary for a farm of 400 series, though with improved farming, I find now that I can work 460 acres of a mixed farm with 8 horses, which are by no means confined to the work of the farm. Ps. P. This mixing of labour or expose, though large for makes a market present of special formation and makes a market present of special formation of callon, or he latiting of stocking. But it is important which prefer the same input in comparison of the callon which prefer the same input in comparison of particular When the climit and latiting-soulis were abeliaded. When the climit and latiting-soulis were abeliaded, which is the contract of the contract of the contract of the make of possible. In agriculture we key a few simple scale work of primiting possible and her and the contract one is business, which instead of the old wargons with three horses each, should buy one-borne suris, and the color improved makinery, would fast late, the could be contracted to the contract of the contract of the color improved makinery, would fast late, the could be contracted in the contract of the color of the color of the color improved makinery, would fast late, the could be contracted to the color of the color of the color of the internal color of the literal. It is therefore further demonstrated that color of the color

There is a further effect of machinery pays agriculture which has histories non-crotosics. The main difficulty which has histories how envelocities are main difficulty machinery has not folioparbae exord, it certainly has made histories are suggested to the surface of the sur

with I could add that the use of machinery has drawed a rangingly as its improvement. Still it has detensed greatly, as it shows the increase, not only a more an experiment of the country of the countr

But it must be further admitted, that few even of our best farmers, though they may possess the new im-plements, carry their use thoroughly out. It seems yet many farmers use the drill, and do not use the horseoe afterwards, the use of whieb is pointed out by the drill, while most farmers still use the plough previously, which the drill may have rendered superfluous. It is of coarse very difficult to give up old practices, but the result of the whole inquiry into agricultural machinery appears to be this, -that, insamneh as the new machinery effects a great saving of labour, and is also exceedingly inexpensive, giving also moderate certainty to a business proverbial for its precariousness, farmers ought no longer to bind themselves down by aneient customs in busbandry, but should consider at once bow these practices may be but should consider at once bow these practices may be reformed altogether, in order thoroughly to curry out the advantages of modern mechanics. They should look as much to a shed furnished with suitable implements as to their stables, remembering that the best of these implenunts, though it cost as much as a horse, may take the place of a horse; and, furthermore, when once purchased, does not like the borse, entail a weekly expense afterwards. That this extension as well as improvement will come to pass in the mechanics of bushandry there is no reason to doubt, nor that both have been accelerated by the opportunity for eareful study of agricultural implements which has been afforded during five months through their exhibition, ander your Royal Highness's auspices, among all the other products of human industry.

Norm.—In this Report it occasionally largess that as Exhibitor is named more than once in conserion with different articles he has brought forward as estitled to a Medal; as, however, no person can obtain more than on Medal in the same Class, that mark of distinction must be understood to represent the excellence of each of the objects

JURY AWARDS, CLASS IX.

	COUNCIL MEDAL,											
Nation.	No. and Page in. Catalogue.		Name of Exhibitor. Objects Rewarded,									
	No. Page.		Ogan aradon									
United Kingdom -	15	366	Busby, W Two or four-borse plough, horse boe on the ridge									
United Kingdom -	135	380	Crosskill, W ribbing corn drill, and eart. Norwegian barrow, meal mill, eart, clod crusher and cores bruiser.									
United Kingdom -	142	385	Garrett and Sons Home hoe, general purpose drill, four-row turning drill on the flat, improved hand barrow-drill for									
United Klagdom -	233	395	Hornsby and Sons Corn and seed drill, drop drill, two-row turnip dril									
Loited States	73	1437	M'Cormick C. H Reaping machine.									

			PRIZE MEDAL
Nation	No and Page in Catalogue.		Name of Exhibitor. Objects Revarled,
United Kiopdom -	132	380	Ball, W Two-horse plough.
United Kiogdom -	128	377	Barrett, Exall, and Andrews - Steam-corior and linseed and corn crusher.
United Kingdom -	217	334	Bentall, E. H Cultivator dynapometer.
United Kingdom -	237	397	Burress and Key Improved American churn and turnip cutter.
United Kingdom -	37	367	Burrell, C Gorse bruiser.
Belgium	163	1156	Class. P Corn drill and roller.
United Klupdom -	242	398	Clayton, Shuttleworth, and Co Steam engine.
United Kingdom -	47	369	Clayton, H Tile machine.
United Kingdom -	216	394	Coleman, R Cultivator expanding harrow.
United Kingdom -	143	387	Comlos, J Horse hoe.
United Kingdom -	205	393	Cornes, J Chaff cutter.
United Kinplem -		374	Crowley and Sons Cart.
Belgium	510	1167	Delstauche, P Plough,
Belgium	166	1156	Duchene, J. J Churn,
United Klogdom -	129	350	Gibson, M Cloil crusher.
United Klugdom -	150	387	Gray and Sons Curt.
United Kingdom -	149	387	Hensman and Son Thrashing machine, four-horse plough, corn drill,
United Kingdote -	241	397	Holmes and Sons Thrashing machine,
United Kingdom -	240	397	Howard, J. and F Two-horse XX plough, four-horse plough, horse
United Kingdom -	414	301	Burwood, G. (Cl. Vl.) Meal mill.
Netherlands	74	1146	Jenken, W Plough.
France	1299	1239	Laveley, A. D Chorn.
United Kingdom -	1214		Newlacton, Dr. S. (as laveator) Top-dressing machine.
United Kingdom -		370	Nicholson, W. N Oil-cake bruiser.
Beiglum	16.1	1157	Odeurs, J. N Plough.
United States -	413	1462	Prouty and Mears Plough.
United Kingdom -	1:24	376	Ransomes and May Drop drill,
United Kingdom -	108	374	Reeves, T. R. and J Water drill and liquid manure distributor.
United Kingdom -		392	Samuelson, B Turnly cutter.
United Kingdom -	223	334	Seragg, T, Tile machine.
United Klagdom -		396	Smith and Co Haymaker, chaff cutter, horse rake.
United Klugdom -	1	365	Stanley, W. P Linseed and barley crusher.
France		1228	Talbet Brothers Plough.
United Kingdom -	271	401	Tuxford and Sons Steam engine.
United Kingdom -	220	394	Wilkinson, T Churn.
United Kingdom -	239	388	Wilijams, W Light and heavy harrows.
United Kingdom -	700	1224	Whitehead, J Tile machine. Vachon, Son, and Co A seed and corn scourater.
France = = =	, 100	1224	Vachon, Son, and Co A seed and corn separator.
			HONOURABLE MENTION.
United Kingdom -	28A	366	Fowler, J Draining plough.

PH. PUSEY, M P., REPORTER.

CLASS X.

PHILOSOPHICAL INSTRUMENTS AND PROCESSES DEPENDING UPON THEIR USE

[The figures after the Names (between parenthetes) refer to the Exhibitors' Numbers and to the pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.]

Jury.

Sir Davio Barwster, F.R.S., Chairman, St. Andrews, Fifeshire, N.B.; Principal of the University,

St. Andrews.
Professor Collapon, Switzerland.

FULLWARD LANGE, OR LIBERTARY, AND STREET.

E. B. DESSION, 2 Square Ann SISTEET.

E. B. DESSION, 2 Square Ann SISTEET.

SIT JOHN Ilrascratz, Bart., F. R.S., 32 Harley Street; Master of the Mint.

Professor Herse, Demark.

Professor Hersen, Deumark,
E. R. Lacus, H.A., United States: Artist.
E. R. Lacus, H.A., United States: Artist.
E. R. Lacus, H.A., United States: Artist.
W. H. Mitzer, F.M. Servoya Terrano, Cambridges; Professor of Mineralogy,
W. H. Mitzer, F.M. S. Servoya Terrano, Cambridges; Professor of Mineralogy,
Renano Portrar, A.M., University Codings, London; Professor of Partial Philosophy,
Professor Sent natura, Galleverin; Professor of Chemistry and Natural Philosophy.
BERON ADMAND SOUTH, Prance; Member of Inditiates, and Natural Philosophy.

Associates.

. S. Bowranank, 3 Highbury Grove. lev. W. S. Kinoslav, Sidney College, Cambridge; Fellow of Sidney College. A. J. Quertar, Belgium; Secretary to the Royal Academy at Brussels (Jutor in Class XXX.)

rd Wnorrester, 34 St. James's Piace. THE daties of the Jury upon Philosophical Instruments have been found to be very heavy, as indeed might be expected in a field so vast, --including instruments re-

espected in a neid so vast,—inclinding instruments re-lating to Astronomy, Optics, Light, Heat, Electricity, Mag-netism, Acoustics, Meteorology, &c.; in fact, all relating to Physical Science, collected by a large number of exhibitors. Astronomical instruments claim our first attention, the eahibitors of these, though few in number, have effected cantorors of trace, though rew in numer, nave enceted a most beneficial advance by the use of as few parts in their construction as possible; this is mainly observable in the British portion. The workmanship of those exhi-bited by Germany deserves the highest praise; the instruments are, however, few in number, and do not folly

represent German art. America claims particular notice by the application of electro-magnetism to the registration of astronomical electro-magnetism to the registration of astronomical observations, thus enabling the land to do the work of the mind. This method has the further advantage of enabling not to record the observations taken at widely separated Observations, the length of the wire used being immaterial; thus is established a means the best possible for the determination of the difference of longitude. Observatories so connected afford the means of performing the most delicate experiments dependent upon the appreciation of minute portions of time. This method has been recently used in America, for the determination of the wave-time of electrical currents; from which experiments it would seem that its velocity of propagation is much smaller than that determined by Whentstone,* Of nautical instruments, there are several exhibitors;

but with the exception of those of America by Engesson and Sr. Jons, there is but little novelty of construction. In surveying and levelling instruments, beyond some lmprovements observable in those exhibited by Austria, there is no novelty. In optics there are many exhibitors, and we

remark the improvement of optical glasses in England, France, and Switzerland, and that the construction of large discs of glass for telescopes, in England, promises large diese of glass for televeropes, in Engined, promises to and consideration optical power, and thereby used in an advanced control optical power, and thereby to the Distink new by fire the best. In physical sprine generally, Pennes is pre-ceimient, having exhibited a number of delicately-constructed instruments, none of the same kind because and in primises. There are many other classes of optical instruments to be specified horeafter. Because and in primises. There are many other classes of optical instruments to be specified horeafter. The control of the promotion of the most remarkable discovery of modort mines, when not of Pholosum of the most remarkable discovery of modort mines, when not of Pholosum of the promotion of the promotion of the promotion of the promotion of the control of the promotion of the promotion of the control of the promotion of the prom

graphy,-and never before was so rich a collection of

graphy,—and never before was so rich a concernon or photographic pictures hrought together, the products of England, France, Austria, and America. Before going further, it would be well to inquire into the utility of the photographic process as regards its ap-plication to art and science,—and, indirectly, to literature, plication to art and science,—nod, indirectly, to literature,—by affording a faitfult transcript of authentic papers and original documents, upon which subsequent internal and historical research, must necessarily be greatly dependent. That photography is yet in its infancy, there can be little doubt; and it is more than probable that its present application, (which we believe to be well represented in the Establishica,) is no more its altinatura than the control of were the first applications of the telescope, shurtly after the chance placing of two pieces of glass by Jansen's children had led to its invention. Who, at that time, children Bad led to 16 invention. Who, at that time, could have predicted the important part that the instru-ment, based upon that discovery, was destined to play in the world of science? or have foreseen the excellence which it has since statisted by successive improvements— even now making,—and of which the Exhibition affurds

ample proof.
Viewing Photography in connection with Art, it may

^{*} See Gould's Astronomical Journal, vol. 1., Nos. 2, 7, and 14.

as first appear as if a vacua and powerful of via bed time appearing and was developed to depress the it search properties to the same properties to the specification of the same properties of the specification of the same properties and the same properties and the same properties of the same properties of the same properties of the same and Chankle Learnings and Chankle Learnings and Chankle Learnings and the same properties of the properties

need to regard the alloware perfection of photography and the first as ensemble; in billinear season. With set, the control of
reader local groot and more lanespeakle from, and ensurlated Postergraphy will have a great tendency to deprese modelocity, we may safely product; that, from the skated of crosses skiply produce; that, from the skated of crosses skiply produce; that the skiple skiple skiple of crosses skiply produce; the skiple skiple skiple skiple as with an abstractic received of words, that would subserved as with an abstractic received of words, that would subserved to admit of the accuracy and detail necessary to give it to admit of the accuracy and detail necessary to give it collects representations which we saw posses of the collect representations which we saw the same skiple of the collect representations which we collect the same skiple of the same skiple skiple skiple skiple skiple of the skiple skip

Let na now view Pandeprajby in its applications to reference, a present by which trainment retens are remember, and the properties of the

or he further divariages either in Indiy to sette their he ultimate perfection of the photographic processes. As applied to the preservation of decementary othermatics, and the preservation of decementary othernois to important to be passed ever in listence. How often has the histories, in this search after authentic that the protective has must be the chandles of create, the vonctors for which will her perfected by the mavelables that, to poterty he sum to the chandles of preservaparily to preserve free-insidis of these its day to compagingly to preserve free-insidis of these its day to compagingly to preserve free-insidis of these its day to topulled to valuable domestic of the preserve shape the public to valuable domestic of the preservation, either tectumentary or legislative, how important to extemplatationary, and has desperfectly maxwalled for any pre-

pose offer than that insteads.
Let us now turn our attention to the collection before
us, it which for dispersions to the collection before
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us, it which the dispersions the collection of the coll

Eminent amidat the exhibitors of calotypes, is M MARTINS (610, p. 1907), whose works we may say with MARTINS (610, p. 1907), whose works we may say with cretainty, have never been surpassed; their colour, arrangeused, and perfect finish, call forth the highest admiration this success is not confined to one class of delineation in particular, the individual works comprising his collection, being nearly all of equal merit.

seting hearty ain of eight interv.

On turning to the photography exhibited by the United Kingdom, we find LALDER (1966, p. 449) healing the Kingdom, we find LALDER (1966, p. 449) healing the heart of the LALDER (1966, p. 449) healing the training force that the latest of the latest threather by him into the various processes of the art by presenting the image direct instead of incerted; this is the distainability of the latest of t

^{*} The success of this application of photography must be dependent, to a considerable extent, on the object-glass of the telescope. The Report on Telescopes of other arconnections of the care consensurate with the requirements of photographic representations of this class.

Ress and Thomson, of Edinburgh (299, p. 839), are fairly entitled to attentive consideration from their sucecsaful use of the albumenized glass, which they prepare hy a process different to that adopted by M. Niepce, its originator, applying the albumen so as to ensure its even originator, applying toe automen so its to ensure its even distribution, upon which evenness the success of the picture is mainly dependent. The pictures in their collec-tion combine, with exceeding delicacy of execution, a richness of colour equal to that of Martens, but surpass him in the diversity of tints; the collection, besides em-bracing a long range of sepia tints and Vandyke browns, includes a small picture the colour of which it does, and as this is a hitherto unprecedented result, we are led to give it weight, and will, in another place, describe the process by which it is produced. Some details connected with the methods adopted by Messrs. Ross and Thomson, and kindly furnished by them, are subjoined.

The process for producing negative Talbotypes, on glass, is as follows:—The whites of two eggs, being a quantity sufficient for coating a plate of glass 12 inches square, are placed in a bowl, and cleared from all opaque particles; it is drops of a saturated solution of iodide of potastium are added for each egg, and two-thirds of a wine-glass of water for both,—the whole being then wine-glass of water for both,—the whole being then beaten np to a light froth and carefully covered up and left to regain its liquid state. The glass to be coated is well cleaned with a solution of pure water and sods, or potass, and rubbed quite dry with a silt rag. The mix-ture is then ponered on a evenly as possible, and flattening a piece of wire to the opposite corners, the excess of albu-men is poured off by turning the plate gently npside down; it is afterwards made to revolve before a clear fire, by a thread of worsted tied to the suspending wire; when the albumen begios to crack, the plate should be removed to a greater distance, and there suffered to remain until conally cracked all over. To render the plate so prepared fit for the camera, it is breathed apon, to give it a degree uf softness and to cause it to absorb as much silver as possible; it is then dipped (the prepared side undermost) very gently in a bath of nitrate of silver, prepared in the proportion of 60 or 70 grains to an ounce of water, the plate being prevented from tonehing the bottom of the essel by a piece of bent glass, or metal covered with wax. It is then washed in a large dish of clean water, by re-peated dippings, care being taken to keep the water running in the same direction. The plate is then placed in the camera, and if the pieture when taken, is to be immediately developed, a quantity of acetic acid is

socied.

The mode of developing the image is as follows:—a quantity of saturated gallie acid is poored on the plate, and spread evenly with soft cotton-wool, after which, when the picture has well appeared, a small quantity of mile acid is mived with the pitters of ellers another. gallie acid is mixed with the nitrate of silver solution. game and spread over the glass, which gives the development atrength, and renders it more rapid. At this stage of the operation, a solution of hyposalphate of soda (50 grains to an onnee of water) is poured over the picture, and carefully spread with clean cotton; the process is then conspleted by pouring some water from a jug very gently over the surface

The negative proof so obtained is transferred to paper by floating the latter on a solution of common salt (5 grains by Boating the latter on a solution of common sait (a grams to an unner of water) for a space of two minutes; it is then pinned up to dry and floated on a solution of nitrate of silver (70 grains to an ounce of water) for three minutes; it is then dried in the dark, and aftewards placed with its prepared side to the prepared side of the glass negative, and screwed in the pressure frame with a plate of glass below to ensure its close contact. The plate of glass below to ensure its close contact. The pressure frame should be surrounded with black boards to cut off the rays of light from the sides. To fix the impression, it should be first washed in cold water, then in hyposulphate of soda (100 grains to an nance of water) for 15 minutes. It is then washed once in cold water five or six times in boiling water, and finally suffered to remain au cutire night in cold water, so as to remove entirely the renaining hyposulphate of sods, which would, in course of time, eat out the picture if allowed to remain. The photograph thus obtained is afterwards mounted

upon card-board, and pressed on a warm plate of steel, to communicate a slight glaze, which may be considered an

improvement to its appearance. The process we have just detailed is good in many points, but defective chiefly in one-sensitiveness; every

effort to increase which has hither to been attended with a softening of the alhamen. This is a difficulty, but one which Mesers. Ross and Thomson will doubtless over-

The positives on glass are transferred and fixed in the usual manner (the albumen being mixed with salt instead of iodide of potassium), with the addition of pure plaster uf Paris, which being mixed with the solution is ponred on the face of the picture, and adhering to the albumen in a manner hermetically seals it, and thus effectually

in a manner necurency, preserves it from injury.

This admirable system is, we believe, entirely due to Messrs. Ross and Thomson, whose collection of Talbotypes amply attests the superiority of their method; and indeed, as is the case of Mr. BUCKLE (301, p. 840), of M. Marrays, or of any highly-successful photographist, it is but fair to infer that the superiority observable is their roductions is due to their improvement of the processes which they have adopted,

Whether the followers of Talbot will ever obtain a pro eminence over those of Daguerre, or vice perso, is a question for time to solve; at present the two systems appear in the British Department of the Exhibition to be equally well represented; the followers of each, with few exceptions, laying claim to some improvement or pecu-liarity of manipulation. For example, in addition to the cases already mentioned may be included those of MAYALL (pp. 439, 440), who calls attention to his crayon daguerreotype, an invention of his own, and BEARD (p. 440), whose type, an invention of this own, that Dekard (p. 440), whose pertent enamelied process is one of the very lew instances of a patent having been obtained for any improvement connected with this art. Great as in the astification with which we regard the efforts under fair perfecting the pro-cesses of Dagnerre and Tallot, will greater is that with which we observe experimenters divulging the processor they have adopted; the hithert all but total avoidance of patent enrolment must be considered a distinctive feature of this art, to which fact, doubtless, added to the ready of this art, to which fact, doubtless, added to the ready divulging of improvements, se chiefly due the rapidity by which up to the present time its progress has been characterized. The publication of each new process opens a fresh field of philosophical inquiry, gives to nan in-ereased physical knowledge, and may work great changes in his moral destinies,

We cannot pass from the subject of photography without alluding to a loss recently experienced in the death of its founder, M. Daguerre, whilst the Jury were engaged in their duties, and we feel it due from us not to let his memory pass unnoticed. In him was lost one of the lights of the age.

We now proceed to Electric Telegraphs, of which a great variety are placed in the Exhibition; many of them are remarkable for novelty of construction, and for imortant improvements. In the section devoted to their description we shall speak of them at some length When Oerten, in 1820, linked together the sciences of

electricity and magnetism, great hopes were entertained of the application of electro-magnetism to the movement of machines; and as in the Exhibition there are several arrangements for obtaining motive power in this way, we are far from despairing of its successful application to mechanical motion.*

When Faraday obtained the converse of electro-mag-When Faraday obtained the converse of electro-mag-netism, by induced electricity from magnets in motion, he originated magneto-electricity, and it is possible that its successful application to the purposes of the electric telegraph will supersede the use of galvanic electricity, the experimenta which were made befure us with the the experimenta which were made befure us with the magneto-electric telegraph were satisfactory.

The application of voltaic action, by coating the inferior metals with the superior, is shown in the Exhibition in some beautiful electrotypes and integlios; also in a recent

* See Jacobi's papers in Taylor's Scientific Memoirs; aud also Leas on Electro-magnetism in the snow work.

and highly important application by T. H. Heary, Eq., F.R.S., as shown in the coating beams of balances with platinum and pulladium.

Commerce and chemical apparatus used not denium to long—the Exhibition posessing their in Class X, that is long—the Exhibition posessing their in Class X, that is long—the Cxhibition posessing their in Class X, that is which as necessfully brought this chemical under our substances. The contrast under the contrast to intract, and spaces wapour. It is contraste, by which these greats are cuted, offern materials in its section states to a temperature two law for the cristment of inflammatic parts be does not at all tensive with a tensive to a temperature two law for the cristment of with a fresh increase of combinion. The chemical aparts with a fresh increase of combinion. The chemical aparts with a fresh increase of combinion. The chemical aparts with a fresh increase of combinion. The chemical aparts with a fresh increase of combinion. The chemical aparts with a fresh increase of combinion. The chemical aparts with a fresh increase of combinion. The chemical aparts with a fresh increase of combinion. The chemical aparts with a fresh increase of combinion. The chemical aparts with a fresh increase of combinion of the final contrast of the chemical aparts to the contrast the combinion of the chemical aparts where the combinion of the chemical aparts are considered to the chemical aparts and the combinion of the chemical aparts and the chemical aparts and the chemical aparts and the chemical aparts and the chemical
application.

The Planlineters exhibited claim some attention, there being several ingenious machines of this kind adapted to the determination of areas of plane surfaces by mecha-

nical means.

There are several exhibitors of air-pumps, who have exercised much ingenuity.

There are various machines for standard measures of

There are varous inscenies for ransmard measures of length exhibited, two of which are extremely beautiful. Calculating Machines claim some attention as a mechasical power by which the hand is made to do the work of the usind; and operous and long calculations, requiring much strained attention, are performed by turning a landle. Two such machines are shown, which performed well and accurately.

We cannot help recording how elearly the injurious effects of patient enrollments on section were shown in the effects of patient enrollments. The enrollment is a exhibited proved to be merely variations, for the avoidance of the infringement of patients. In many cases the subjects patiented were of a very trifling nature, but still further improvement. The great strange of photography, previously alluded to, and the perfection of the mereroops, and their proportions are of potential in con-

It was found that the instruments exhibited were, for the most part, coldered without any concurrence on the part of the exhibitors, for the representation of the state of sclene in their respective countries, and that therefore as it was uncless to examine the instruments of each country separately. In the following Beport we have, therefore, classified the instruments according to their use, including the contributions of all nations.

It is but right to say that some instruments inserted in the Catalogus have not been found, and that in other cases neither the exhibitor nor any explanation of the instrument were to be met with. We now proceed to describe the several instruments in

Astronomical Instruments.

It is to be knowed that this department of the Edition contains results of the blaster of the Fe sidelities contains results of the blaster of the Fe sidelities and the blaster of the Fe sidelities of the Fernander of the Ferna

But in those instruments which are exhibited, it is highly satisfactory to find the greater part of them cha-

racterized by exquisite workmanship, and a steady advance in their construction.

In Mr. Boas's greet equatorial, it will be seen that he afoliowed the example of the Astronomer Royal, by having every part of the instrument cast in as few pieces as possible, and has thus avoided all nunecenary serve econoccious. The casting of this instrument, by Mossrs. Bansonane and May, in a fine piece of work, The same principle of easting has been adopted by Mr. Simms, who of the instrument of the control of the instrument of the cast of the control of the instrument of the cast of the control of the instrument of the cast of the

It is most gratifying to perceive that, small as is the mamber of autronomical instruments, the credit they reflect upon the artists is very great; thus, the instruments exhiinated by the Seams possess points of this interest, var, the theory of the state of the state of the state of the seeper; the application of the principle of vertical collisions to to the activate and arisinth instrument by pieceing the vertical axis; the adapting the axis of an equatorial to the certification of the principle of the state of the principle of the state of the state of the state of the principle of the state of the state of the state of the great service for the purpose of observation.

In the German instruments of Merz and Ertel there is exquisite workmanship, well maintaining the oelebrated names of the makers of the Poellova instruments. The divisious of the Ertel instrument are beautiful; but works of this kind, performed by hand dividing, are

operous and distressing.
The practice of hand dividing in this country is now almost superscied by machinery. Mr. Simme Instruments, for the most part, have been so divided. The advantages of this method cannot be better shown than in the comparison of the time overpied by the division of the strength of the division of "Wortbury circle," and the time now occupied in performing the same piece of work.

The grobustion of the two circles of the Weebery instrument ecopical Mr. Simms, is the has informed us, northy testive works of six days each work, and, on an formal by limighth, in a room otherwise complexity darkenel; and sithough precise enabled him, on subsequent economics, not accomplain risingle series of work; in executingly anxious and oppositive shour. By the means of Mr. Simmal self-scring dividing regime, "the series graduation is effected in five boars, to which length of accountries of the instrument of the instrument.

upon the engine preparatory to cutting the divisions. Thus, the same work is done within ten hours which formerly occupied from five to six weeks, not to mention the saving of wear and test upon the constitution of the operator. The divisions are found to be fully as occurred as those eat by the original process. The think macrieau Department, Mr. Bond exhibits the

electro-magnetic apparatus used succonfully by the Americans, both for the purposes of geodesy and astronomy; this American invention promises to be a real improvment in practical astronomy, and will, in all probability, forms a new car in astronomical observations.

DOLLOWD (145, pp. 496—425, and see Illustration). A variation transit instrument. The horizontal eirled is 21 inches in diameter, on which is faxed a smaller eircle of 7 inches diameter; each is divided to every 10°, and the larger eircle has three vertients, reading to every 10°. The

This beautiful machina is described in the 15th volume of the Royal Astronomical Society.

† The dividing the foot must circle at Cambridge, which Mr. Simms gruduated on Its pier, excepted his reveral weeks; see the results of the examination of the distance of the cambridge of the circle of the cambridge of the distance of the Boyal Observators, "Greenvich Observations," which was the Boyal Observators, "Greenvich Observations," which was considered transit circle their precision of Greenwich, "Greenwich Observations" for 1851. Both these which "Greenwich Observations" for 1851. Both these distances of which by Mr. Simms' circle weight of Wilson goldine, or divided by Mr. Simms' circle weight of Wilson goldine.

telescopes are 14 inches focal length, and 1.3 inch aperture, with altitude circle and the regular transit series of spider lines, supported upon four pillars fixed to the horizontal circle.

When the instrument is used for determining the actual or diarral variation, there is a cover containing a least, which is applied in front of the object glass of the telescope for reduling off the divisions on the needles, of which there are two, 7 inches in length, together with various ey-pleces, &c. The instrument is supported on a strong

triped with adjusting screws.

Sixms (741, pp. 4758—477*). A transit instrument, intended for use either in the meridian or prime vertical. The telescope and axis are of the form usually employed for this class of instrument, vist, two stout cones are connected by a sphere into which the cylindrical tubes of the telescope are screwed; the pivots are of hard bell-metal.

and are both perforated.

The object-plass has an aperture of \$\frac{3}{2}\$ inches, and a focal length of 44 inches; the displangem is furnished with secron vertical and two hardrants ingide-lines. There with the control of the con

The axis of the instrument is converted into a telescope, by having an object-glass fitted into one of the pivots, and a sliding tube carrying an adjustable cross of delicate suder-lines with a positive expenses to the other.

spider-lines with a positive eye-piece to the other.

The adjustment of this axis telescope is effected by a small collimator placed in a line with the axis-(nuless a distinct mark can be seen through it),-and then turning the axis round, and moving the proper screws until the intersection of the lines remain stationary opon the mark, or collimator cross, during an entire revolution. If the principal telescope be adjusted to the meridian, the mark seen through the axis will be 90° distant in azimuth, and seen through the axis will be 90° distinst it azimith, and by its means the instrument can immediately be placed in the prime vertical, for the determination of the latitude by observation of stars near the zenith. By this invention the form of the pivots may be examined, for if they be not circular, the error will be shown when the cross is being adjusted. The azimnthal adjustment is provided with a micrometer head, showing seconds of are, so that when the deviation is of known amount, the instrument may at once be placed exactly in the meridian. a complete observation of a star in the prime vertical, it is necessary to reverse the instrument, quickly and deli-cately, for a slight concussion might disturb the adjustments, and consequently vitiate the observation. this purpose a reversing frame has been contrived and fitted to the base of the cast-iron stand, or support upon which the justrument is placed. It consists of a strong serew having square threads, the circumference of which fits into a cylindrical hule bored through the centre of the stand, and is prevented from turning round by a key which fits into a groove cut longitudinally throughout the length of the serew. The serew is raised or depressed by a pair of bevelled wheels, one of which fits upon the screw and the other is worked by a winch handle. Above the screw a stage is fixed, and upon this two conical pillars are erected, having a fork covered with vulcanized India rubber upon the top of each of them. Upon turning the winch, the screw is raised, and the forks are brought into contact with the transit axis, and by continuing the motion, the instrument is lifted out of its Y bearings. The frame with the instrument is then, by means of stops, which are attached to the stand, to be turned 1803 in azimnth, and then by reversing the motion of the winch, lowered again into its bearings. Two setting circles of 4 inches diameter, and divided to one minute of are, are attached to the cyc-end of the telescope, both of which, reviously to an observation, should be set to the zenith distance of the star, in order that no time be lost after reversing the axis, in again directing the telescope to the object.

The stage is forced newards by means of four spiral springs, which rest upon the base of the stand; these are sufficiently strong to support the whole weight of the instrument when lifted, so that the friction upon the most parts is very inconsiderable.

The eye-pieces with this instrument are six in number,

The eye-pieces with this instrument are six in number, namely, five direct, magnifying 40, 53, 86, 120, and 140 times, and for scaith observations a diagonal eye-piece, magnifying 90 times.

magnifying 60 times. Substitute alongunal transmit internaces of the form used by Birchewische in his nitrates and animuth instruments. The object-plane is 1-7 lack in statement and animuth instruments. The object-plane is 1-7 lack in the statement of the control of the statement of the stateme

Ty to the time of Mr. Simm's abspring this mode, so a mention for the limitation of the field of the all naturamental for the limitation of the field of the all naturaredictors in front of the object-plus, and throwing light per in by among of a large or ready, in a distant pair of special per in the special per in the special per interior of the special per interior of the object per interior of the special per interior of the object per interior of it when the direction of the object per interior of the special per interior of the object per interior of the imprisonal per or object per interior of the object per interior of

detailed intensis of stoog this are as follows:—and convex lines set within it, and a large convex lear of wintible facel, length if face of within the easi, as the back of the reductor, and its disnerter is such that one or more agreement may all the disnerter is such that one or more agreement may be yould the older of the reductor, and a lamp is placed at the lack, with its light all creat through the pivet. The action of the lens within the pivot condense the light, back of the reductor, the open sequences of which again condense it upon the field of view, where it produces a form of the lens within the lack of the reductor, the open sequences of which again condense it upon the field of view, where it produces a form of the lens where the lack of the reductor of the lens where the lack of the reductor, the open sequences of which again condense it upon the field of view, where it produces a form and we will be all the lack of the reductor of the lens where the lack of th

by any variation in the direction of the telescope.

GERARD (109, p. 418) has exhibited a portable or field transit instrument.

The instrument consists of two mirrors, so fixed as to measure among the 90 degrees. In our two nations are measure among the 90 degrees. In our two nations are and on the same breed. A mark resembling a target with qualitation to construct cellers, in set up at one of the production of the production of the production of the as to have the mark in the middle off the first. This tracepes is then turned on it or on an it till the mar or the production of the production of the production of the tellers of the production of the production of the before it passes the meridian. The times of its protein consistent of the production of the production of the station, the mark being set up at the first. The times of action, the mark being set up at the first. The times of

Dolloon (145, pp. 486—428, and see Illustration) has exhibited an altitude instrument, with two circles of 2 feet diameter divided on silver to every five minutes, each circle reading off to seconds by means of two micrometer microscopes attached to the cones which support the instrument. Two small circles are fixed towards the eve

end of the telescope, each of which reads off the minutes by verniers, with levels for setting the instrument in altitude. The telescope is of 21 inches aperture and 32 inches for al length, and is fixed between the two large circles. There are five vertical and three horizontal spirit levels in focus of the object-glass, also various eye-pieces, &c.

The instrument is supported in Ys fixed on the top of two strong cones, which rest on a circular metal base, with differential screws for levelling. The usual method of illuminating the webs through the axis of the instrument is adopted. There are also two fine spider lines

reading to seconds.

Mr. Dollond also exhibits a double altitude instrument for observing by reflection and direct vision* (Cat. supri). The altitude circles are 1 foot in diameter, divided to 200 and are read off hy micrometer microscopes showing seconds. Each circle has a telescope of 15 inches focus and 1.3 inch sperture attached to it, and there are two small circles, read by verniers, for setting the instrument in altitude.

in altitude. The azimath eirele is 1 foot in diameter, and reads off by verniters to every 10°, having a telescope fixed under-neath as a check opon the instrument when taking hori-rontal angles. The axes of the circles are perforated in the ossal manner for illuminating the spider lines. The instrument is furnished with fine spirit levels, eye-

pieces, &c Simms (741, p. 476*). A transit circle, the telescop of which has a focal length of 4 feet, and an aperture of 3.25 inches, furnished with a micrometer in the eye-piece, and magnifying powers of 63, 102, 130, and 165 times. The circle is 2 feet in diameter; it was cast in one piece, of bell-metal. It was divided by Mr. Sinma' self-acting engine into spaces of 5' of are, and subdivided into single seconds by micrometers, of which there are two, fixed to

the stone piers which support the instrument.

In addition to the finer graduations, there is another strong circle of divisions, which are cut opon the bell-metal, and numbered to four times 90, showing either altitude or depression. These divisions are read by a sointer, and they serve to direct the telescope to the object, whether it be seen by direct vision or by reflection.

The Y supports are fixed upon the stone piers. of the Ys has a vertical adjustment for levelling the axis, which is performed by means of a striding level, and the other has an adjustment in azimuth for adjustment to the meridian. There is also a lever counterpoise fixed to that end of the axis near to which the circle is fixed for the purpose of equalizing the pressure of the pivots upon their respective supports. The instrument is furnished with an embracing clamp, or one which lays hold of the axis, ference, and also with a tangent screw, which exerts no lifting power, and has, therefore, no tendency to disturb the meridian position of the telescope.

The arrangement for the illumination of the wires is culiar, and is the invection of the Astronomer Royal; but it was greatly facilitated by adoption of the peculiar method of graduating the light in the field of view, which had been practically introduced by Mr. Simms.

The illuminator, which is, as usual, placed near the centre of the transit axis, and receives the light through one of the pivots, turns upon an axis in order to change its angle of inclination with respect to the eye-piece. By this change of inclination the quantity of illumination is regulated; and if the plane of the reflectur be placed perpendienlar to the axis of the telescope, no light whatever will be reflected from it. Upon the reflector one or more prisms are so placed as to receive the light from the lamp when the reflector is in darkness. These prisms reflect the light when the reflector is in the position above menthe light when the reflector is in the position above men-tioned, but at no other time, to other prisms, which are fixed in the eye-end of the telescope, near to the disphragar; and by these last prisms the light is thrown obliquely upon the spider lines, and produces the effect of illumi-nating the wires on a dark field. To the edge of the reflector a wire is attached, which terminates in a small knob, or handle near to the eye-piece, and therefore, near

* See "Astronomical Society's Papers," Nev. 24th, 1823.

the observer's hand. The only operation required in passing from one state of illumination to another, with all the intermediate gradatious, is either to draw out or to push in a knoh ur handle through a space of one or two tuches.

By these arrangements power is given to the observer to regulate the quantity of light in the field of the tele-scope, from the faintest gleam, by which the wires are just made visible, to the full illumination, and also to change instantaneously, as circumstances require, a bright field and dark lines to a dark field and bright lines. This change has hitherto been effected by the employment of

two lamps, one placed near the perforated pivot to give the ordinary illuminated field, and the other to nucly occasionally at the eye-end of the telescope, very nearly in the plane of the disphragm, so that the light passing through a slit obliquely across the field of view, illumi-nates the lines which intercept its passage, leaving the surrounding field in darkness. It is clear that the change from one kind of illumination to the other with these arrangements, requires some considerable time, and the hanging a lamp on the eye-end of a telescope of such an instrument as a transit circle is exceedingly objectionable By the new invention one immoveable lamp either illumi nates the field or the wires, and the same lamp, at the same time, also illuminates the graduated circle by means

same time, also illuminates the grasuastu three of more different properties. On the press attached to the micrometer microscopes. This instrument has also another improvement, which was suggested by Mr. W. Simms, jun., since the crection of the transit circle at the Royal Observatory, Greenwich, and a continuous cont It is by the perforation of a hole, about one inch and a half in diameter, through the centre cube of the axis, at right angles to the axis of the telescope, in order that a north and south collimator may look into each other without lifting the instrument from the Y bearings, and by this means very much simplifying the act of adjusting the line of collimation.

Ross (254, pp. 435, 436) exhibits a large equatorial.
The focal length of the telescope is 18 feet, and the
aperture is 11g inches. The diameter of the hour-circle
is 2 feet 3 inches, and that of the declination circle is

2 feet 8 juches. The instrument is supported on a round cast-iron pillar 10 feet 9 inches in height, 2 feet 3 inches in diameter at the bottom, gradually decreasing to 1 foot at the top. It is formed of two portions, fastened together at the height of 4 feet 6 inches from the bottom of the base, by eight screw-bolts and nuts, passing through flanges, 3 inches in width, from the shaft of the column. This joint affords the means of an approximate meridian adjustment. The base of the pillar is 9 feet in diameter.

The polar axis is of cast-iron, 6 inches in diameter, and 5 feet in length; it is connected to the declination axis by a flange of 18 inches in diameter. The length of the inner male declination axis is 3 feet 6 inches between its inner male declination axis is 3 feet 6 inches between its bearings; and the outer or hollow axis is 7 inches in diameter. Both are of cast-iron. The inner axis and its finge form one casting with the central hollow eyiloder, to the flanges of which the corresponding gun-metal flanges of the telescope are bottled. The table is of copput fatting learnings of the declination axis are cylin-drical, and the axis is secured by a seed cellar st inches in

length, fistened by cross pins to the male centre at the end to which the circle is fixed. In the inner axis there is a counter-sunk cavity to receive this collar, and a second counter-sunk cavity, of large diameter, to receive a steel plate, which is fastened against the end of the steel collar by eight steel screws. By this means the end shake of

the axis is adjusted.

The declination circle is of gun-metal, and is regulated by an endless screw, having an eccentric lever attached to a dovetail slide for gearing, and a pair of bevelled wheels at either end fur Hooks' joint adjusting rods. There are, also, two other radial arms, with clamp screws, for securely fixing the telescope to the circle.

The upper part of the polar axis fits into a coupling block, having a hemispheric bottom; this is supported by an augular projection from the top of the pillar having a corresponding nearly hemispherical cavity, and the whole is bound together by bolts and nuts, having spherical

249

faces, which bear in corresponding cavities in their washers;

the bolts pass freely through the holes The lower end of the polar axis is a hemisphere of hardened steel, bearing in a hardened steel dye, surrounded by an oil-cup, which is attached to dovetail slides having motions in rectangular directions, which are supported by a very strong bracket, projecting from the main column, and are applicable to the final adjustment of the polar axis

The hour circle is moved by a weight and train of wheels, regulated by a Siemen's governor, the ball being Wheelt, regument of surprings suspended by four springs.
This instrument reflects high eredit on its maker; it is

distinguished by solidity of structure, good mechan and distribution of strength.

Also, an astronomical telescope of 3 inches in diameter. 42 inches focal length, mounted equatorially. This telescope, on examination, was found to be a very superior instrument, and is the best in the Exhibition for its size. Also, an astronomical telescope 24 inches in dismeter, and 30 inches focal length, mounted on a pillar and claw stand.

Simms (741, p. 475*), an equatorial, generally of the Francehofer form, with the polar axis elevated for latitude 25°, formished with a clock motion for counter the effect of the earth's rotation. The focal length of the telescope is 7 feet, and its aperture is 4-9 inches: it is furnished with illuminating apparatus, a set of negative cyc-picces, magnifying from 60 to 450 times; a parallel line position micrometer with position circle, res one minute, and a transit eye-piece, the use of which is to facilitate the greeral adjustment of the instrument, and also for making observations for time, in the absence of a

transit instrument. The hour circle is 18 inches in diameter, and is read to one second of time by opposite verniers. The edge of this circle is ratched to fit the teeth of a screw, which is in connection with the clock before mentioned.

The declination circle is 18 inches in diameter, and is

read by opposite verniers to 5" uf are. The slow motion is hy an ordinary clamp and tangent screen.

The action of the clock is under the government of a

rotatory pendulum, similar to the governer apon a steam-The only peculiarity in this instrument is in the de-The only peculiarity in this instrument in in the de-elination axis, which is not covered up, but open, and exposed between its two supports. The open part is turned cylindrical, and can be set horizontal by a striding level, similar to that of a transit instrument. This construction has several advantages over that in common use; it simplifies the adjustment and the rectification to the meridian, and adapts the instrument for use in the taking of transits, where extreme accuracy is not needed, and greatly adds to the value of the instrument.

Mr. Simms also exhibits a small equatorial, adapted for

the latitude of London, but without clock motion. This estrument is upon the same principle as the preceding; it is understood to be inexpensive, but as far as its size permits, it is an effective instrument. The focal length of the telescope is 46 inches, and its aperture 3½ leoches; it carries a parallel line mierometer, with powers of 50, 90, and 150, and the telescope is furnished with an illumi-nating apparatus. The hour and declination circles are ies in diameter; the former is read by vernier to one second of time, and the latter to one minnte of are, with

clamps and tangent motions. The instrument surmounts an iron pillar, with a tripod stand, and there are screw adjustments, both for elevati the polar axis to the latitude, and for correction to the

The open declination axis and riding level occur in this rument as in the former.

DOLLONN (145, pp. 475—477), a poetable equatorial, made for the late Capt. Kater, F.R.S. The object-glass of the telescope, which is 30 inches focus, and 4 inches aperture, is worked from a formula of Sir John Herschel's aed performs extremely well. The instrument is sup-ported apon a strong folding tripod, is furnished with divided circles, a finder, levels, and a complete set of eyepieces.

The instrument is well adapted for seeking for comets. SIMMS (741, pp. 475, 476). An altitude and azimuth in-strument, known as the Westbury Circle.* The diameter of the altitude circles is 30 inches, and that of the azimuti circle is 24 inches. The divisions are cut upon a hand of silver fitted into each circle, aed situated near the circum silver fitted into each circle, aed situated near the circum-ference. The method adeepted in graduating these circles was that invented by the late Edward Troughton, Eq., F.R.S., and described by him in the "Philosophical Transactions," t as a method of dividing by the eye, to distinguish it from the old method of dividing by the

The circles are divided into 300 degrees, each degree into twelve parts or spaces, and these are again subdivided to single seconds by two micrometer microscopes placed diametrically opposite each other opon both circles.

The microscopes for reading the altitude circle are

fixed to the opposite ends of an arm which revolves about an axis concentric with, but perfectly independent of, the axis of the circle, which arm can be fixed in any position at pleasure. This contrivance, which, in effect, same as the power of changing the position of the telescope upon the moral circle was, we believe, first applied to this instrument.

The microscopes for reading the azimuth circle are fixed immoveably

fixed immoreably.

The azimuth axis descends within the pier to a depth of nearly three feet, and turns apon a steel point within a concainal hole: the apper end of this axis is sopported within a rectangular Y by openings opposite the point of bearing, and the axis can be corrected in regard to verticality by adjusting servers, which act upon the frame in which the Y is fixed.

The azimuth circle is screwed to conical radii which spring from the azimuth axis near its upper end. The altitude axis resembles that of a transit instru

and the disphragm is illuminated through one of the pivots in the usual manner. From the central zone of the axis two sets of radiating cones diverge, and to the ends of these cones the circles are screwed, one on either side of the telescope. These circles are connected by cros pieces around the circumference, where they also lay hold of the telescope, which is thus secured against any consi-derable flexure, and the cones are braced agether by two inscribed squares of brass, one upon each face of the

The object-glass was made by the late Charles Talley: the diameter of its aperture is 2.7 inches, and the focal length is 36 inches. At the eye-end there is a disphragm length is 36 inches. At the eye-end there is a disphragm of the ordinary kind, with five vertical and five horizontal spider bues. The eye-pieces consist of both direct and diagonal, furnished with magnifying powers varying from

The transit axis is adjusted by means of a spirit-level; there is also a spirit-level applicable to the telescope for giving the horizontal poiet, and a plumb-line apparatus is fixed to the column by which the micrometer support is need to the common by which the micrometer support is carried, and serves as a watch apon the stability of this important part of the instrument. The construction of this instrument is light and elegant, and, as experience has shown, it is capable of giving results of a high degree of accuracy; but the modern plan of ferming astronomical instruments of as few pieces as possible, of which Mr. Simms has given specimens in the alt-azimuth and great transit eircle at the Royal Observatory at Greeowich, is fast superseding the more elaborate, and if not less accute, certainly less durable construction.

This beautiful instrument was made by the late Mr.

Edward Troughton, at about the beginning of the present century, for Mr. Pond, the late Astronomer Royal, who, by the observations he made with it at Westhury, demonstrated the change of figure of the great mural quadrant then in use at Greenwich. After long exposure to the infinence of the atmosphere, and consequent deepy, it was in the year 1823 repaired and re-graduated by Mr. Simms, the Exhibitor.

* For a full description of this instrument, see Pearson's Astronomy," vol. ii., pp. 419-434. † See the velume for the year 1809.

Simus (741, p. 476*). A portable altitude and azimuth instrument, with circles of 15 inches in diameter, having a telescope of 24 inches focal length, and of 1.9 inch aperture, with two direct eye-pieces, of powers of 35 and 60, also a diagonal eye-piece magnifying 40 times.
This instrument is of the most recent form. A strong

brass triped supports the superior parts, to the centre of which the azimuth axis is fixed, and the azimuth circle is

serewed upon its face.

seres we tupon its face.

A strong plate circulates apon the azimuth axis, earrying two pillars of massive proportions, by which the altitude circle is supported. To these pillars the azimuth microscopes are fastened, and one of these pillars earries two conical branches at its upper end, for the purpose of holding the microscopes by which the altitude circle is read, and a sensitive spirit-lavel is so placed as to detect any instability in these branches, and to give its amount The telescope and axis are formed like those of a in are. The telescope and axis are formed like those of a transit instrument, and two circles are on each side of the

telescope, braced together with it by intervening pillars.

The circles were graduated upon Mr. Simms' self-acting engine, upon rings of silver, and the subdivision is made single seconds of an arc by means of two opposite micrometer readings upon each circle. The microscopes

of this instrument have achromatic object-glasses.

The transit axis is adjusted by the usual standing level, and each circle is fitted with a clamp and tangent screw

The novelty in this instrument is the introduction of a central collimator, n ready means at all times of deter-mining the nadir point: this important addition is the invention of Mr. Simms,*

The invention consists in placing a small achromatic telescope in the centre of the azimuth axis, which is perforsted for its admission. It is furnished with a cross of delicate spider lines in the focus of its object-glass, and has suitable adjustments.

If the principal telescope of the instrument be directed to the collimator, an image of the cross lines of the latter will be seen upon the disaphragm of the former, and as the collimator remains at rest, being in firm connection with the tripod apon which the instrument stands, it follows that if the superior parts of the instrument be turned round in azimuth, the axis of the two telescopes may, hy adjustment, be made to remain perfectly coincident during an entire revolution

If, in this state of things, the azimnth axis be set truly vertical by means of the spirit-level, which is fixed upon the instrument, the centre of the collimator becomes a nadir point to which all observations may be referred.

This point has additional uses; for instance, in performing the colliusation adjustment of the telescope, and in setting the altitude axis of right angles to the aximuth axis, and would consequently supply the place of the transit level, if by accident the latter were broken.

The importance of this invention, especially to the scientific traveller, is obvious; several such instruments have been made by the Exhibitor, which are in use in the Boundary Survey of the United States, and on other similar services

Fur the several inventions in these beautiful instruments, the Jury voted, unanimously, the Conneil Medal to Mr. Simms, which award was nlso passed manimously by the Group, but was not confirmed by the Council of heirmen, and therefore Mr. Simms will not receive that kind of Medal to which the Jury considers him fully

CRICKETT (267, p. 437) exhibits a model of a stand for mounting an equatorial.

Entral and Son (2. Zollvercin, Bavaria, No. 25, p.

1099,) exhibit a portable universal instrument, with hor zontal circle of 15 inches in diameter, and two circles of altitude of 10 inches in dismeter. The horizontal circle is divided to two minutes of arc, and is read by two meter microscopes to seconds; it is also furnished with four verniers, which read to two seconds. The divisions are fine, clear, and distinct. The circles of altitudes are well divided to four seconds of arc. The two reflectors for illuminating the division under the microscope are so made as to receive light from all sides.

All the clamps are applied to the centre to prevent any bending of the spokes, or affecting the figure of the circle.*

On fixing the lower elamp, the instrument was found to be absolutely fixed; and in this state was capable of being used as a transit circle. The level was made to rest on three bearing points; it is good; and when placed on the instrument no motion of the vertical circles affected the horizontal fixity of the instrument, or vice verse

The horizontal circle is, in fact, composed of two concentric parts in the same plane; - an inner one, which moves on its own pivot, and revolves, without touching the outer part of the circle, and each moves indepen-dently of the other. The centring of these circles is

This is a telescope of security, and which has its own motion, and can be set upon any object; and the fixity of the instrument when thus tested was found to be quite astisfactory.

At the intersection of the telescope with its horizontal axis is placed a right-angled prism. By internal reflection at the hypothenisal surface of the prism rays of light coming from the object-glass are reflected towards one end of the axis where the eye-piece is placed, so that in all positions of the telescope the observer looks in a horizontal direction; on the other end of the ungle is a graduated circle of to inches in diameter, with four verniers (in the same plane as the graduated limb of the circle) each reading to 4". The vernier circle carries a level moveable round the axis of the vernier circle, and capable of being elamped to it in any position with the level fixed: a double senith distance of any object may be observed no one part of the limb. The level may then be fixed in easy other position, and the double neuth distance measured on any other part of the limb,

The supports of the horizontal axle of the telescope rise from a strong horizontal piece of metal, to which is attached a vertical steel axis, passing through a vertical cylinder-terminating, below, in a tripod with foot screws. The steel axis carries a horizontal circle, graduated by a line at every three minutes, and also two arms carry micrometer microscopes. The vernier circle (15 inches in diameter) has a hollow axle which fits on the outside of the cylinder through which the axle of the versier eircle passes, and is capable of being made to revolve in its own plane. Attached to the end of the vernier circle is a check telescope with a vertical wire moveable by a micrometer

SCIPW The vernier circle is graduated by lines at every Iwo minutes. This graduation is read to seconds by each of the two microscopes. The vernier eircle being capable of revolving in its own plane, horizontel angles may be measured on different parts of the ares, by both the verniers and the microscopes. The microscopes have two wires very close to each other parallel to the division in the centre of the field. In observing, the image of the divi-

* The axio elamp, as used by Troughton, is essentially different from that employed by Errel. With Troughton it was a matter of convenience: with Errel it is considered 1s was a matter or convenience: with Ertel It is considered findispensable in urder to obtain necurate observation. It is need for the horizontal circle of the Westbury circle, while the more important part, the vertical circle, has a clamp on its limb. In the Westbury circle the extremity of the arm of the clamp is fixed in the diversion of its length as well as in the direction perpendicular to its length. This, in the case of the Westbury circle, strains the vertical axle. In the case of a transit instrument, it either bends the axic downwards, or lifts it out of the nearest Y, so that it touches one side of the Y only, or rocks from side to side. In the Munich instrument the axle clamp has an polished surface, which is made to press against the ead of a serew by means of a spring or the tension of a spring by which a weight is suspended, and is neted upon by no force in the direction of the length of the arm. I find these clamps recorded as new in notes made during a stay at Munich. — W. H. M.

[&]quot; For a full description of this invention, see the 15th of the "Transactions of the Royal Astronomical Society."

sion is made equidistant from the two parallel wires. The axle of the telescope has a striding level for determining its horizontality.

Troughon objected for repetition in large instruments. Zach and liberaberger had shown that repetition introduced errors larger than those it was intended to correct in well-graduated vertical crices. Server found that even better to measure the angles on different parts of the area for the constructed to measure the majes on different parts of the area for repeat. Accordingly, this instrument is constructed to measure borizontal angles and double aculit countracted by Erleichenkach and Errick, the circles were countracted by Erleichenkach and Errick, the circles were

made to clamp at their circumfrence.
In a naiveral instrument having a horizontal circle of
24 inches diameter (used by Struve as the principal instrument for the triangulation for the Russian are conmental to passing through Dorpati, when champed at the
circumfrence and the condition of the concircumfrence and to lead through as angle of such
circumfrence and to lead through as angle of my and
yet of the condition of the

vertical and horizontal circles of the instrument.

The heads of the foot screws are graduated; this facilitates the operation of levelling the instrument, and also cualites the observer to measure the angle corresponding to a division of either of the levels.

The short change at the extremity most distant from the sack have fit amplies of poished steel. This surface is pressed by a spring against the point of the slow motion serve. By this contrivance the sale is prevented from rotating, without the danger of straining or bending it, sopfitting a horizontal axis out of its, which night inches, as in the other contribution of the change were there, as in the other contribution of the change were there, as in the It is called a "naiversal instrument" because it is a It is called a "naiversal instrument" because it is

It is called a "interest installed to measure resist distances and horizontal angles. It is the invention of the firm now represented by Eriel.

The double wires (vertical for the telescope; probably 20" distant from each other) were the line introduced by

The double wires (vertical for the telescope; probably 20° distant from each other) were the line introduced by Reichenbach or Ertel. When a single line is under to hisset a very faint object, the object is extinguished. This is not the case when the object is made to hisset the space between two wires 20′ anualer, though it would be

if the wires were much closer.

The telescope is diagonal, and consequently only one-half the usual length, the eye, in observation, being always at the axis; and by this means observations can be

There are on the inner portion of the horizontal circle 10,900 lines; and on the outer portion 7,200, or also gether, 18,000 lines, as fine and distinct as on the largest astronomical instrument. This piece of work alone concepied a fortnight, working many hours daily; and it is a masterpiece of hand dividing.

M. Ertel's objects have been, the combining of the greatest possible simplicity with the greatest possible firmness.

firmness.

This form of instrument, invented by M. Ertel, has been used with great success in the measurement of the are of the meridian, by Struve.

The Jury voted to Ertel and Son, a Council Medal for this beautiful instrument, which award was sanctioned by the Group; but unfortunately did not pass the Council of Chairmen, who sanctioned the Prize Medal only.

MERS and Soss (Bavaria, No. 30, p. 1100, have exhihiet an equatoria, with the polar axis adjustable within certain limits, so as to sdapt it both as a portable instruent, and applicable to different latitudes within thosolizetylass has an aperture of 4 inches, a very sunsmall large aperture for this size of telescope, admirting a large spencil of light, and thus adapting the telescope for faint objects,

It is furnished with powers magnifying 20, 64, 96, and 216 times. It has an honr circle, and a declination

tree, both of 7 inches diameter.

The workmanship of this instrument is good, and fully sustains the justly celebrated name of the unker.

That telescope was tried twice; first, by Sir John Ihreschel, Lord Wortsteley, and Mr. (Glaisher, who reported of the object-plane as being first-rate; and secondly, after the lapse of a most, by Sr David Brus were. M. Matthiaes, appearing the most completely corrected, and this appearance was attributed by Mr. Glaisher to a disturbance of the lenses, since the first examination. At the time of the lenses, since the first examination. At the time of the lenses, since the first examination. At the time of the lenses is the proof on this surface, with their pennulum, we ex well

shown.

A Conneil Medal was awarded to Messrs. Merz for this instrument.

W. Boxn and Son (United States, No. 463, p. 1464,)
exhibit an apparatus for observing transits, by means if a
galvanic carreat. It consists of an electric bereak-circuit
clock, a galvanic battery of a single grove's cell; connecting wires; a cylinder, around which paper is wrapped,
and a spring governor, by which a uniform motion is
given to the cylinder.

The clock is like those in common use for astronomical purpose. The pallets and the exapement-wheel are insulated, both from the pendulum and from the other wheels. When the battery is in connection, the circuit is broken by the pallet leaving the tooth of the wheel, but is restored at the insulant of the beat of the clock, which is in restoring the circuit; the presence of the contract being through the pallets and the evapement-wheel alone.

Two wires pass from the clock, one direct to the battery, and the other through the break-circuit key used by the observer, and through the recording magnet, back to the battery.

The decree-magnet, with a sight difference in the form of the armature, as the mean as hat of Mouve is begraph, of the armature, as the mean as hat of Mouve is begraph, as mult reservoir. Under this pen the paper revolve, on which the records are much. The broading of the circuit by the page, and the threshold of the control of the co

The cylinder revolves in one minute; the accord marks in a continuous spiral. In observing, the observer, with the break circuit key at the instant of the transit of a star over the wire of a telescope, touches the key, and the record is instantaneously made on the paper. In the ordinary method of observation of transits, tha

In the colliary method of observation of transit, indoperation in the colliary method of observed flatters to an domain the best of a clock, while the observed flatters to an extended on the colliary and serving, in such manner as to be emblided to compute, neutrally, the fraction of the second when the object passes every vire, the time of which he then writes down in an observing-look, will listening and counting the best of the clock, and so on till the object has passed all the vire, and so on till the object has passed all the vire. The present the present the present the service method to be heavily bodies, and at the same instant touches the heavily bodies, and at the same instant touches the place of the present the pres

^{*} For a description of this justrument, see "Description de l'Observation Astronomique Central de Poulkova," par F. G. W. Struve, and also the "Recueil des Actes," pour l'année 1834.

signal almost instantaneous in duration can be recorded,

the momentary interruption of the circuit. The practicability of this method of recording observations is placed beyond a doubt by experience in America, and from the results there obtained, this method would appear to be more accurate than that usually adopted by the combination of the eye and car. The question yet remains to be determined, whether there be a closer connection between the nerves of the eye and the ear, or between the nerves of the eye and the finger, and this

nestion can be settled only by experiments.

The Council Medal has been awarded to Mesars. Bond.

Nostical Instruments.

Exhibitors of nantical instruments are few in number, and, with the exception of those exhibited by Entreson (United States, No. 146, pp. 1442-1446), and those by ST. JOHN (United States, No. 95, p. 1439), display but little novelty, and no decided improvements.

The sea-lead and the several other instruments exhibited by Mr. Ericason, reflect high credit upon him: they are original in their design, well adapted for their work, and useful.

Noutical Astronomical Instruments.

STRMS (No. 741, pp. 475*, 476*), exhibits a Troughton's reflecting-circle, 10 mehes in diameter, with three equidistant vernices reading to 20" of are, having an achromatic telescope with eye-pieces magnifying 8 times and 15 times, supported upon a counterpoise stand, with motions for placing the instrument in a vertical, oblique, or horizontal plane.

This instrument was invented by the late Edward Troughton, and was designed as an improvement on the reflecting-circle, previously in very general use. With it, a cross observation gives six readings upon the circle, which is perhaps as high a degree of accuracy as is attainable by any instrument held in the hand, and such an observation is obtained with much less labour than one elaiming equal confidence upon the ordinary repentingcircle. Mr. Simms also exhibits a Tronghton's sextant (p.

477*), fixed upon a counterpoise stand; this instrument was contrived for the perpose of combining strength with lightness, and consists of two thin frames of brass, united by pillars. This form was suggested to the inventor by his having observed, that with one of the large opframed sextants, a contact of the suo's limbs made with the telescope directed upwards was but apparent, a large pace occasionally intervening when the telescope was directed downwards into an artificial horizon.

This form of sextant has not only maintained its ground, but would appear by those exhibited to be fast verging on general adoption. It is usually made of 8 inches radius, and is divided to 10" of are.

A Prize Medal was recommended by the Committee upon Sextants for these instruments of Mr. Simus. BARRETT (No. 349, p. 449) exhibits several sextants, one of which is furnished with a magnifier, prepared for reading without shadow by night; the instruments are for the most part of an ordinary character, nevertheless Hon-ourable Mention was awarded to Mr. Barrett,

Carcurrox (No. 452, p. 462,) exhibits many sextants, some of a very ordinary kind; there are two, however, numbered 2251 and 2252, which are well made, but the divisions on the vernier and on the limb do not agree in any of them. In connection with drawing instruments, &c., a Prize Medal was voted to Mr. Crichton.

Mrs. Janet Taylor (No. 350, p. 449,) exhibits a sextant intended rather for show than use. Other exhibitors of sextants are Elliott and Soxs (No. 322, pp. 444-446), Watkins and Hill (No. 659, p. 438), and Dixer (No.

271, p. 466*).
MOLTENT and SIEGLER (France, No. 649, p. 1209, exhibit sextants and reflecting circles, pretty good in all

respects, the divisions excepted. The Jury awarded these

instruments Honourable Mention IMSTURMOUS TOROGRADDE MENTION.
VERY (France, 719, p. 1213,) has exhibited a reflecting
Borda's circle divided to 20', and read by means of verniers to 20''. A reflecting circle made after the improvements of Captain Riebards, by means of which very large
angles may be measured.

A sextant read by verniers to 20"; another divided to 10', and read by a vernier to 10"; a third and fourth, reading to 15"; a fifth, whose resding is to 30"; and a sixth, which reads to one minute. M. Vedy also exhibits

an artificial horizon. These instruments are well made, and a Prize Medal was awarded to M. Vedy Bunox (France, No. 443, p. 1199) has exhibited various sextants and octants in ebony and hrass, furnished with

coloured glasses to the number of five nr seven, and with both direct and inverting telescopes. The sextants are divided to 10', and subdivided by verniers to 10". The size and the construction of these instruments are in every respect like those made in England. Their divisions are good, and their price is low

Beautiful (Belginm) exhibits a sextant of 7.5 inches, The graduations are on silver to 10", sexage-imal, with every means for verification. The body of the instrument is in one piece, and is very solid; a second sextant of the same size, divided, &c., as the preceding; another sextant of 6:3 inches radius, furnished with the same accessories as the preceding, and reads to 15° sexagesimal; a fourth sextant of 4.3 inches radius, divided to 20" sexagesimal, a fifth sextant of 2.8 inches radius, divided on silver to sexagesimal minutes : a sixth sextant of chony 9.4 inches radius, divided upon ivory to 50° sexagesimal; also an octant in chony of 10.6 inches radius, divided on ivory to sexagesimal minutes, and two artificial horizons. The sextants are solid and well made, and the work of all is good.

A Prize Medal was awarded to M. Beaulieu.

ORRTLING, A. (Prussia, (1) No. 87, p. 1053,) exhibits sextants whose divisions on the limb are faint, but good: the verniers are such that it is difficult to judge of the reading to 10" in the larger, and to 16" in the smaller sex innts

IMPERIAL LIGHTH WORK (Russia, No. 169, p. 1572,) exhibits two of the largest sextants in the Exhibition, being 10 inches radius. These are sound and well made, and reflect eredit upon the artists. Asur (No. 194, p. 431) exhibits an instrument for de-

come (NV. 194, p. 301) exhibits an instrained for de-termining the course which a ship must steer to sail on a great eirele. That the instrument will do its work is more than probable; hut whether it has any advantage over the published tables for the same purpose is more than dealers. than doubtful.

Various Nontical Instruments.

Extesson (United States, No. 146, pp. 1442-1446,) has exhibited a sca-lead. This instrument, which is designed for making soundings at sea, independently of the length of the lend line, and without the necessity of rounding the vessel to the wind, is a modification of an instrument formerly constructed in conjunction with Mr. Ogden, of Liverpool. The instrument consists of two large tubes; a chamber

is placed immediately behind, and connected by means of a small bent orifice to the upper extremity of one of them, The top of the second is connected by a similar orifice to a third small tube suspended in the centre of the chamber. A stop-cock is placed at the lower end of the glass tubes for the purpose of entting off communication, if ne-

The lead being bent to the line is lowered into the sea as it sinks, the water enters the chamber, and gradually rising in it and in the tube suspended within, causes at increased pressure upon the air, which is driven through the orifices into the glass tubes. The tube which is connected with that in the chamber will be entirely filled with the air thus forced into it from the suspended tube, the water will consequently rise, and its reading may be observed upon the graduated scale with which the instru-ment is furnished for that purpose.

The contents of the chamber being much greater than

^{*} For a full description of this instrument, see "Pearson's Astronomy," and "Encyclopadia Metropolitans," vol. L,

that of the tabe suspended within it, the air with which it is filled will not be compressed sufficiently to admit water into the glass tube connected with it outli the lead shall have descended to a depth of 25 fathoms. The tube is therefore well adapted for the measurement of deep soundings, which the other expisives small depths, which we have the contract of the contract of the contract of use is attended with less loss of time than the casting of the ordinary deeperse lead.

Mr. Ericason has exhibited an instrument for measuring distances at sea. This instrument is intended chiefly for the use of naval officers, to enable them to determine, by neans of a single observation taken at sight, the distance of a vessel, either advancing to or receding from the observer.

If the eye be placed at a certain beight above the level of the sea (say on the main-top of a ship), the vertical angle, formed by a line passing from the eye to any fixed point in the borton, and a line from the eye to the water point in the borton, and a line from the eye to the water greater as the vessel received from, the question; to make the vessel received from, the question; to measure this angle and to determine the distance of the ship, is the being length of the line framework of the being purposed of the being purpose of this illustrations, which is composed of the

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An ordinary reflector, an object-plan as sight for
An ordinary reflector, an object-plan as sight for
force and of this lever, a but, a sight great reflection of the contract of t

Keller (France, No. 280, p. 1190) exhibits a double planisphere, designed to assist navigators in great-circle sailing. It consists of two concentric circles, the one fixed and transparent, the other movemble.

ST. JOHN (United States, No. 95, p. 1439) has exhibited a very ingenious self-detector compass. In appearance it is very similar to the ordinary box-compass, and differs ebiefly in the following particulars: -- upon the compass card, and attached to it by pius, are two small needles. called satellites; to the centre of each a brass indicator is fixed; on the face of the eard are engraved two semi circular scales, or area of circles, so placed that their centres are in the centre of the compass card, and in a line joining the centres of the satellites: both these scales are graduated to degrees, the numbering of the graduation proceeding on either side from the central point of each scale. The satellites are balanced upon pins, move freely, and thus permit the brass indicators to move easily over the graduated area, according to the amount of disturbance, The satellites and the main needle being equally magnetized, remain stationary when there is no cause of disturbance in the magnetic meridian, and the brass indicators point to their respective centres; but, should there be any cause of disturbance, the indicators move simultaneously in opposite directions, thus indicating its amount, and if the urse of the disturbance be local, the indicator attached to that needle, the nearest to the seat of disturbance, will pass through the greater angle, and thus the direction of

the distributing cause is abown.

Mr. St. John has also exhibited an aquatic velocimeter.

This instrument in designed to abow upon a flais-face the
velocity. Upon the dall are three circles, each provided
with an index, and so graduated that the first performs
one revolation in a mily, the second in 160 miles, and the
orange of the contract of the contract of the contract
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revolving shaft, which receives its motion from a paddlewhich attacked to it. The water acting upon its fan causes it to turn round, the shaft in connexion with it performing one revolution in a distance of 4 feet. The performing one revolution is a distance of 4 feet. The obviate any danger which might strine from the position of the pipe within the vessel; there are also facilities for disconnecting the apparents from the clock-work, for the purpose of actual place lines to any time to point desired, purpose of actual place lines to any time to both St. John for those leventions, and warm the Prize Medal to John for those leventions, and warm the Prize Medal to

Surveying Instruments.

The instruments exhibited in the British persion of this sections are few in number, and, with the exception of those by Simms, Dollond, Marratt, and Yurte, are, for the most part, of an ordinary haid, there being suited may be found beautiful the properties of the properties of the properties of the colorisation of the colorisation with the properties of the colorisation with the properties of the colorisation of the colo

detailed presently.

The Polytechnio Institute of Vienna has exhibited various instruments for levelling, which present many improvements, the result of more than an ordinary degree of attention. Mr. Burt, of America, has exhibited a compass well adapted for surveying.

Surveying and Levelling Instruments.

Sixuas (No. 741), r. 479 (whithis a framit the colonic. That his of instantor was instructed as few years aime produced for the product of th

estimation the angle can be read to less than 5".

The telescope is 13 inches in focal length, and 1½ inch aperture, and is furnished with magnifying powers of about 25 and 40 times. The magnetic needle, spirit level, lamps, and tangent screws, and other fittings, do not differ materially from those usually adapted to theodolites of the best construction.

DOLLOVA (No. 148, pp. 426—428). A transit the cololite. The circles are 12 inches in diameter, each reading by verniers to every 10" of arc. The telescope fixed to the altitude circle is 30 inches foul length, and 16 inches and its apported on Y₁ on two strong concernating or and its supported on Y₁ on two strong concernating on the azimath circle. The compass is 5 inches in fine and divided to every degree. The apider lines are illumiant divided to every degree. The apider lines are illuminated to the control of the control of the article of the control of the control of the circle.

YEATES (No. 332, p. 446) exhibits a very portable small theodolite, with good divisions, well made, and strongly put together. It is furnished with one large spirit level. Also a 4-isot heodolite, dishpiving good workmanship; a prismatic compass with a spirit level attached, and an optie square, incended for use in determining distances. All these instruments are well made, and deserving of Honourable Mention.

Manarty (No. 409, p. 554) exhibits a 7-inch theodolite, which reads to 15". It is furnished with a locking-plate and tripod. The lower portion consists of a massive tripod with foot-screws, to which is fixed the eestre on which the instrument recolvers. The lower limb is in one piece, and is furnished with tongent-screws and three verniers. The exterior centre and Ys for the support of

transit axis are cast in one piece, and to which is attached a spirit level. The telescope is soldered to the axis, and the vertical circle is firmly screwed to it, so that the vertical circle, axis, and telescope, are firmly connected. The whole instrument is formed of the smallest number of pieces, with the view of preventing flexore and insuring stability. The Jury awarded Honourable Mention, JOSEPH (Canada, No. 182, p. 968) exhibits a 6-inch

thresholite of very indifferent workmanship. ELESOTT and Suns (No. 820, p. 444) exhibit an altitude and azimnth instrument of the ordinary construction. is understood that this instrument is intended chiefly for surveying purposes; it is coarsely divided, They also surveying purposes; it is coarsely divised. They also exhibit two transit theodolites, the one of 5 inches and the other 6 inches diameter. These instruments were not adjusted. Mesers. Elliott and Sons also exhibit dumpylevels of good workmanship. In those exhibited, the levels of good workmanning. In those exhibited, the index-bar on which the level rests is placed vertically, instead of horizontally, as they were in those by Mr. Garratt, the invector of this kind of fevel. There is also a change in the mode of adjusting the bubble; instead of the use of three serves at either ead of the bubble, there is one strong joint at one end, and a screw at the other; the joint cannot move till the screw at the other end is loose, and it is so constructed that it is almost impossible to become loose by travelling; and they exhibit an instru-ment based upon the principle of similar triangles, adapted for the determination of distances

BRIDGES (No. 339, p. 448) exhibits an instrument to determine the distances of objects, either by night or by day, and rules are given to determine the distance when the height is known, or when its breadth is known, or when neither is known, and also to determine the same by night. Banton (No. 708, p. 473*) has exhibited an instrument designed for sketching ground, for military purposes, with great rapidity. It is designed with a view to its being manageable in the bands of men engaged in military service, without regard to their scientific acquirements. Its simplicity of construction renders it very inexpensive.

For description of this instrument, see lilustrated Cats-Honourable Mention is given to this exhibitor. LINDELL (No. 362, p. 450) has exhibited pocket-sight and field-sight spirit-levels to the number of 30, as used mechanics, and adapted for drainage, road surveying, &c

The spirit-levels are exhibited on account of lowness of ica; some of the sight-levels are furnished with reverse sights; there is one level with a revolving shade, intended as a safeguard in the level tube.

ADCOCK (No. 353, p. 449) has exhibited a machine for drawing and mapping roads. GREEN (No. 446, p. 462) has exhibited a miner's com-

level, with adjusting parallel plutes on triped stand. It is a simple and inexpensive instrument, giving, by inspection, the rise and fall of land intended to be drained. It is also useful in laying tites, levelling, and in building operations. Mr. Cox has also exhibited an A level, to be used without either parallel plates or tripod stand.

BLYTH (No. 367, p. 450) exhibits four levels, of different lengths, with stand and small telescope Donns (No. 346, p. 449) exhibits a spirit-level, applicable for levelling machinery.

Honne, Thornthwaite, and Woon (No. 220, pp. 434, 435) exhibit an augular spirit-level, showing the rise and fall in inches and parts. It is adapted for agricultural

DENTON (No. 317, p. 443) exhibits a workman's drain-ing A level, with a boh, intended for the use of farm labourers; and a second level of the same construction furnished with a spirit-level.

Willron (No. 402, p. 453) exhibits a miner's theodolite.
Braon (France, No. 443, p. 1199) exhibits a repeating
theodolite with concentric circles, 8-7 inch diameter, divided to 10", and read by four verniers to 10". It is firmished with two telescopes of 17-7 inches in length, and apertures 1-2 ioch. The vertical circle is 4-3 inches In diameter, and is divided to 30". Mr. Haron also exhibits several levelling instruments. BEAULIER (Belgium) exhibits a repeating theodolite, of

the form used by Gambey. Its circle is 13 inches in diameter, divided on silver to 10 centesimal minutes, read by means of four verniers to 10 seconds, and is adapted to take either horizontal or vertical angles-

The azimuthal circle is 8.7 inches in diameter. It is divided upon silver, and is read by a single vernier. It is furnished with two levels. The telescope is 1 8 inch aperture, and 19°3 inches focal length. There is a counter-poise attached, to be used when vertical angles are to be This instrument was constructed for the Depot de la Guerre, in Belgium, for which service all the instruments are divided upon the centesimal system, but M. Beaulien has likewise divided this instrument sexagesimally, the principal circle reading to 4 seconds of are, and the azimuthal circle to 20 seconds. All the divisions of this instrument are very good, as indeed is the workman ship of the whole instrument, and the sextants exhibited (see Section, Nautical Instruments); a Prize Medal was voted to M. Beaulien.

GROETAERS (Belgium, No. 156, p. 1156) exhibits an instrument for determining the distance of insecessible objects. It is stated that the results obtained by the use of this instrument have been good.

DE HENNAULT (Belgium, No. 183, p. 1157) exhibits a miner's compass, intended for use in determining the co-

ordinates of a mine. LAMBERT (Belgium, No. 185, p. 1157) exhibits a small miner's compass, but not so well made as the preceding.

Backen (Netherlands, No. 83, p. 1147) exhibits a level-

ling apparatus.

BREITHAUPT (Prussia, No. 670, p. 1087) exhibits a theodolite. In this instrument, as in most theodolites of German make, the circle which carries the verniers is let into, and surrounded by, the gradented circle, so that their upper surface, on which the graduations are traced, are in one plane. In order to protect the divisions from dirt, rain, and from mechanical injury, the vernier circle carries a thin circular plate of hrass, which completely covers the graduated or outer circle, with the exception of two openings, covered with plate glass, through which the verniers can be seen.

This useful covering for the graduations, though now used by other artists, was, we believe, first introduced by Mr. Breithaupt,

Mr. Breitbanpt also exhibits a level, which instead of having circular collars on the telescope, which it is diffienit to make of equal diameter, and, if accurate when the instrument is new, are very apt to bear unequally, has towards each end of the telescope a knife-edge, and opposite to it, on the other side of the tube, a steel series with a convex head; one knife-edge is on the upper side of the tube and one on the lower side. The level is attached to a plate of steel, having its under surface ground truly Cox (No. 347, p. 449) has exhibited a beam draining plane. By turning the convex-headed servers, the planes through the knife-edges, and touching the heads of the serves, can be made parallel to a line joining the centre of the object-glass and the intersection of the cross wires, and therefore to each other. The ling of columntin of the telescope will be truly horizontal when the bubble of the level maintains the same position before and after inversion. This contrivance greatly increases the facility of adjusting a level, and of rendering the person using it independent of the skill of the maker.

It is a common error among surveyors to assume that the circular collars of a level are of equal diameter; and as long as this belief prevails, this invention must be of peculiar importance,

Mr. Breithaupt also exhibits a mining theodolite. This instrument is attached to its triped by a slightly conical socket, and the graduated circle is made horizontal by two screws, poposed by two strong springs. The graduation of the horizontal circle is to 30° and has two verniers. Its diameter is nearly 4) inches. The vertical circle, which is about the same diameter, is also read to 30° by two verniers

The telescope, whose sperture is about 11 lines at the place where it meets the horizontal axis, has a rightangled prism, which reflects the rays coming from the object-glass. At one extremity of the long borizontal axis are placed cross wires, adjustable by rack and pinion, and an syc-piece, adjustable by servering, similar to those of the levels. The telecoope can be pointed to any object, from the result in a depression of but more below the which is moved by a micromoter serve; and thus distance, can be measured from our station, by observing the stance, can be measured from our station, by observing the stance, can be measured from our station, by observing the stance, can be measured from our station, by observing the stance, and be measured from our station, by observing the stance, and be standard that the standard of the standard

protractor, the divisions of which are good, KYZELBACH (BAUTA), No. 50, p. 1113) has exhibited a surveying cross, being a cone of bruss, with two pairs of flue slits, for sights, at right angles to each other, running obliquely up its sides, and revolving on a base, the circumarerance of which being graduated, is read off with a versirer, tha whole being screwed on the top of the sur-

veyor's rol.

Mr. Kinerbeoch has also exhibited a diastimeter, or distance-measuring instrument; being a telescope, provided with a microsorter and divided cucks, the microsorter and divided cucks, the microsorter being mounted with two parallel wires, moverable simulations and the control of the field of view, and thus to embence the area of greatest distinctions and cases. Also an improved Weldstood's goodneeter.

IMPERIAL POLYTECHNIC INSTITUTE OF VIENNA (Austria, No. 130, p. 1014) has exhibited several beautiful instruments, constructed according to the plan suggested by

Professor Stampfer.

A large level. The aperture of the object-glass is 18 lines, and the power 20. The support of these levels consists of three feet, attached to the sides of a triangular prism by strong screws. The upper part of the prism is a truncated cone, fitting into a slightly conical socket, which forms the lowest part of the brass-work of the level. This socket is clamped very firmly on the stand by a single turn of a screw, so that the level can be readily attached to, or removed from, its tripod. The lower part of the level consists of two circular plates, connected by a ball and socket, as in the levels constructed in this country. But instead of four screws for making the upper plate horizontal, the Austrian level has two screws and two strong springs, the screw being at one end, and the springs at the other end of each of two diameters of the plates, as right angles to each other. By this contrivance the upper circle is more quickly and easily made horizontal than in many other known instruments of this kind, without the danger of either shaking or bending the plates, attendant upon the use of four screws,

The upper circle, which is about 44 inches diameter, is graduated, and has two versiers, reading to 30' The greatest improvement introduced into this level is n micrometer serew, by which an angle in a vertical plane, if ant more than 8, can be determined to within 1" or 2" of the truth. This serew is of great use in making the telescope very accurately level, when the instrument is employed in the ordinary manner, and the situation of the levelling staves so chosen that they are intersected, at some point of their length, by a horizontal plane through the axis of the telescope. By the aid of the micrometric screw, however, the difference to the altitude of two stations can be determined, when it greatly exceeds the length of the levelling staff. For this purpose the staff carries two marks, at a known invariable distance from each other. The angular altitudes or depressions of these two marks, measured by the micrometer screw, serve to determine, with great precision, not only the inner eleva-tions or depressions of either mark above or below the axis of the telescope, but also its horizontal distance from the centre of the instrument. These distances, combined with the difference of azimoth of the stations observed with the horizontal circle, afford data for constructing a map of the country passed over in levelling. The selection of stations in this mode of levelling is limited only by the condition that the elevations or depressions of the marks shall not exceed 8? By one observation, differences of level of 100 feet between two stations may be measured;

* See the 20th volume of the Polytechnic Institute.

hos the stations may be taken at much greater distances, from each other than in levelling by the old method. This advantage is porticularly fet in levelling through a first part of the stationary of the statio

able by a rack and pilent. This tube moves between three bearings, attached to the inside of the onner tube, at equal distances from each other; one of those is a spring of the tube carrying the milenometer. The telescept is adapted to the focal length of the eye of the observer, by having that lens of the eye-piece which is earcit the role in a complete the contract of the contract of the contract in the contract of the eye-piece of intense, to gire distinct on the contract of the eye-piece of intense, to gire distinct vision of the even wires.

 Smaller levels, of similar construction, in nne of which the telescope has a power of 15. In another the power equals 12. A fourth is similarly constructed, with the exception that it has no horizontal graduated circle;

tha power equals 6.

 Twn pocket telescopie levels.
 A raker for plane table surveying, with a telescope provided with a micrometer screw, similar to that of the large levels for measuring distances.

 A rater for plane table surveying, with telescopic sight. The Jury awarded Honoumble Mention for these instruments.

minorum (Pressis, No. 484, p. 1078) exhibits a 6-inch headshite, of regregod verkmushly. The Jury awarded Hossumale Menton in Mr. Schröder.

Juryezak, Lonox Wonse, (Rossis, No. 169, p. 1372)
exhibit a levelling instrument, mounted on a well-bruced and very firm tripod stand. The instrument is well made in every part, with good divisions, and reflects credit upon the artist.

Bowr (United States, No. 187, p. 1449) has exhibited an "astronomical compuss," an instrument intended for the survey of lands, buys, &c., for the determination of latitudes, apparent time, and the magnetic declination. It contains of two plates of about of inches in diameter: the apper revolves about the lower by means of a centre-

piece, which, when fixed, leaves the under plate to revolve freely. That we plates can be clamped together by means of two clamps. The upper side of the lower plate is divided, the graduations being seen through two openings in the upper plate, and which are furnished with verniers. A small magnet is placed on the upper plate for deter-mining the declimation. To the upper plate is fixed a grooved arc, a latitude are, a declimation arc, an hour arc, two spirit-levels, &c. The latitude arc is fitted to one end of a curved bar, the other end of which is in connection with the hour are, and can be adjusted to the latitude of the place. The declination are is placed upon a limb which revolves equatorially upon a centre, and there is a second moveable limb turning on a pivot at one end, and fornished with a vernier at the other, which moves on the declination are and affords a means of clamping it to the sun's declination. To each end of a moveable bruss limb a small brass plate is attached at right angles; into the upper side of one, and to the lower side of the other, a small convex lens is inserted, fitted with a sliding shade, through which there is a small hole; opposite to each lens is fixed a small silver plate; on these plates fine lines are drawn, sufficiently separated to include the image of the sun. The area of latitude and declination have each a radios of 5 inches, and are graduated to 15', and read by verniers to single minutes. The hour circle has a radius of 2\frac{1}{2} inches, and is divided to half degrees. The instrument is firmished with every means of adjustment and verification. It is well adapted for surveys in new districts, and has rendered good service in magnetic districts, where it is understood that instruments constructed with magnetic compass have failed. The Jury voted a Prize Medal to Mr. Burt.

Standard Measures of Length.
Whitwonth and Co. (Class VI., No. 201, p. 290) have exhibited a standard bar measurer. This machine consists of a metal frame, at each end of which is placed a micro-

meter; that to the right-hand is a combination of a screw about ten threads to the inch, of a tangent screw and wheel with 400 teeth, and also a circle with 250 divisions. Therefore the divisions on the circle indicate 4th of 4th of that of an inch, or of one millionth part of an inch. The micrometer placed at the left-hand is furnished with a screw with teu threads to one inch, and a circle divided iuto 500 paris, and thus one part of the eirele corresponds to shoth part of an inch. On the upper side of the frame, and extending through its whole length, is placed a half square groove made of steel, with its angle downwards, and its upper edges horizontal. In this she measure is placed. Between one end of the measure and the point of the right-hand micrometer, a perfectly flat contact piece of metal is placed, with its sides parallel; the other end of the measure abuts against the left-hand micrometer.

There are two methods of determining when contact

takes place, and hence the length of the standard measure.

1. By that which is termed the test of gravitation, 2. By that which is termed the galvanic test,

(1.) The test by gravitation is as follows: The experimenter moves the end of the screw of the right-hand micrometer through one millionth of an inch by means of the right-hand micrometer; then carefully raises the contact piece, and allows it to fall by its owo gravity: he then moves a screw through a second millionth of an inch, raises the contact piece as before, and so on, till the approach of the end of the micrometer screw to the end of the measure prevents the contact piece from

descending. This completes the measure. 2.) The galvanie test is as follows:-

There is a small battery composed of a piece of zine and copper soldered together and immersed in rain water, without the admixture of any acid: this is connected with the micrometer (which is insulated from the machine) and with a delicate galranometer by means of covered wires. The measure itself is also insulated from the

machine. By parsuing the same process as before, contact is indi-

on completing the circuit hy the deflection of the

needle of the galvanometer.

This beautiful and delicate apparatus seems to be capable of improvement: the ends of the measure exhibited are perfectly flat, and of its full size; the contact pieces are somewhat smaller, but the constant and repeated contact must wear the ends away, and soon alter its length. For a standard bar, it would certainly be better to insert at its ends a smaller contact surface, of a substance much harder than steel. A Council Medal was awarded to Messrs, Whitworth. (Awarded also in Class VI.)

BAUMANN (Prussin, No. 76, p. 1052,) exhibits Bessel'a standard measure. It consists of a solid beam of mahogany 4 feet 64 inches in length (Prussian measure), 7 inches 2 lines square. The two 3-feet bars to be com-pared are placed upon a carriage on five wheels, which run on rails in a direction at right angles to the length of the bars. At each end of the carriage are receptacles for the bars with screw adjustments for placing them in a proper position for comparison. At each end of the beam is placed a micrometer, consisting of a slider moved by a screw having about 400 turns to the iuch. On the slider are two Ys, in which rests a cylinder of steel about 7 lines in diameter, and 4) inches long. The inner end (viz., the end directed towards the middle of the beam) is ground convex, the other end is a cone. The point of the cone rests against a vertical plane of steel attached to the axis of a "fühlmivenn" (level contact) at a point about 0.25 inches from the axis. The bars to be compared (bars of steel, not hardened, 0.75 inches square, having their ends on rather a small circular disc at either end, which is made of hardened steel, ground truly plane), are placed on the carriage, with their axis about 11 inches as under. The carriage is moved till the axis of one of the bars coincides with the ends of the steel cylinders, and the micrometer screws are turned till the convex end of the steel cylinders coming in contact with the end of the bar, the pointed end of each cylinder pressing against the steel plate attached to the axis of the level turns the sevel, till the hubble rests nearly in the middle. The divisions of

the head of the micrometer screws, and the divisions of the level scales at which the end of the bubbles rest, are then read off. The slides are now withdrawn through a small space, the carriage moved till the axes of the second har coincides with the axes of the steel cylinders, and the bar councides with the axes of the steel cylinders, and the micrometer serves turned as before, till the courve ends of the cylinders come in contact with the ends of the second bar, the conical points turn the level till the habites rest nearly in the middle of the scale, the divisions of the heads of the micrometer servers and divisions at which the ends of the bubbles of level rest are read off. This constitutes one comparison.

After a certain number of comparisons have been made this manner, each bar is turned, so that the surface which was undermost becomes appermost, without turning either of them end for end, and the same number of comparisons made as in their original position. The object of this is to estimate any error that might arise in making the ends of the bars coincide with the axes of the two steel cylinders, supposing the plane end of the burs not to be exactly at right angles to the axes. During the comparisons the bars are covered by a wooden case, which allows the heads of the micrometer screws and tubes of the levels to be seen, and has two openings, covered with glass for observing the thermometers placed on the bars to be compared.

The delicacy of this "comparateur" is such that unless extraordinary precautions be taken, the errors produced by the fluctuations of atmospheric temperature are much cater than the errors of measurement.

In order to eliminate error, arising from the heat radiating from the observer, Bessel recommends calling the bars A and B; A should be brought between the micrometers, then B, B again, and then A. These four measures he calls one comparison. The observer then should station himself on the other side of the com-parateur, and make a second comparison. Bessel made a number of comparisons of two bars in a cellar, where the change of temperature was very small.

The means of four comparisons, two before and two after, the bars were turned, differed from the mean of ourteen sets of 1 inch from comparisons by the following fractions of a line :-

> - 0:00010 - 0.00001 + 0.00013 - 0.00001 + 0:00010 + 0.00003 - 0:00002 - 0:00011 - 0'00018 + 0.00011 + 0.00005 + 0.0000

To make the axes of the bars coincident with the common axis of the steel cylinders a ring carrying a fühlhebel (lever of contact) can be fastened on the end of either cylinder. Bring the fühlhebel in contact with that portion of the end of the har which is cylindrical, and tarn the cylinders round its axis. If the long arm of the fühlhebel remains pointing to the same division of the are, along which it moves, the end of the bar is strictly centred, if not the long end of the lever will move on the graduated arc. A Prize Medal was awarded to Mr.

0.00000

Sthms (No. 741, pp. 475-477,) exhibits the three standard yards, prepared for Her blajesty's Commis-sioners, for the restoration of the standard of length, with two methods of supporting them; one hy Professor Miller, consisting of a system of levers, hy which an equal degree of pressure is sustained upon eight equidistant points of the bar; the second by the Rev. R. Sheepshanks, by floating the bar in mercury, which is therefore equally

* For a complete description of this instrument, see Bessel's "Darstellung der Untersuchungen and Masss-regelin, &c.," Berlin, 1839. supported at every point throughout its length; the bar is covered with a coating of gold-beater's skin to defend it from attack by the mercury. It is probable that the former is the better method, as the latter, though good in theory, is probably not good in practice, from the fact that iron rusts easily in mercury, and copper and its alloys combine easily with it.

commine carry with it.

Mr. Simus also exhibits two standard scales, which
have been used for the formation of many scales now in
use. They were made by the exhibitor, whose property
they are. The tubular scale is No. 3 of Mr. Bailey's Report on Standard Mensures.*

Dividing Machines.

ACKLAND (No. 368, p. 450) has exhibited a machine for dividing hydrometers and other variable scales, with accuracy. The instrument is furnished with a mounted head, screw, and suitable entting apparatus.

The usual means of graduating hygrometers is hy determining three points by means of three different fluids, whose specific gravities are known, and dividing the intervals between these points into equal parts. This method is evidently defective, as the divisions, instead of being equal, increase, in a given ratio from below

upwards.

The plan adopted by Mr. Ackland may be divided into three processes:-1st. The ascertaining the exact position of three or more points of the scale, according as the stem of the hy-

drometer is more or less cylindrical.

aromere is more or ress crimaries.

2ndly. The dividing with great accuracy a scale on box-wood, to show the specific gravities required to be indicated by the hydrometer, and to be used by the instrument for the purpose of measuring and correctly marking the distance of one division from another on the paper scale with true mathematical certainty rdly. The making a reduced copy of the box-wood

scale, so as to form a scale, the points of which shall cor-respond with the distance between the ascertained points of the hydrometer halb. The scale so formed on paper is the scale for the hydrometer. For example, suppose it be required for a hydrometer to show specific gravities from 1 000 to 0 700; to show this a bulb is chosen with a stem as uniform as possible, and three points, viz., '700, '850, and 1'000, are ascertained as follows:-

Let a b e be the degrees required. Suppose m be the point on the stem whereon it is required to mark the highest specific gravity, vis., 1.000 = a. To find this point, the instrument is louded until it floats in distilled water at the temperature 62° Fahr., at the point m; let the weight of the instrument then be x. Tu find '850 = 6.

Load the instrument until it weighs $\frac{a \cdot x}{L}$, where it floats in distilled water, mark the tube at a. To find '700 = c

Load the instrument until it weighs $\frac{a \cdot x}{x}$, where it floats in distilled water, mark the tabe o.

Finally, before sealing the instrument, make it weigh a x; then m n o will respectively represent the specific gravities required. By this plan, which was suggested to Mr. Ackland by Dr. Clark, of Aberdeeu, the correct position on the stem of the three specific gravities is obtained; the next and most important operation is the subdivision of these spaces, so that each division shall be in its true position. This is done by copying a calculated scale by aid of the machine, the construction of which is such that a proportionate scale of any length less than the

iginal can very readily be produced.

The scale is determined by forming a table of the reciprocal of the specific gravities, and taking the differences between them; in use the micrometer head is snecostively advanced, and each division is ent with accuracy and with great rapidity.

Most of the scales of the hydrometers exhibited have

+ See tha "Transactions of the Royal Astronomical Society.

been graduated in the usual way, and are therefore in-necurate; these exhibited by Griffin (No. 457), were performed by this machine, which Mr. Ackland has the merit of inventing. He is the first in England who has carried

into active practice a correct mode of subdividing glass vessels for gases and liquids by the aid of a machine. The cutter is made to cut, and cuts a division. The detent, apparently, is then brought back to the common coutre of the helix screw, either by lifting, unclamping, and re-clamping, or in some equivalent way, and rura its course again to bring the cutter ready for another cut, and so on. There is also a second novelty, vir., a nest little contrivance to make every fifth division longer than the rest by means of a wheel which advances one step at each division or movement of the cutter frame. A point, let drop to touch its circumference, determines, by the depth to which it descends, the length of the ent; but at every fifth step the wheel has a notch into which the point descends, allowing the enter to make a longer stroke—

longer by the depth of the notch.

A Prize Medal was awarded to Mr. Ackland.

PERSEAUX (France, No. 369) has exhibited a straight se divider. This is a beautifully-courived divider line divider. on Ramsden's principle, with a long fine steel serew. The novelties are, first, the wheel at the screw head, which is divided into 400 parts, and has cut upon its circumference (which is made broad), a belix screw, in the thread of which runs a detent carried along by the run of the thread till it meets a stop clamped on the helix at a definite point. This arrests the serew, at this point of the motion. A Prize Medal was awarded to M. Perresux.

FROMENT (France, No. 1609, p. 1254,) exhibits a divided metre, the divisinos on which are beantifully distinet, and as far as could be ascertained, very exact. It is believed that the divisions were cut by M. Fromen's dividing engine, which be has constructed for dividing astronomical and geodetical instruments. M. Fromen's has also constructed a screw more than a metre in length, for the purpose of dividing lines quickly, and it is nader-stood that in so doing electricity is made use of in con-nection with the movements of the acrew and machine.

A Council Medal was awarded to M. Froment. The Consumpatorak des Arts et Métiers (France, No. 1568, pp. 1251, 1252,) exhibits a hrass metre by Gambey, decimally divided. Also a fine platina metre, which is described as the "second type of the Collection of Weights and Measures of the Conservatoire des Arts et Métiers,- executed by M. Brunnen, and compared by M. Silbermann," and is stated to be a copy of the ancient

plating metre of the same collection, an immediate derivative of the prototype in the archives of France, and to be 0.000019 millemetre

Tis properly speaking a "metre à bouts," and is converted into one "k traits" by attaching to each of its extremities a supplementary piece of patina, separated from the bar by a very this lamins of gold, which appears as a fine line of gold at the junction. It is supported on a bed of bronze, to which it is attached firmly and by accurate adjustment at one end, whilst the other is left free to slide by expansion, thus converting the whole system into a Borda's pyrometer, the amount of relative expansion being rend upon a scale, the value of whose points has been derived from experiment by immersion in melting ice and boiling water. The Conservatoire des Arts et Métiers also exhibits a

standard kilogramme and litre; a series of French coins of legal currency, and a collection of wood meanring rods, both in single lengths, and in more or less numerous joints; also measuring chains, and a series of measures of capacity of the following values (in litres), viz.:—

20, 10, 2, 1, 4, 3, 4, 4, 4, 4, 1, 1, 1, in brass, with ground rims and sliding glasses to each

Bulances.

The Exhibition contains balances of all sizes, from Mr. Fox's balance, intended to carry extremely small weights, up to the balances of L. Certling and the American balance, both of which are capable of carrying

56 lbs. in each pan. Many of them have probably never been surpassed, in the construction of the beam, knifeeages, phones opposed to them, permanence of the adjustments and beauty of workmanship; yet in all, the position of the beam, when loaded with the weights to be compared, is shown by a long index nearly in contact with a graduated are, although for several years other and greatly superior methods of determining the position of the beam have been in use, such as hy a graduated are attached to one end of the beam, and viewed through a compound microscope baving a horizontal wire in the fecus of the eye-glass, or by a mirror attached to the beam, in which the reflected image of a scale is viewed through a telescope.

In the balances exhibited the beam and pans are suspended on knife-edges, more or less in length, with the single exception of Mr. Fox's balance, in which the beam has pivots, the conical ends of which play in hollow again

coues of larger angle.

There is no example of the balances constructed ander the direction of Gauss and Weber, and described in the "Gottingen Transactions," in which the beam is suspended by two watch-springs, and each pan by a single watch-spring; nor of either of Steinheil's balances, in which the beam and pans are suspended by wires or silk ribbons; nor of the balances first (Professor Miller believes) invented by Steinheil and used by Kupffer in comparing the Russian standard of weights, in which the beam carries two small steel spheres in the middle, resting upon a steel plane, and a sphere at either end, upon which rest the plane or slightly concave spherical surfaces of the plates from which the scale-pans are suspended. There are a variety of contrivances for ebecking the

oscillation of the beam and pans when in action; none of them can compare in simplicity and efficiency with the apparatus invented by Wollaston, and used by the late T. C. Robinson, Barrow, Dover, and by most of the English makers of balances, and also by Nissen, of Convenhagen, the only foreign maker who appears to have made

In nearly, perhaps in every instance, when the divisions of the scale, to which the Index of the balance points, were numbered; the division to which the index points when the beam is horizontal is marked zero, and the scale numbered 1, 2, 3, &c., to the right and left. This method is most inconvenient, and frequently leads to error. The number of the divisions ought to run all the same way, and need not begin with zero, it being far better to number that division to which the index points, when the beam is horizontal, 10, 20, or some multiple of 10, for the purpose of avoiding the trouble, perplexity, and liability to error, attendant upon the necessity of noting numbers, in addition to whether the numbers are positive or negative. This remark is of general application to all instruments to which scales are offixed.

L. Orartana (Nn. 334, p. 446) exhibits a large halonce having n beam 3 feet in leagth, coated with platinua; and capable of corrying 56 lbs. (conal to 254 kilo-grammes) in each pan. The beam, a pierced rhomb, is constructed so as to give great strength in proportion to its weight. Any tendency to Interal yielding is counteracted by easting the beam with edge bern

The whole length of the middle knife-edge rests upon a place surface of steel; the three knife-edges are long.

Plane surfaces of steel, from which the scale-pans are suspended, reat upon the extreme knife-edges. When not in action the beam and the steel planes from which the scalepaus lang, are supported, so as not to be in contact with each other. The frame for supporting the beam nod paus is extremely well contrived; so also is the mechanism for lifting it.

He exhibits also a balance capable of carrying one kilosome in each pan. The heart of this balance, which is 16 inches long, is coated with palladium;† the three

* See Kupffer's work on the "Comparison of Standards" for a description of this balance.

† These beams were conted by T. H. Henry, Esq., F.R.S., by n peculiar process, in which the electric current was employed in depositing these metals. It would seem, from

knife-edges, as well as the plane upon which the middle knife-edge rests, and the planes from which the pans are suspended, are of agate, so that the whole instrument is nunflected by acid vapours. The beam is graduated, and small differences of weight are determined by a small weight that can be placed upon parts of the graduated beam. The beam and pans are supported, excepting when in action. The adjustments of the knife-edges, in the direction of the length of the beam, are as few as possible to be very permaneut. The koife-edges are not capable of any adjustment after leaving the artist's hands in a direction perpendicular to the length of the beam. As far as the beam and knife-edges are enaceracd, a better balance has probably never been constructed. He exhibits also a smaller balance: the beam is 14 inches long, similar to the former in construction, and capable of carrying about 1,000 grains. A Conneil Nedal was awarded to Mr. Oertling.

Doven (No. 344, p. 449) exhibits a balance, which in construction is similar to the balances constructed by the late T. C. Robinson, and, in execution, fully equal to the balances made by that most excellent artist, is 104 inches long, and is capable of carrying about 2,000 graumes in each pan.* The three knife-edges are of steel, the planes opposed to them being made of agate. The final adjustments, both in the direction of the length of the beam and in a direction perpendicular to it, are effected by a cut at each end of the beam making an angle of about 45 with the axis of the beam, which may be widened by means of a screw. This is an excellent mode of adjustment, succeeding perfectly, and proved to be very permanent when confined to extremely narrow limits. If these limits be exceeded, as they sometimes are in maskilful hands, the end of the beam is cracked and

Mr. Dover has substituted chains with long links for silk threads, for suspending the pans, and has added an incruious contrivance for susporting glass tubes in weighing.

weighing.

A Prize Medal was awarded to Mr. Dover.
Fox (No. 377, p. 451) exhibits a balance for extremely small weights, which has instead of a knife-odge at the middle, an axic ending in conical points, which points play in conical holes (the angle of the cone in the holes is, of course, greater than the nugle of the cone of the pivots). The attraction of a magnet brings the beam exactly to zero before weighing. In order to overcome the friction, of which much is introduced by the construction of the balance, there is an instrument for rasping

MARRIOTT (No. 341, p. 449) exhibits a chemical balance, the beam of which is made of a wide bit of wood (fir), with interstices cut out so as to leave a strongly framed network. The knife-edges do not appear to admit of any adjustment. The scale-pans are suspended from double hooks of wire hanging on the end of the knife-edges, This instrument is a curiosity: it is stated by the maker to be sensible to the 100th of a grain. It is a good example of a make-shift for a halance, when at a distance from good workmen.

DE GRAVE, SHORT, and FANNER (No. 333, p. 446,) exhibit two assay-balances, apparently of very good work-manship, but not adjusted, and a large oumber of com-mercial balances of various kinds, weights, and measures of capacity and length.

Bache | United States, No. 395a, p. 1462).-Large balance, capable of carrying 56 lbs. (equal to 25'4 kilo-grammes) in each pan. The kuife-edges are square bars of steel. Each har is fitted into a socket attached to the beam, having a rectangular notch, so that any me of the four edges of the bar may be used as a knife-edge. The

this successful application, that the same process is applicable to graduated instruments.

* A similar balance, finished by Mr. Dover, was used repeatedly by Professor Miller to weigh 5,760 grains, and

represents by Processor States to weigh 3,750 grains, and was not in the slightest degree injured.

† The centre of gravity is too high to admit of using I in the event of one of the edges being damaged this arrangement is of great service.

socket, in which one of the extreme knife-edges is fixed, moves in a slit in the direction of the length of the beam, and is adjusted in that direction by means of two screws, A smaller balance is exhibited, of almost exactly the

same construction as the preceding; it is capable bably) of carrying a kilogramme in each pau. A Prize

Medal was awarded to Mr. Bache.

DELUCIT (France, No. 160, p. 1178) exhibits a large balance, capable of carrying two kilogrammes in each pan. The middle knife-edge rests upon a plane surface of steel. The pans are suspended from plane surfaces of steel, which rest upon the extreme knife-edge. Screw adjustments appear to be avoided, in order to secure invariability in the positions of the knife-edges. The cast-iron base of the balance has holes under the extreme knife-edges, for suspending large globes of glass for weighing gases, in an enclosed space beneath the base of the balance. Both the construction and workmanship of

this balance appear to be extremely good.

A chemical balance, by the same exhibitor, capable of carrying 300 grammes in each pan. The pans are of platinum, suspended by silver wires.

Another chemical balance, capable of earrying 200 grammes in each pau; the pans are of platinum In these two balances the middle knife-edge rests upon a plane surface of steel. The pans are suspended from

slightly curved steel hooks, Balances of this construction, though considerably inferior to that in which the pans are suspended from plane rior to that in which the pans are suspended from plane surfaces, are simple, not easily deranged, and accurate enough for all the ordinary purposes of chemistry, for which they are expressly constructed. An assay-balance, of the ordinary construction and excellent workmasship, is also from the same exhibitor.

A Council Medal was awarded to M. Delcuil.

COLLOT, BROTHERS (France, No. 1155, p. 1233) exhibit a large balance, capable of carrying two kilogrammes in each pan. In its construction and excellence of execution, it very closely resembles the large balance of M. Deleuil.

An assay-balance of the ordinary construction is also

exhibited by Messrs, Collot. A Prize Medal was awarded to Messrs, Collot

Béranges (France, No. 761, pp. 1216, 1217) exhibits a balance to be placed upon a counter, with platforms for holding the substance to be weighed, and the weights. With fifty kilogrammes in each pan, the addition of one gramme to the weights in either pan causes the index to move through about a quarter of an inch. When tried with twenty kilogrammes in each pan it was found to turn very sensibly on placing half a gramme in one of the

M. Béranger also exhibits a steelyard in which the weight is moved along the arm by a screw of the length of the long arm, and parallel to it, having a bend of about 4 inches diameter, divided into 100 parts. This steelyard is sensible to 100 grammes, with 1,000 kilogrammes sus-

pended from the short arm

Also, bascule en l'air, a double steelyard. The end of the short arm of a steelyard is connected by a link with the extremity of a lever, and at a distance from the fulcrum of the lever equal to a small fraction of its leacth is a knife-edge, from which the substance to be weighed is suspended. One of these, capable of weighing 1,000 kilogrammes, costs 260 francs.

M. Beranger exhibits a model of a machine for determining the pressure exerted by each wheel of a loco-

motive. Also, a peso-compteur, a weighing-machine, which registers on a sheet of paper the weight of every article weighed. Besides these there are a great many commer eial balances, all of which are most ingeniously contrived, extremely well made, very accurate, and considering the workmanship, and the number of adjustments to be attended to, very cheap. Although the Jury considered them well deserving such reward, no Medal was voted to M. Béranger, on account of these being commercial balances, and as such thought by the Jury to belong to instruments for direct use, rather than to philosophical instruments: they have, however, received a prize in

Sacuti (Belgium, No. 504, p. 1167,) exhibits a large balance, capable of carrying two kilogrammes in each The manner of fixing the extreme knife-edges to the beam is different from that usually adopted, in which the under horizontal surface of the knife-edge is in juxtaposition with the horizontal surface of the beam, widesed at that particular part, and firmly fixed to it by one or more screws. In M. Sacré's bulance, on the contrary, the more screws. In a carre's outsize, on the contrary, the ends of the beam terniante in vertical plane surfaces, to which are attached, by servers, vertical plates of steel, terminating above in knife-edges. The pans are suspended in such manner, that their swinging in any direction has no tendency to twist the beam of the balance.

This instrument is remarkable for the extreme beauty

of its workmanship.

M. Sacré also exhibits an assay-balance, in which, contrary to the usual construction, the pans are suspended from plane surfaces of steel which rest apon long knifeedges, and are supported independently of the beam when the balance is not in action : it is therefore not only more accurate than ordinary assay-balances, but is embled to carry 20 grammes in each pan without injury. The work is extremely good.

In assay-bulances, as usually constructed, the paus presuspended from hooks, which themselves rest on books worked to a fine edge, attached to the eads of the beam, and are not calculated to carry a weight of more than

A Prize Medal was awarded to M. Sacré,

A. OKRTLING (Prussis, (No. 87, p. 1053) exhibits a balance of very beautiful workmanship, capable of carrying a kilogramme is each pan.

The knife-edges are let into dove-tailed notches in the

beam.* The adjustment of the distance of the extreme knife-edge from the middle knife-edge is effected by means of a vertical cut in the metal of the beam, which may be slightly widened or contracted by screws. The agates which rest upon the extreme knife-edges, and from which the pans are suspended, are not plane, but have an obtuse re-entering angle, into which the less obtuse angle of the knife-edge enters, and are not suspended independently of the beam when the balance is not in action. Two thermometers are placed with the bulbs as high as the beam; but it probably would have been better if the bulbs had been pinced a little above the scale-pans, for the temperature of the air immediately surrounding the ubject to be weighed often differs sensibly from that of the air in the over part of the balance-case Ourtling has also two smaller balances, of similar con-

netion, struction, capable of carrying 100 grammes in each pan, A Prize Medal was awarded to Mr. Oertling,

HEIMANN (Prissis, No. 86, p. 1053). Halance, capable of carrying one kilogramme in each pan. The knife-edges are opposed to agate planes. The adjustment of the position of the knife-edges is effected by means of an ablique out at each end of the beam, the breadth of which may either be increased or diminished by screws. This is the only balance in the Exhibition in which a circular level has been adopted. The Jury considered it worthy of Honourable Mention.

HOFFMANN and EBERHARDT (Prussia, No. 88, p. 1653) have exhibited balances for apothecaries: they seem well and a fourth 25 grammes in each pan.

A Prize Medal was awarded to Mesers, Labme

BATKA (Austria, No. 135, p. 1014) exhibits a very small balance by Kusche, of Vienna, contained in a platinum " It is doubtful whether this mode of attaching the knifeedge is quite as good as when the beem is made wider at the extremities and the middle, and the whole length of the

knife-edge rests upon it.

† The form of the sgates seems to be objectionable. In the present case, too much reliance seems to have been placed on this mode of adjustment; for one of the outs has been widened by screwing till a crack in the beam

has begun to form.

blowpipe apparatus. It is very well made, and the Jury deemed it worthy of Honourable Mention,

Dolberg (Mecklenburg-Schwerin). Balance, to carry one kilogramme in each pan. This balooce is in many respects very well constructed: but the middle knife-elecis supported by two agate planes, and the bearings of ti knife-edge on the planes are rather short, both of which circumstances are defects. The oscillation of the pans is checked by hair-brushes, which on turning a handle second till the ends of the brushes touch the under-sides of the pan: in this arrangement there is reason to appre-hend that loose hairs might attach themselves to the under-sides of the pans, and so lead to an error in the weighing. The pans are suspended from plates of steel, having plane surfaces, which rest upon the extreme knife-

edges A Prize Medal was awarded to Mr. Dolherg.

A FIRE Jacolal was awanded to Jar. Lionerg.
Brokers (Netherlands, No. 83, p. 1147). Balance, capable of carrying one kilogramme in each pan. The beam is a single bar, the middle kinfle-edge being supported on two agate planes.† The contrivance for lifting the pans and beam when not in action is ingesious, linamuch as the motion is slow at the time the beam is depomuch as the motion is now at the time the coast is orga-sited on the middle support, and the agate planes from which the pans hang on the knife-edges; but it is unsteady in n lateral direction. There is also reason to apprehend the extreme knife-edges would not touch the agate planes in the same parts in successive weighings. The method of attaching the pans to the hrass rods by which they are suspended, in such a manner as effectually to guard against apsetting the pans wherever the weight may be deposited. is extremely simple and ingenious. The Jury considered it worthy of Hononrable Mention.

Nieszn (Denmark, No. 20, p. 1356). A large balance to carry 10 lbs. (4-54 kilogrammes): the middle knife-edge is cut away in the middle, so that the bearings of the edge on the middle plate are too short. The pans are suspended from plates having concave surfaces, which form of plate is objectionable. They are not supported lodependently of the beam, when the balance is not in

The excentric motion for putting the balance in action

A small balance exhibited by Nissen, capable of carry-ing more than 100 grammes. The middle knife-edge in this, also, is cut away, so that the ends only touch the plane surface on which it rests. The balance in other respects resembles Rohinson's balances, except that the middle knife-edge rests npon two planes, and that the plane surfaces are of steel instead of agate. It is fur-nished with Wollaston's contrivance for elecking the

cillation of the pans and beam. The same exhibitor has also a small assay-bolan The Jury considered Mr. Nimen as deserving Honour-

able Mection

ADDE MECTION.

LITTMAN (Sweden, No. 15, p. 1350). In this balance
the index is at one end of the beam. In addition to this
index there is another pointing apwards, the end of which is viewed through a compound microscope, having a divided scale or glass in the focus of the eye-piece. This contrivance for reading off the extreme portions of the balance during its oscillation is far inferior to a graduated scale, attached to the beam of the balance, observed with a compound microscope having a single wire in the focus of the eye-piece. It also adds greatly to the bulk of the balance-case. The Jury considered this balance deserving

Honourable Mention. VIBERG (Sweden and Norway, No. 14, p. 1350) exhibits a chemist's balance, which the Jury considered worthy of Honourable Mention, it being well adapted for the purposes it has to perform.

Coin-Weighing Machines.

We will now turn our attention to another class of balance, recently introduced, viz., coin-weighing machines Of these there are three in the Exhibition-one exhibited by W. Corron, Esq., late Governor of the Bank of Eng land; a second by Captain SHITH; and a third made by DELECT. (France, No. 160, pp. 1178-1180); this last instrument was designed by Baron Skotten.

Before proceeding to the particulars of these beautiful struments, it may be well for a short time to dwell upon the want which has called there into existence, as kindly explained by William Miller, Esq., of the Bank of England. All sovereigns brought into the Bank of England by the public are weighed singly, and this is found to be solutely necessary; else the stock of sovereigns in the Bank would very soon fall below the legal current weight of 122½ grains each. The Bank, therefore, is compelled to weigh all the gold coin it receives singly, to guard

against loss. In June, 1842, the Queen's Proclamation was issued commanding all persons to cut and deface whatever gold coin was found to be below the current weight. Before that time the light sovereigns, though they were rejected by the Bank, were accepted almost everywhere for their by the mank, were accepted almost everywhere for their fall value, and the public were not disposed to criticise very nicely the Bank's weighing, as the rejection of their money occasionally, when it was really of the current weight, or the issuing it to them a trifle below the weight, was of small consequence; for, though it might occasion a little trouble, it entailed no loss. But it was quite n different affair when their sovereigns were cut as well as rejected, so that they were obliged to sell them as bullion, sometimes at a loss of three-pence or four-pence a-piece; or when, as was sometimes the case, they received sove-reigns at one counter of the Bank which were cut and returned to them when tendered at another. The public then, as might be expected, were very angry; but there was no help for it. The Bank had provided the best scales that could be procured; they had the most expescare that could be procured; they and the most experienced weighers; they re-weighed singly every gold coin in their stock, amounting to apwards of £8,000,000, and weeded it of all the light pieces that could be detected, at n loss of between £3,500 and £4,000; but the evil remained, Sovereigns were still issued at one counter which were rejected and cut at another,

This did not arise from any fault either of the Bank or of its officers, but from the inherent difficulties in the operation of weighing so necurately as was necessary, or with the same result, in a limited time, even with the best-constructed scales. Some of the causes of error Mr. Cotton ascertained to be-differences in the weights made (notwithstanding the Mint stamp attached to them) of considerable amount in relation to the degree of correctness required; currents of air acting intequally upon the scale-pans; a constant diminition of the weight of one pan, by the act of placing and displacing the coins to be weighed, hy which the equipoise was every moment destroyed; the striking of the scale-pans upon the counter; difference in the judgment of the weighers; the short time which could be allowed for the operation; failing of the eye-sight, fingging of the attention, and steepiness from the monotony of the employment; difference in the rate of vibration of the beams; defects of principle in the construction of the scales, to obviote which would have destroyed their simplicity and marred their general use-

All these difficulties (and they were great) were overcome by Mr. Cotton's machine; and since the year 1844, out of the large number of 80,000,000 of pieces which have been weighed, not a single source of error has been made out against them. Some few sovereigns are still weighed as they are received from the public by the conmon scales; but such are never re-issued by the Bank until they have passed through the machines, which ex-tract from them about two per cent, of lightness. The Bank sustains the loss apon these nanvoidable errors, in preference to the loss of time, the trouble, and the vexation which the re-issue of them as they were received

from the public would occasion to all parties We now proceed to the description of Mr. Cotton's

It consists of a square brass box: on the top is placed a hopper to hold the sovereigns to be weighed. This hopper is a long trough, placed at an angle of about 45°

^{*} This contrivance is greatly inferior to Wollaston's for feeting the same purpose.
† This is not a good construction.

with the top of the box: it will hold about 500 sovereigns. In front of the box are two small apertures, to which are fitted two receivers, one for the sovereigns of full weight, the other fur those which are light.

Inside the box, and uear the upper plate, the beam or balance is placed; at me end of the beam, and above it, is polsed upon a knife-edge, a small platform, which re-ceives the sovereigns to be weighted. This platform, which, in fact, is one of the scales, is kept in its position hy means of a small pendulum, on which, at about an ch below the platform, there is an oblong perforation, about half an inch in length, technically called a slot, in which a small ivory rod works freely up and down with-

ont touching the sides. Between the slot and the platform a pair of foreeps is placed. From a knife-edge at the other end of the beam placed. From a killic-edge at the other end of the beam a small round polished platn is suspended, to which a peedulum is fixed, and at its lower part the reals is placed to receive the weight. Above the small round plate, under the top of the box, is fixed an agate with e blust point. When the machine is in motion the small livery rod is depressed: this, on touching the bottom of the slot, or opening in the pendulum in which it works, brings down the beam on that side, and raises it, of course, on down the beam on that sade, and rasses it, of course, on the other, the eight side, mult the small round plate on that side bouders the supart point. The same far from that the bouders the supart point. The same far from expectation of the problems between the platform and the slot, and bold it firmly. The bulance is then in a condition to receive the sovereign, which is shifted from the bottom of the pile in the hopper, and hrought by means of a slide abung a channel, just large enough for a sovereign of the proper standard gold to pass, but not large enough to admit a counterfeit, and deposited upon the platform. The forceps theu let go their hold, the ivory rod is gently raised, and if the sovereign happens to be light that end of the beam rises, and the other end leaves the agate point; but if the sovereign be full weight,

reaves me agate point; but if the sovereign be full weight, the beam remains stationary, and the small plate on the weight end is in contact with the agate point. When the sovereign is weighted, the operation of its re-moval is very ingenious, and is an follows:—Two bolts are placed at right angles to each other, and on each side of the platform or scale there is a next cut. of the platform or scale there is a part cut away to admit of the bolts striking so far juto the area of the platform as to remove anything that would nearly fill it. bolts are made to strike at different elevations, the lower oun striking (as to time) a little before the other, If the sovereign be fall weight the scale remains down, and the lower bolt knocks it off into the full-weight box. If the lower bolt knocks it off into the fina-weight nos. no sovereign, on the other hand, be light, it rises up, the first bolt strikes nuder and misses it, and the higher bolt then strikes need a knocks it off into the light box. This machine weighs about thirty-three sovereigns in one minute. The weights used are of glass, and are adjusted to within the teu-thousandth part of a grain.

It is uederstood that these machines, since they began to be used in 1844, have not cost £5 for repairs, and that they effect a saving in salaries alone of full £1,500 per annum, after deducting ten per cent. for the replacement of capital sunk in their establishment. A Prize Medal was awarded to Mr. Cotton

SHITH (India) has exhibited a coin-weighing machine which is an exceedingly ingenious application of that of the areaometer or hydrostatic balance. The counterpoise to the point weight of the scale-pan and coin is made to rise and fall in a eylinder of water, the oscillation being desdened by a circular plate forming part of the counter-poise wholly immersed in the fluid, and of such an area as to afford considerable resistance to the rising or sinking motion. By a proper adjustment of the diameter of that motion. By a proper sujustament of the diameter of that portion of the counterpoise which is partly beneath and partly aboru water, and of the length of the kerer arm which carries the scale-pan, a given deviation in the weight of the coin one way or other from its legal weight may be made to correspond with a given depression or ele-vation of the counterpoise, and therefore of the scale-pan.

below or above a certain medium or zero position, the scale resting at a level, curresponding to the amount of excess or defect of the coin above or below the standard,

At levels corresponding to half grains of difference of weight, shelves are placed which receive the coins from the scale-pan, according as, on arriving at its point of equilibrium, it happens to be opposite to the interval be-tween either shelf and the next above it; and once thrown upon that shelf, it glides down and finds its way jete a receptacle corresponding by an appropriate passage. Thus grains of weight.

To throw the coin off the scale upon its proper shelf, the scale-pan is peculiarly constructed of wire, borizon the scale-yam is peculiarly constructed of wire, horizon-tally laid, no as to clion's acraper, also of wire, vertically arranged, to pass between and beside the framework of the pan, which, being pashed along at the end of each weighing, the coin is sforced by it off the pan pipon the shelf. The pash-frame, thus lightered, riese to the proper position for receiving another coin, which is placed on it by a feeding-pipe in the manner usual in coliniag pro-

Any number of small weighing-machines may be mounted sidn by side, so as to occupy a very mod compass, and may be worked simultaneously by a common feeding and a common discharging movement; and all may be made to discharge their contents on the same shelves conducting to common receptacles.* A Prize Mcdal was awarded to Captain Smith,

DRIEGH (France, No. 160, pp. 1178—1180) exhibits a benefiful coin-weighing machine, invented by Boron Seguier, Membre de l'Académie des Sciences, differing, however, from those above described in its mechanical

however, from those above described in its mechanical arrangements, and is some particulars of construction which are necessary to its performance of the additional operation regulared by the French Bank. In the Bank of France each piece of mosey is weighted in a small bolance, especially constructed for the purpose, by mee charged with this particular duty. The beautiful culture weighting machine in question is designed to super-culsive eighting machine in question is designed to supersedo this work by mechanical means. In its working it exhibits quickness and regularity in performing the operation of distributing the pieces into three classes, thore which are heavy, those which are of exact weight, and those which are light,

The instrument is distinguished in its operations from Mr. Cotton's, by thus distributing the pieces into three classes instead of two, as in Mr. Cotton's, the three being necessary in the Bank of France, though not required in England.

The right to this elegant invention not being secured by a patent, its internal construction could not be ex-amined; but so far as could be judged from working it. as exhibited, the principle seems to be the making avail-able the declination of the index of the balance, or light steel rod, to the right or left of the vertical, according to the execus of weight in either pan, to give motion to one er other of two light brass plates is the act of raising the balance. The force so applied being, not the mere dif-ference of weights between the scales, but an external ference or weights between the scham; the motion thus power applied through this medium; the motion thus given to the hrass plate being conveyed downwards by an appropriate train of mechanism might easily be applied to an interposed obtacle or otherwise. The coin, on its which it would have followed had the index remained vertical, into one of two other channels according to the inclination of the index.

The machine is fed by a hopper, the coin being thrown promiscoonsly in. To prevent its jamming, and refusing to pass, it is constantly stirred from below upwards by a wheel set round with steel pins so as to disturb the selfrangement of the coins in the hopper, and let them fall over one by one into the feeding-trough. It is un-derstood that about fifty coins could be weighed per minute by a double machine, such as that exhibited, The working appeared to be not quite continuous, but in all other respects perfectly satisfactory, the interruption

A full description of this ingenious mechanism, which was contrived and executed for the Madras mint under Captain Senith's direction, will be found in the "Professional Papers of the Madras Engineers," vol. ii.

to the regular delivery of the coins being little more than momentary.

It will be understood that, for the reason above assigned, this account of its operation is merely conjectural. Sir a machine for a similar purpose, founded on the principles, first, of preventing the descent of either scale, unless the excess of weight in it surpassed the legal "remedy," and allowance for wear and original error, which might be done, by giving each end of the beam a support from below equal to the remedy, but rising only on its descent; and, secondly, by presenting in the closest proximity to the under-side of the beam, but not in actual contact, the extremity of a conducting rod of copper, completing a galvanic circuit through the beam and its central steel uife-edge resting on a steel plane, and thus animating one or other of two electro-magnets, which by its attraction on a soft iron bur should shift either the point of delivering or the point of reception of the descending completed, the right-hand conductor would thus deviate the coins into the receptacle for heavy, and the conductor on the left into that for light coins, while a state of rest of the beam, corresponding to any excess within the remedy, either way, would cause no deviation, but allow the coins to fall straight into the middle receptacle. This description might enable any mechanist to construct such a machine, probably at small cost, and without infringing any patent right.

It is highly antificatively to find an instrument of made high importance are habasen ow well speciested in the Dahlahur, and when it is the horse very resolved three to be a subject of the state of the contract of the contractive of the contractive of the contractive of the amountain to the exhibition of good balances to have pretained as the contractive of the contractive o

Air-Pumps.

Most of the important facts which we know relative to the properties of air may be said to have been elicitied by the employment of the air-pump. It is satisfactory to find that the Eulibilium contains instruments of a new and improved construction; but it is matter of regret that so small a number of misunfacturers have contributed.

The air-pamps most commonly note are must either with braus trop-cock, or with valves of celled tilk or with braus trop-cock, or with valves of celled tilk or leader. The former, when properly constructed, and were groundly are truly or channing the air hormoghty. I will be a second to the construction of the construction of least accurate than those fromished with valves, after an equal amount of wars. But the valves themselves are also imperfect, owing to the pressure of the external air on that within the prison pre-resting the latter from rising to on that within the prison pre-resting the latter from rising the thind difficulty have been nucle in the pumps exhibited, some of which are very susperior in their zeiton, and have

probably never been impassed.

The exhibitor of the best sir-pump in Newara (No. The exhibitor of the best sir-pump in Newara (No. The exhibitor of the best sir-pump or the ment to be the pump of the ment whatever on one of these are two hardes, one of the values on one of these are two hardes, one of the values on the same pump in the same pum

of air-pump exhausts more thoroughly than any yet known.

In the experiments which were tried, the reading of the barometer at the time being 30'08 inches, the gauge of the air-pump stood at 30'06 inches. A Council Medal was awarded to Mr. Newman for this air-pump.

We see so that I had, No. Co. P., 6657; whils it was considered and the seems, on a plan negrent by Mr. other hand prompting the plan of the least possible resident of air in the heart, to leave the least possible resident of air in the heart of a seems and the seems

Kentur and Soos No. 636, p. 609 exhibit an sirpung on Sensen's pates. It remains for very jidaden, pung on Sensen's pates. It remains for very jidaden, larger, and separated from it by a plate forming that between the pates of the pates of the pates of the pates to the pates of the pates of the pates of the pates stuffupion, sorking and the pates of the external are the old-civility wire of the larger gridner, and takes off by the version fermed to be engineering, and where that the pates of the pates of the pates of the where the pates of the pates of the pates of the pates where the pates of the pates of the pates of the pates of the where the pates of the pates of the pates of the pates of the where the pates of the pates of the pates of the pates of the where the pates of the pates of the pates of the pates of the where the pates of the pates of the pates of the pates of the where the pates of th

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intel mercray with a mercray and a mercray with a mercray may be a mercray with a mercray with a mercray with a continuous relativey unders of the handre, lither-rave being such as mercray with a followed property of the mercray with a followed property of the mercray with a followed property of the mercray with a
Variey and Sons also exhibit a second air-pump, smaller than the former: it has a double-acting barrel. The piston is worked by means of a crank and continuous circular motion of the handle.

HEYWOOD (No. 404A, p. 453). A rotary table airpump, with self-opening valve worked by a crank motion. It acts with singular smoothness and ease.

GOORTY (No. 407, p. 454) exhibits an air pump of the common table form. It gave an exhaustion of US land of mercury, which is considerable for this kind of air-pump.

LADD (No. 291A, p. 440) exhibits an air-pump, which is single-harrelled and of a cheap construction, without any other claim to notice.

Yearns (No. 332, p. 446) exhibits a double-acting nirrpump of a cheap construction, which appears to be good for its price. Its valves are of oiled silk. The commonication is in the middle of the barrel, a valve being placed there and at each end. Honourable Meution was awarded to Mr. Yeates.

Bayan (No. 408, p. 454) has exhibited a double-action air-pump, constructed without valves, and having a rotatory motion. The pump consists of a barrel, to which two smaller once are attached on either side. In the

large or prime barrel is a solld piston, which may be made to rise and fall at pleasure, and is attached to a piston-rod; in the centre of the secondary barrels are also small pistons, whose movements are simultaneous, Each rise and fall of the large piston is designed to draw off from the receiver 53 cubic inches of air, simply by its off from the receiver 32 cause inches of ar, simply ay in own elasticity. The double action, combined with the rotatory motion, has been introduced with a view to economise both time and labour, and the absence of the valves, to avoid the limitation of exhaustion attendant upon their use. This pamp was ant tried, in consequence of no one being in attendance on the Jury to explain its action, &c.

BRETON (France, No. 1113, pp. 12, 31) exhibits a double-harrelled air-pump, It has, instead of valves, a glass plate sliding over apertures communicating with the receiver and the pamps. The motion of this glass plate is produced by the mechanism which works the pump; it is very ingenious in its construction. The approximate exhaustion is first made by the ordioary alternate action of the barrels. The system of communication is then changed by shifting round the glass plate, which serves as a valve during one-fourth of a revolution, when the rarefled air is condensed in one burrel and sucked into the other, whence it is ultimately ejected through a valve of oiled silk very close to the piston. On account of the of olicid stilk very close to the piston. On account of the distance between the pumps and the glass plate, however small the pipe of communication, the exhaustion must be imperfact. The syphon gauge attached to the instru-ment indicated an elastic force of only one millimetre of a column of mercury; but a habible of air was seen at the top of the mercury, proving its indication to be

DELECTIC (France, No. 160, pp. 1178, 1179, 1180). This exhibitor has a double-glass barrelled air-pump, on M. Habinet's principle, the valves being opened by means of wires passing through the pistons. The opening of M. Habinet's principle, the varyes using opening of of wires passing through the pistons. The opening of the valves is by this means rendered independent of the clustic force of the air remaining in the receiver. The degree of exhaustion which can be produced must depend on the air after the action of the piston. This appeared by the syphon gauge to be about one millimeter of mer-cury; but the top of the gauge could not be seen so as to ascertain whether any visible portion of air was there. In this pump, also, the vacuum is first approximately made by the alternate action of the barrels, after which one barrel exhansts the other by suction.

NISSEN (Denmark, No. 20, p. 1356) exhibits a doubleacting single-barrelled air-pump, of an ingeninas con-struction. This instrument only exhausted to 0'3 incb, struction. This instrument only exhausted to up theo, as shown by the gauge, which was free from any visible speck of air. The Jury considered this pump as worthy of Honourable Mention.

Optical Instruments,

The telescope is an instrument of such high importance, that it ought to command at all times, from opticious, the incessant direction of their attention to its improvement and the bringing it to the highest possible state of per-fection. In the Exhibition, if we except those affixed to tronomical instruments, there are but few telescopes Of these the larger are for the most part good, Waay exhibits one with discs of a solid substance, instead of flint glass, which deserves commendation, as a deviation from the beaten path, that may conduct to new and im-portant results. There are few samples in the Exhibition portant results. There are few samples in the Exhibition of optical glass; but all are good, and give great promise of an increase in the use of large telescopes. SIMMS exhibits several object glasses made of English glass; and CHANCE contributes a noble piece of apparently pure flint glass, of no less than 29 inches in diameter. Daguer ming goos, of no lees than 20 incines in diameter. DAOUTH seeds some wonderfully pure glass, both crown and flint. Of lenses and prisms, there is not one Hritish contributor; Prance standing slone in the exhibition of some very beautiful wark, which reflects high credit upon Bayrana. and Berkraun. Of physical optiles, there is hat one extensional prices are in the contributors. aive exhibitor, viz., Dunosco Solkil, France (No. 1197. p. 1235), who has a beautiful collection of most delicately onstructed instruments, adapted for physical investigation. Of microscopes there are a good many exhibited

among which the English microscopes are found to stand pre-eminent. Of lighthouses there are two, the one being made of glass almost colourless, and the other with that of a greenish colour. The glass of neither is pure, there heing many strin, &c., which must caose much light to be scattered and consequently lost. Of speciacles and cameras we shall speak in the proper place,

VARLEY and Son (No. 257, p. 436) exhibit an app to be used in Gregorian telescopes, consisting of three small speculums, grouped together on one stem, and fitted into a telescope, under adjustment from the eye end, by means of which any one of the three may be used at pleasure, so that the power may be changed with-out losing sight of the object. Within the tale are placed two slides, one near the eye end, adjustable by a screw; the other near the object end, which may be moved to and fro. The latter carries three small spemoved to and ro. In muter carries three amas spe-culums, of different foci, mounted on a steel axis, held in a stiff frame. At the bottom of the axis is placed a toothed wheel and rack-work. This rack is kept from moving hy a long bar proceeding from the first slide, so that it cannot move with the able on which it lies; hy this arrangement, on moving the slide, the wheel upon it will roll against the rack, and so present the next

The angle at which the speculums are opposed to each other on the block determines the number of teeth, or portions of the circle required to present each speculum. The diameter of the wheel determines the distance that such portions of the wheel must traverse to put each speculum in true focus. The slide nearest to the eye end is moved by n long bar, attached to it by means of a screw, whilst its near end lies on the other slide, and over the loop-hole. The bar has a screw handle on the outside of the telescope, by which to pull or push the further slide, and also to clamp it fast to the near slide when in the right place. This clamping connects the two slides, and causes both to obey the adjusting screw, In order to determine the exact places at which to clamp, the har is fornished with three notches, whose distance the har is formished with three notches, whose distance corresponds with the difference of fee; a tooth snaps into each notch as it arrives; the hand of the observer feels this snap, and the object reappearing at the same instant, the screw is made fast. Having brought each speculum to its right distance, its perfect position is effected without trouble. The speculum wheel has three pios; against one of these a notch in the bar is urged by a spring, which holds its corresponding speculum per-fectly in place, and in addition, moves the wheel and rack a little further than the hand and bar had formerly done. This simple action separates the two hooks, and thereby detaches the apparatus from each speculum whilst it is in use, leaving it at liberty to be governed only hy its pin, and the notch in the bar already mentioned; the speculum by these means is held perfectly in its place. A cylindrical cap, as a protection from the weather, is made to slide over the speculums, and affords weather, is injusted to the over the speculams, and amoras a dark margin round the pencils of light. This contrivance has been applied to telescopes of eight inches focal length, and six inches aperture.* The Gregorian focal length, and six inches aperture. * The Gregoriaa form of telescope is the shortext, and consequently host form of telescope is the shortext, and consequently host as compared with others of equal power; from its large proportionate aparture, it gives a smaller due to the stars, and does not require a deep eye-pecce, but it is desirable to chain power by deeper and smaller speculous telescope, of two inches aperture, and six inches fixes, it is monated on brans stand, and galmits of being it is monated on brans stand, and galmits of being

rendily packed away in a small box. When held against a post or tree, the foot and telescope form a firm triangular bearing.

As in ordinary Gregorians, the length of telescope in-erences the power of the small metal reflector, so that a small portion only of an object can be seen at one time

* This contrivance received last year (1830) the large

through the central aperture, it follows that with a sufficient field of view, we cannot have as low a power as would be desirable, without increasing the central sperture and the small reflector so much as to injure the telescope for the reception of high astronomical powers. To obviate this, if possible, Variey and Sou have, in the first instance, made the great speculum of the shortest eligible focus, by which means the power of the small speculum is lessened and brought nearer, the angle of view being increased in the same degree. The small speculams are mounted in tubes of any length less than double their This arrangement gives a more effective dark fecus. This arrangement gives a more effective dark margin around the pencils of light, and such as would require a larger disc if placed behind the speculnus. Small speculnus of longer focus may thus be used with no greater obstruction of light, and an equally good field retained with a lower power. The mounting the small speculnus in tubes effectually seemes them from julyry feens. whilst in place, and when removed, a small cap com-pletely excludes them from the air. The arm which supports them remains in the tube, it having a concentric ring, into which the small tubes are screwed for use, and from which they are more easily detached than when

from which they are more easily detached than when affixed to separate slides in the common way. Hoss (No. 254, pp. 435, 436) exhibits a telescope of 5 feet focal length and 2] inches aperture, of English flint glass, which, examined on test objects at 150 yards (consisting of two black marble balls, highly polished, placed in full sunsbine; a watch-dial, and small balls of white ivory on a black ground), was found to perform well, giving well-concentrated images of the artificial stars produced on the marble balls, with but a small trace of uncorrected colour.

A Council Medal was awarded to Mr. Ross for this telescope in coanexion with microscopes, Callaguan (No. 268, p. 437) exhibits a telescope in-tended for use in deer-stalking.

SALMON (No. 266, p. 437) exhibits several day and ight telescopes, intended for ships' use, which are good

for their price. RICHARDSON (No. 264, p. 437) exhibits a small reflect-ing telescope, of 3 feet 8 inches in length. The large reflector, made of one piece of solid crown glass, was either painted, or had paper pasted against its back, there-hy giving it that tendency to change figure by bent, against which Sir John Herschel has so strongly cautioned

all constructors of glass mirrors BOTLE (No. 392, p. 451) exhibits a reflecting telescope, intended for use without a tube,

Waar (No. 309, pp. 442, 443) exhibits a 7-feet refract-ing telescope, with 44 inches aperture. The peculiarity of this telescope is the substitution of a solid substance instead of flint glass. (See Illustrated Catalogue.)
On trial it was found to be badly achromatised. The

colour above the image did not seem to be that usually called the secondary spectrum, but a remain of colour not fully compensated. The glass was neither fully corrected for sphericity nor for colour. It was observed that the object lens had rather a strong yellow tint, and was somewhat blotchy, as if the material used was not quite aniform in colour; all interior reflections were stroyed, so that it could not be suspected to be other than a single glass. As a telescope it is not very good; but, though an imperfect trial, it is yet a fair attempt to move out of the beaten track, and as a step towards the possible revival of fluid or semi-fluid object glasses,

WATKINS and HILL (No. 659, p. 466°) exhibit a teleope 34 feet focal length, and diameter of object glass 23 inches, furnished with a finder, vertical and horizontal rack-work motion, and eye-pieces with powers to 220,

Manager (No. 409, p. 454) sends an achromatic telescope of 5 feet focal length; it is furnished with powers of 65, 85, 120, 200, and 280. On trial it was found to be good, and to deserve Honourable Mention.

Hanns and Son (No. 149, pp. 428, 429) have a micro-metrical and double image telescope and "coming-up for measuring distances either on land or sen,

This instrument is designed for the purpose of ascer-taining the distance and dimensions of any inaccessive

object by means of simple calculation; also to determine. without calculation, the distance of any known object by means of a set of tables adapted to the scale. intended to act as a micrometer for the purposes of astronomy, and as a "coming-up glass," to ascertain whether a ship be approaching to the observer or receding from

him, and withal to combine simplicity of construct Benon (France, No. 443, p. 1199) exhibits a telesec the object glass of which is of rock crystal, 4 feet 2 inches in diameter, and 6 feet 3 inches focal length. Attached to the telescope is a finder, which embraces a field of view from 5° to 6°, and has cross wires, which, owing to the great illumination of the field, may be seen during the dearkest night, and consequently the star brought into the centre of the field. On examining this intertument it was found to be good in every respect. It is fixed upon a very steady cast-iron stand, furnished with three small castors, brought into operation by means of rack-work when necessary to remove the instrument

The object glass of this telescope is of rock crystal which requires great care in its prepartion on account of its property of double refraction. In its working the following particulars are necessary to be attended to:-

 The crystal must be cut perpendicular to its axis.
 In working the axis, the spherical surface must always coincide with the axis of crystallization, 3, The curvature of their surfaces must not be made too large in the angles, as double refraction would then be

visible to the eye. M. Biot has shown that an angle of 5" must always exist, but that this is not visible to the eye."

The formula of Huygens has been used in working the rock-crystal object-glass; it is as follows:-Supposing that the refractions, both ordinary and extraordinary, take place in the plane of the principal section.

$$m' \equiv \sqrt{\frac{m^2 \cdot m^{-2} (1 + a^2)}{m^2 \cdot a^2 + m^{-2}}}$$

in which m' = The index of refraction. the Jens

m = The ordinary index, or minimum.

m = The extraordinary index or maximum.

m = The tangent of the angle of ordination of the luminous rays with the axis of

Thus m' is always an index of refraction, intermediate to m and m".

M. Baron has also exhibited another telescope of about the same dimensions, which was found to be good, supported upon a stand, invented by the late M. Cauchois, the appearance of which is elegant, but as it compels the observer to stand during the time of observation, and as it is necessary to be moved entirely when large azimuthal angles have to be passed over, it is less convenient than the east-iron stand before described. It is made of wood, which, though rendering it liable to be affected by varia-

tions of moistare, gives it the advantage of being lighter than one constructed of iron M. Baron has also exhibited telescopes of various sizes, provided with terrestrial and celestial eye-pieces, and mounted upon brass stands; also nautical and pocket telescopes. In the construction of his eye-pieces, M. Buron pays strict attention to the rules of M. Biot Many of the portable telescopes were tried, and their

performance was found to be very good; they are rearksbly ches A Council Medal was awarded to M. Buron. LEBBUN (France, No. 298, p. 1191) exhibits several achromatic telescopes of a very good kind, and which are

remarkably cheup.

Kinzzinacu (Wurtemburg, No. 26, p. 1115) has exhibited an achromatic telescope of about 2½ inches aperture, and 234 locbes focus, constructed on the dialytic principle, in which the correction of the dispersion of the crown lens is performed by a flint lens of only half the aperture, placed mid-way between the crown lens and the

* See Biot, "Truité d'Astronomie Physique," vol. il., 1844, and vol. ili., published lo 1846; also "Memoires sur les Oculaires Multipliées et Achromatiques, présentés à l'Academie des Sciences, 1843."

joint four; a principle of compensation originating plant four; a principle of compensation originating before the following control of the control of the following control of the control of the following control of the f

Microscopes,

The Exhibition is rich in its collection of microscopes of all kinds, comprising instruments varying from the simplest forms to the most elaborate. Many of the latter have never been surpassed for power, goodness of objectglass, definition, large angular aperture, boasty of workmanahip, great coavenience of the subsidiary parts, combined with great permanence of adjustmen.

The microscopi has been rendered second in importance of you the delicacy by its application is physical according to the property of the property of the property of the discovery of many to display its great powers in the discovery of many to disciplant or appreciate their capability to distinguished or appreciate their capability beauty of the discovery of many to disciplant or appreciate their capability beauty of its any beaute of section its services are indisposable, and a various ways it may become of essential uses to every class of most its arrives are indisposable, and a various ways it may be considered to the contraction of the contraction

When Tully constructed the first adversatise objectgians in this country, in the year 1884, Pt. Gering said, "that microscopes were now placed on a level with teleercept, said, like them, must remain stationary in their properties. The said of the said of the said of the instruments in the Eabhilton has fully exemptified. To trace the causes of the sitesly and progressive improveerses of the said of the said of the said of the control of the said of the said of the said of the destrable. Mr. Bowerbank, who has always taken an active part in these improvements, has hindy furnished.

According to the design of the second processes, as a smally framidate About they are 1321 the flat effective morement was made toward applying advantate object-planes to the same of the second processes of the second processes of the second processes of Science; and Anniel rossmal the subject after an experience of the second processes of

With a happy combination of mathematical knowings and practical appringers, Mr. Laker continued to prace the subject, and in the year 1500 he published in case the subject, and in the year 1500 he published in the properties beinging to it, and a mean derived the subject properties beinging to it, and a mean derived and the contraction and contractical contractions and chromatic shorters and contractical contractions and chromatic shorters and contractical contractions and chromatic shorters and contraction to thought the author of the puper has not since published the further futus of the latter, the latter contained his contraction of the contractio

maturalism. Tally, who led the way in the manuform true of achievants combination, died note the close of the year 1355. At this line. Slows, lines and I would be considered to the constraint of the principle o

covered or ansecreted objects.

composed for two adhermatic fusion for a lower poters, composed for two adhermatic fusion for a lower poters, from the composed of two adhermatic fusion for the composed for two different potential functions and the contraction of two trips. The contraction of two trips and one doublet, by means of which an interested for an extended for the contraction of th

To Sir David Revurer we are indubted for many ralanks engogenists for the improvement of the instrument, opening for the best method of illuminating by transmitted light, by the application beneath the range of the contraction of the properties of the contraction of the contract

To the same source we are likewise indebted for the valuable application to the microscope of the apparatus for the polarization of light, which has so powerfully assisted us in the investigation of delicate and transparent animal and regetable tissues.

In one of the control to the control to the low-circle intruments exhibited by Mears. Rose, and Smith and Brek, are deserving of high commendation. The transver is good in principle, steady and free from tremor in operation; and the powers, varying from 1-tent to a quarter-time fore, inclusive, are by far the most greenably useful in the whole range of microscopic continuation. It must be remarked that it is additionable that the angle

of aperture of the combinations should not be extended to its utmost possible limit, when destined for the ge-

combinations are still in the possession of Messrs. Lister, Boxerbank, and Loddiges,

Exerdium to "Microscopic Illustration," 1829.
 See "Quarterly Journal of Sciences" for 1-25, No. 37,
 p. 1821, also for 1827, No. 44, p. 263. Specimens of these

neral purposes of natural history or anatomical investi-

Combinations of high power, and extremely extended angles of aperune, are excellent in developing one class of test objects, viz., minute lines or dots on plans suiters, and animatibly demonstrate the high perfection to which such gibsons are enjable at few general control of the extended options and the properties of the combination
In regard to the knoweek, we may observe that the qualities epocially require in the stand of a nairweepe qualities epocially require in the stand of a nairweepe andicist weight to camer astroy and stoudiess. with monotheses and accross of article in 18th the working that may be commendated to the instrument equality of the body, singual other working the property of the property of the property of the company of the comgosited by Mr. Goverg also have a standard to the progreted by Mr. Goverg also have a standard to the progreted by Mr. Goverg also have a standard to the propring in some advisable than that of Wolfstee's, as the pring is more advisable than that of Wolfstee's, as the fire integer to the eye in an exect function of an inverted

We now proceed to discous the particulars of each

Boss. No. 234, pp. 435, 489) exhibits a microccope, the mechanical parts of which are exceedingly goods: the movements are very amouth and true; the stand is one a cumbrow. The object-glasses are constructed with different kinds of glass in the different compound lense, forming a combination so as to double up the secondary spectrum, and this is done so well that searcely any spectrum, and the secondary secondary and the secondary spectrum of the object-glasses examined are as follows:—

Both the half-look and the con-eighth of an inch feel are purposely ands of smaller proportionate aprivates has the quarter-inch, or the one-treffith of an inch, as in all tenses of large aperture, the large becomes indistinct the contract of the contrac

Security and Hock (N. 28.5., p. 53) exhibit a mirror sample and Hock (N. 28.5., p. 53) exhibit a mirror sample as the highly assembly a sample and the sampl

The lever motion to the stage of this instrument is the most cosy and generally meful that has yet been applied. If used with the right hand, while the quick and slow adjustments to the forms are worked with the left, there is no animalcule that cannot be readily followed, hewever first and rapid its movements; and any globule of blood

parenting his cores through his most streams of the qualifience, on he sensity and easily preceded, and every attention of his form observed during his passage through a supplementary of the contract of the contract of the weap herizonthy or perpudentary, and the most deletest microsoftical innerteneous made with great deletest microsoftical innerteneous made with great Arried White; the Publical groot on whith the looky mores was magneted by Mr. (normy latelane, at whose more was magneted by Mr. (normy latelane, at whose first to a spring, instead of for a grid latel. The himplicity and declosery of the whole of this stand are highly increased with the contract of the strength of the strength of the contract quality, and were an follows:

hat the accountary speculous has not been mech diminished. The half-ises focus of 70° spectore is a wonderfully fine combination, easily showing objects, considered difficult for a one-eighth inch focal length a little more than a year since, and bearing the application of the higher cycpieces in an unprecedented manner. Smith and Beck also exhibit all that is necessary for

the mounting of microscopie objects, as cells, slips, this glass, fluids, covers, &o., and a few preparations as specimens. There is, aiso, a new form of cabinet, for the reception of objects, the names of which may be exposed, by means of porcelain lades with which they are far-usabed, and from which the pencil-writing can be easily efficied.

There are two tables with revolving tops, by which the microscope can be turned readily round for the convoilence of examination by different observers, and thus readered a social instrument. The microscopes are furnished with portable aliver reflecture and annular condenser, which exhibit transparent objects spon a dark control of the control of the control of the constant of the control of the control of the conlocation and beek claim its first execution.) A Council Meal was awarded to Mearts. Smith and Feck.

Vasars and Sow (No. 317, p. 405) exhibit a microgroup, the stope of which is moved by predict sods, with compute the stope of which is moved by predict sods, with equal-to-motion is all directions, and is specially adjused to the stope of the stope of the stope of the stope of the experts point over missachile may be kept as a bring such experts as exhibit, and appeals of reverved with in which require plants or missachile may be kept as a bring such experts and the stope of owns, and thus it within the said to only cortect when mode, at which time it is held in adjustment of the stope of the stope of the stope of the said is only cortect when mode, at which time it is shed in adjustment of light and the stope of the stope of the learner of light may be made to fell upon the part under the stope of the stope of the stope of the stope of the learner of light may be made to fell upon the part under the stope of the stope of the stope of the stope of the learner of light may be under to fell upon the part under the stope of the stope of the stope of the stope of the learner of light may be under to fell upon the part under the stope of the stope

tion, is also exhibited, chiefly intended for beginners.

Varley's lever stage is very much more complex than White's; and as the lever is placed behind the stage it is less convenient to noe.

Kino (No. 287, p. 439) exhibits a microscope stand,

with misrometers and govinenters. It has a symmidate product with the control in retenting lapses by arranged that its weight is equily, distributed over the sea, and when lettered in the working angle, the principles of the control of the contro

" This instrument is fully described in the "Transactions of the Society of Arts."

worked into convex spherical surfaces, is also worthy of scope, with the body inclined in a convenient direction. potice. The Jury considered Mr. King as well deserving Honograble Mention

PRITCHARD (No. 248, p. 435) axhibits an old-flashioned achromatic microscope, with indifferent object-glasses. The working of the mechanical parts is very good. This form of instrument is that which led the way in the great advance that has been made in the microscope by the introduction of achromatic object-glasses, voted Honourable Mention to Mr. Pritchard.

LADD (No. 291a, p. 440) exhibits a microscope furnished with chain and spindle movements, in place of rick and pinion. This movement has been applied to the inicroscope many years since, by Mr. Julius Page. The motion is smooth, and totally free from loss of time, and is likely to stand well the effects of constant use. The

Jury award Humonrable Meution to Mr. Ladd.
Pillischen (No. 269, p. 437) exhibits a large microscope stand, which is good for its price, but unuscessarily large and incoorement for use. He also exhibits two small microscopes,

Jackson, E. and W. (No. 258, p. 436) exhibit plain and excavated slips of glass, sections of tubes of various forms, for the construction of cells for mounting wet preparations, and thin glass for covering them, of various thick-These materials are exceedingly useful for scientific microscopists.

HUDSON (No. 256, p. 436) exhibits microscopic objects intended for the use of the medical student, physiologist, and naturalist, HETT (No. 249, p. 435) exhibits a variety of admirablinjected microscopic objects, illustrating the utility of the microscope to the physiologist, A Prize Medal was

awarded to Mr. Hett. POULTON (No. 252, p. 435) exhibits some well-executed

microscopio objects, with drawings to illustrate their structure STARK (No. 284, p. 438) exhibits microscopio objects,

counted in getta percha ceils, instead of gioss; and also slides for exhibiting opaque objects, SHARP (No. 308, p. 442) exhibits a set of high power lenses, ten in number, for a microscope from one-tenth to

one-hundredth of an ineb focal length. SHARBOLT (No. 677A, p. 469a) exhibits a sphero-annul condenser, for concentrating light on transparent objects while under microscopio examination, the object alone being illuminated whilst the field of view is dark. A

Prize Medal was awarded to Mr. Shadbolt, The principle of this condenser was suggested by Mr.

J. F. Wenham, of Brixton, in his parabolae condenser,
Mr. Shadbolt's condenser carries out Mr. Wenham's principle, with the advantage of superior reflecting arms ments, greater facilities of construction, and less liability

of derangement, Other microscopes are exhibited by Figgo and Son No. 250, p. 435), ELLIOTT and Sont (No. 320, p. 443), WATKINS and HILL (No. 659, p. 466°), ABBAHAM (No. 263, p. 436), GRIFFIN (No. 457, p. 463); but they are not such as demand especial notice.

Let us now turn our attention to the microseo Let us now turn our attention to the microscopes ext-hibited by France; and first in order is NATCHET (France, No. 1370, p. 1242). The object-glasses, though inferior to both those of Ross, and Smith and Beck, are by far the best of the foreign costs. They vary from a focus of one inch to that of one-eighteenth in an inch. The following were examined: that with-1sth of an inch focal length, has an aperture of 134

and although the method of adjusting by the separation of the lenses, invented by Ross, is adopted, yet the system is such that they are not correct at any distance. The workmanship of the stand is very good; and there are two ingenious forms of microscopes exhibited. One has the object-glass below the stage, with the tabe inclined at a convenient angle and a reflecting prisas for the examination of ebetsicals, or for dissecting transparent objects under fluids. The other is a dissecting micro-

and the image erected by reflecting prisms, so as to enable an observer to look in a convenient position whilst dis-secting an object in fluid, which must be kept herizontal. A Prize Medal was awarded to N. Naschet

Some microscopes, excellent for their price, are exhibited by BERNARD (France, No. 762, p. 1217). These instruments are the cheapest in the Exhibition, though none are of the first order. Honourable Mention is

awarded to M. Bernard,

Chevalle (France, No. 1729, p. 1239) exhibits a microscope, with iodifferent object-plasses. The work-manship of the mechanical part, however, is very good, the mode of mounting is excellent, and the instrument is convenient for all kinds of microscopic observations, Jury voted Honograble Mention to M, Chevalier.

Some excellent microscopes, for their price, were also exhibited by Benox (France, No. 443, p. 1199).

MERZ (Bavaria, No. 30, p. 1100) exhibits a microscope, the mechanical parts of which are beautifully executed. The object-glasses are of small sperture, and the spherical aberration is not corrected. The one-twelfth of an inch focus has an aperture of only 65°, and the one-eighth of

an inch that of 55 only.

Hazast (America, No. 16, p. 1435) exhibits a large instrument, furnished with very deep Huygenian eye-pieces, giving the usual extensive field obtained by such; it has, besides, two convex lenses in the body for enlarging the field of view. Neither chromatic nor spherical aberration is properly corrected, and the workmanship is

not good. PUCK (Russin, No. 170, p. 1372) also exhibits a micro-spe, but it is an indifferent instrument. We will now speak of some of the uses of the beantiful

instruments we bave just described; the most important Hastration of their ntility in the Exhibition is shown by Leonann (No. 306, p. 442), in his correct representation of many different substances, &c., when highly magnified. He has selected several articles of food in daily use, also the substances with which they are sometimes adulterated, &c., as in the subjoined list

Frame 1.

I. Transverse section of raw coffee berry, magnified 2. Thin section of raw coffee berry, showing globules

of essential oil, narguified 250 diameters 3. Investing membrane, magnified 250 dinmeters.
4. Transverse section of obscory root, magnified 250

diameters. Longitudinal section of chicory root, ecotral fibres, sgniffed 250 diameters.

6. Longitudinal section of wheat grain, showing the 7. Wheat starch, magnified 250 diameters.

8. Investing membrane, 250 diameters. 9. Maize, longitudinal section, showing the embryomagnified 12 dinusters. 10, Maize starch, magnified 250 diameters

11. Investing membrane, magnified 250 diameters, Frame 2.

1. Horse-beau, transverse section, magnified 25 dia-2. Horse-hean, starch globules, magnified 500 dia-

3. Horse-bean, investing membrane, magnified 500 meters.

4. Potato starch, magnified 500 diamet-5. West India arrow-root, magnified 500 diameters. 6, Sago meal, magnified 500 diameters.

7. Rice (raw , magnified 500 diameters, 8. Rice (boiled), magnified 500 disaucters,

Frame 3

Healthy nurse's milk, magalfied 1,200 diameters.

2. Pare cow's milk, magnified 1,200 diameters. 3. Cream of cow's milk, magnified 1,200 diameters. 4. Curd of cow's milk, magnified 1,200 diameters.

1. Adulterated milk, magnified 1,200 diameters. 2. Calf's brains, magnified 1,200 diameters

3. Milk with linseed ten, magnified 1,200 diameters.

1. Human bone, a thiu transverse section of the clavicle, magnified 95 diameters. Small portion of ditto, magnified 440 diameters.

2. Ostrich bone, transverse section, magnified 95 dia-

me'era. Small portion, magnified 440 diameters 3. Turtle bose, transverse section, magnified 95 dia-

Small portion, magnified 440 diameters. 4. Hoof of borse, transverse section, magnified 95 diameters

Small portion, magnified 440 diameters. Frame 6.

1. Lepidosteus scale, transverse section, magnified 95 diameters. Small portion ditto, magnified 440 diameters.

Sword-fish, transverse section of the sword, magnified 95 diameters. Small portion ditto, magnified 440 diameters.

3. Spine of Ray, from which shagreen is made, magnified 95 diameters. Small portion, magnified 440 diameters

4. Human lung (healthy) injected, magnified 150 dia-5. Human lung (with tubercles) injected, magnified 150 diameters.

These anatomical and microscopical drawings deserve very Hopourable Mention; the whole of their outlines and proportions have been executed by means of the camera lucida, so that they represent truly what the cyc actually sees, and the details are finished with scrapulous accuracy; they are, therefore, among the most trustworthy representations of minute and elaborate tissues

that perhaps have ever been executed.

Toppino (No. 667, p. 467°) exhibits five cases of microscopie objects. The contents of the first case are, test objects adapted to the present state of microscopic selence, ranging from two inches power up to one-twelfth of an isch of large aperture; also some of the most beau-tiful of the fossil infusoria.

Case 3—Contains fossil and recent vegetable structures.

Case 3—Dissections of insects. In this case are large
dissections of the respiratory systems of the silkworm,
cateroillar, and larve of beetles; all these are mounted im Canadian balsam,

Case 4-Sections of fossil teeth, bones, and shells, &c. In this case there is a diamond showing woody structure, and sections of oriental and Scotch pearls, Case 5—Contains injected animal tissues,

Mr. Topping has mounted the greater part of these objects in Canada balsam: he remarks that this is the objects in Comman summar are remarks that this is the only medium which will permanently preserves specimens of natural history as objects far the microscope, and that he uses chrome yellow, instead of vermillton, for injections, with which material he can inject the minutest

capillaries.

Mr. Topping's methods of mounting and preserving objects, are many of them of his own invention; he deserves to be distinguished above other exhibitors, as he was one of the first in the field, and perseveringly over-came many difficulties which others following after had not to eucounter. His anatomical injections are admirable, as are also those of HETT (No. 249, p. 435), hot in this branch neither of them is an original inventor, but are followers of John Queckett, Esq., of the Royal College of Surgeons. A Prize Medal was awarded to Mr. Topping.

BOURGOGNE (France, No. 434, p. 1199) has exhibited a case of microscopic objects prepared in the usual man-ner. They are mounted in Canada balsam, and comist of sections of wood, and entomological and other prepara-

tions, with a selection of salts to illustrate the polarization of light. The objects are well displayed, and carefully mounted. A Prize Medal was voted to M. Bourgogue, mounted. A Frames steam was voted to a, Dourgogne, Nonzarr (Prussia, No. 77, p. 1053), of Barth, has exhibited bis wonderful tracings on glass. The plan adopted thy him is to trace on glass ten separate bands at equal distance from each other, each band, being composed of parallel lines of some fraction of a Prussian inch apart,

in some they are might, and in others only whith of a The distance of these parallel lines form parts of a geometric series; thus-

0'001000 line. 0.000735 01000630 0.000240 0.089463 0.000397 0.000340 "

To see these lines at all it is necessary to use a micro-scope with a magnifying power of 100 diameters; the bands containing the fewest number of lines will then be visible. To distinguish the finer lines it will be necessary to use magnifying power of 3,000, and then the lines which are only most of an inch apart will be seen as perfectly traced as the coarser lines. Of all the tests yet found for object-glasses of high power these would seem to be the most valuable. These tracings have tended to confirm the undulating theory of light, the different colours of the spectrum being exhibited in the ruled spaces according to the separation of the lines; and in those cases where the distances between the lines are smaller than the lengths of the violet light waves, no colour is perceived; and it is stated that if inequalities amounting to '000002 line occur in some of the systems, stripes of another colour would appear in them, A. Prize Medal was awarded to Mr. Nobert.

LENDY (Sardinia, 60, p. 1304) has exhibited several dies or minute copies on silver and steel, of various de-These specimens of minute and excellent workmanship are produced by a machine invented, but not exhibited, by Mr. Lendy. By its means any model, however elaborate, varying in size from 7.87 inches to 0.039 inch in diameter, may be reduced to one-fiftcenth of its original size, a degree of unnuteness which renders the copies so reduced almost imperceptible to the naked On subjecting them, however, to examination by

the microscope, they are found to be composed of lines of all hut unparalleled delicacy and distinctuess. Mr. Lendy, who has been for many years engraver to the Royal Mist at Turin, has originated this ingenious invention, for the use of banks, mints, goldsmiths' companies, &c., with a view to the avoidance of counterfeits.

We may particularize the following dies or puncheons which are exhibited :-A royal crown engraved ou silver, and very elaborate, the lines within side being so fine, that a common hair covered five of them. The same design in relievo is also exhibited.

A ducal crown cugraved on silver, and surrounded by a gothic frieze, executed with sharpness and precision never before equalled in so minute an object. The same design in relievo is also exhibited.

A coat of arms containing a gothic "R," surrounded by a gothic frieze, and engraved on steel, 0 013 inch in diameter; in its execution it is as graceful as distinct. A similar design in relieve is also exhibited.

Another ducal crown on steel, equally good with the eceding, is exhibited, as also one in relievo.
Upon steel a capy of Mr. W. Wyon's medal (the design of which is a portrait of Her Mojesty, surrounded with the words Victoria, D.G. Britanniarum Regina F.D.), it is 0.06 inch in diameter, the original being

* See Pogrendorff's "Annalen" for 1846, and "Procerdings of the Royal Society," April 10, 1831,

1'8 inch in diameter. This is a most elaborate work,

and bears examination well by high powers.

This investion, apart from its great ingenuity and tha
perseverance by which it has been originated, promises to
be of great utility in reducing standard works with accoracy only exceeded by a degree of minuteness calculated to render any attempt at counterfeit next to impossible.

Object Glasses for Telescopes,

Simes (No. 741, pp. 475°, 476°, 477°) exhibits several achromatic object-glasses; viz., one of 9 inches aperture, two of 8 inches aperture, one of 6°9 inches apertore, and one of 4 inches aperture. The largest which is exhibited is entirely of English manufacture, and the discs, both of flint and crown, were made by Messrs. Chance, of Birmingham. In all the remaining glasses, the crown is of English—and the fiint of foreign—mannfacture. The

object-glasses are altogether the work of the exhibitor, and on examination were found to be good.

It is observable that the crown glass in all these speci-mens has a greenish hue, and Mr. Simms states, with reference to this particular, that he has found from expe-rience (as might be expected from the extinction of ona extreme, and consequent shortening of the total spec-trum), that there is less irrationality between this kind of erown glass and the denser kind of flint, than between erown gasst and the delier kind or hist, than octwicen the same specimens of flint and any other crown or plate glass that he has been able to procure. We understand Mr. Simm' practice in determining the corrections re-quired for achromatism consists in using that part of the spectrum which is included between the lines B and G; he finds, however, differences of small amount, sufficient to produce a sensible effect upon the results, between discs of glass sent to him at the same time, and which he supposes are prepared, if not at the same time, at least of

The following are the specific gravities, &c. of speci-ens of flint and crown glass manufactured by Messrs. Chance and Co., of Birmingham :-

Index of Index of Dispersive Kind of Glass. Refraction G. Forer B, to G. 3:583 1.6100 1.6336 0.036

Crown ... 2:539 1.5128 1:5974 0.028 To Mr. Simms the Jury consider very great merit in development of the property of the property of the every instrument exhibited by him, but also for the several service feeders and arrisequents which, by the greater facility they affect to observations, cannot fail in vertex of the property of the property of the property overlad Concessil the July affect to observations, the passed constitution of the property of the property of passed constitutions of the Jury; is due to him. Bentous (No. 62, 75, 848) which is objectly allowed to Departual (No. 62, 75, 848) which is not property of the Departual (No. 62, 75, 848) which is not property of the p

Burnon (France, No. 443, p. 1199) has exhibited an achromatic glass 7.5 inches diameter and 10.8 feet focal length; the crown and flint glass for which were made by the late M. Guinard, of Paris, and the curves secondby the late M. Cathard, of Paris, and the curves according to the theory of Sir John Herschel, and is designed to show stars of the eleventh magnitude. It was not tried by the Jory on account of its tube being delayed at the Custom-house under a very heavy charge.

Solid Egr-pieces.

READE (No. 254A, p. 436) exhibits two solid eye-pieces They consist of three leases, the anterior and posterior being double convex of crown glass, and the intermediate one double concave of flint. The contact surfaces are cemented together, and consequently the action npon the rays of light is similar to that of a single lens. They are dicable to all astronomical instroments, micrometers, and microscopes, and also as a general magnifying power. p. 56.

The novelty of the solid eye-piece consists in its construc-tion, by which a large and flat field of view is obtained, together with the removal of spherical and chromatic aberration. These advantages are obtained by means of the great thickness of the flint lens, which is a perfectly

new feature in the construction of eye-pieces.

Sir David Brewster's achromatic sphere which he pre-Sir David Brewster's achromatic sphere which he pro-poses to use as an ohject glass for the microscope, approxi-mates to this form, but the field is not flat. The general mathematical expressions for the curres of the solid sye-piece have not as yet been fully worked out; but it may be stated as a rule for the practical optician, that the radii of the outer currey of the two coaver. lenses, must be in the proportion of the dispersive ratio of the crown and flint glass employed on each eye-piece, and the inner contact surface must be such as by experiment will perfect the achromatism. The solid eye-pieces ex-hibited have focal lengths of 0.5 inches and 0.75 inches, and it happens that while the eye-piece of shorter focal length is barely brought up to a flat field of view, the one of longer focal length is carried rather beyond, and is therefore slightly over corrected. These small errors are npon the whole satisfactory, inasmuch as they show that

truly flat field is attainal Sir David Brewster observes in his "Treatise on Optics," that "achromatic eye-pieces, where one lens only is wanted, may be composed of two or three lenses, exis wanted, may be compaced of two or three lumin, ex-netly on the same principle as object-planes; meth, in-deed, as the cemented triple object-plane made for the microscopy, which was described by the leve J.D. Breads as being an efficient eye-place for telescopes—in fact, the term both room of m vertice larged lears; has, the smallene of the field is an inneperalise objection to its obtained in the solid eye-place is nobly due to the thick-ness of the flint, which causes the image of the object-plane, where the eye in placed, but formed so near the glass, where the eye is passed, to be trained as every-piece that its diameter is seen under a considerable angle; and it is found that in the lower powers the diameter of the field of view is larger than in the ordinary negative eye-piece."

The positive eye-piece almost universally used, is known as llamsden's: the field is fint, which is requisite for a measuring instrument, but it is far from being free

The Astronomer Boyal states* that the positive eye-piece at present used is not achromatic, and cannot be made so; and considerable inconvenience is occasioued by

this defect, for when the object is not far from the centre of the field, the chromatic confusion is much greater than that produced by spherical aberration; since it varies as the distance from the centre, and in this confusion there is nothing to point out the centre of the coloured line. The new solid cye-piece is therefore looked npon as an important addition to the working apparatus of an astro-nomer, inasmoch as the great evil of chromatic confusion,

which prevents any accurate measurements at the ex-tremities of the field, does not here exist at all, but the webs of the micromater, though ever so distant, may be seen as fine black lines. The field of view is also free from illomination by false light; no light is lost, as in the usual construction by inner reflection from the sorfaces of the leuses,—and there is no formation of the false

of the lenses,—and there is no formation of the filter image or plots of plants, now of the high stars, which injures the best part of the field.

An examination of this eye-pices, as applied to a filter of the plants of the properties, as applied to a filter of the plants of the plants of the order of eye-pices applied to the same telescope, made by Mr. Glaither, extending over a period of three hours, fully impressed him with its superiority; the field of view was block, and the sars appeared as very prilip points. In block, and the sars appeared as very prilip points, in probably be found that in determining the colors of fault stars, these eye-peices may be of eventils service. The Jury awarded Mr. READE the Prize Medal.

* See "Cambridge Pl-ilosophical Transactions," vol. iil.

Optical Glass.

The disc, of 29 loches in diameter, exhibited by Mr. CHANCE (p. 477*) having undergone a partial examination by the Jury, it was considered that a satisfactory opinion could not be formed of it, owing to the irregularities in its surfaces, until it had undergone the operation of polishing, to as to give it a plane, or nearly plane figure. This operation having been performed by Mr. Ross, and that disc being reported by him fit for further examination, it was agreed to subject it to such ou Tuesday, that 9th of September 1851, for which day (it being considered by the Committee desirable to have the attendance of as many of the Jury as could be brought together) a Jury ons was issued, which was responded to by Professors Potter and Colladon, who attended with the Committee, consisting of Sir J. Herschel, Mr. Glaisher, and Professor Miller. Mr. Ross, Mr. Simms, and Mr. Bostems (the latter on the part of Mr. Chance) were also present nt the axamination

The dimensions of the disc were as fallows:-Largest diameter . . . 294 inches. . . . 29 Shortest

Its weight was stated to be somewhere about 200 lbs, The specific gravity about 3 56 ... 3 58. The surfaces were highly polished and brought to a figure very slightly deviating from true planes, so that no deceptive

appearance of striction could possibly arise from irregularities in their surfaces The disc was first examined by inspection through faces cut upon its edges. These faces had not been repolished, or brought to a true figure; so that nothing could be gathered from this examination, but that no

offensive strine were seen through them. The state of the disc, as to tension from imperfect annealing, was then tried by passing polarized light through it at right angles and at obliquities, and analysing the emergent beam by tourmalines and Nichol prisms. It was found to be very remarkably free from indications of tension, only a feeble gleam of whitish light becoming perceptible on some portions of the edges, which might have arisen from the heat of the hands of the persons

employed to lift and keep it in position.

It was then placed on edge, and tested by looking very obliquely through it at objects offering broad lights and During this examination a group of strine became visible at a spot whose position on the glass was marked, and to which and its near neighbourhood they seemed to be limited

To true the limits of this group, and to subject the whole due to a more rigorous and delicate sentiny, it was set upright on a table; the room (the Indian tent) darkened, a candle placed 7 or 8 feet behind the dise, and a convex lens of about 5 feet focus and 6 inches diam of extremely pure glass, held between the candle and the leas close to the latter. The eye of the observer being placed before the disc in the place of the image of the camile, so as to cover the lens with a glare of light; strim, it is well known, become distinctly apparent, if existing, in any part of the disc so covered,

Every part of the disc in succession, beginning from the centre, and proceeding outward in radii, was thus earefully examined for strine. With the exception of a hair or thread, perfectly definite, and of a looped form, thus, near the centre, and not of the smallest im-

portance in an optical point of view, and a few other trifling threads, originating apparently in minute sandgraios, in various points, and also utterly inoffensive, no appearance of strice whatever could be discerned over any part of the disc, but at and in the immediate neighbour-

ood of the place marked, No bubbles of any consequence were noticed in this exa-

ntion, or on ocular impection Attention being concentrated on the group of strice thus pointed out, it was found to occupy a space (at its utmost extent) of 6½ inches in length and 2½ inches in brealth, beginning at about 1½ inches from the edge, and having its longer dimension directed towards the centre. The

whole of this space was hy no means equally affected, and the most objectionable portion was much more limited. This was situated not far from the middle of the space in question; and it was proved decisively that the seat of the worst portion (or nucleus) of the group was almost close to one of the surfaces, by the test of was amount evous to one of the surfaces, by the test of parallax, viz., hy placing a mark on the surface next the eye on the apparent place of the nucleus, and then tilting the disc right and left. One side (A) being towards the eye, the mark and nucleus remained coincident; and on reversing the disc, and bringing the other side B negrest the eye, and making a fresh mark (effacing the former), they coincided only when the visual ray passed perpendicularly through the disc, the nucleus passing paralhe-tically behind the mark, from side to side, on inclining the disc.

As the disc would have to be worked into a concave or convexo-concave lens, by which its thickness in the centre would be reduced at least an inch, there is little doubt, therefore, that hy acting on that surface near which the nucleus is situated, it, and much of the neighbouring strim, which are evidently connected with it, would be ground out. Such is the decided opinion of In that case, as the whole area occupied by Mr Ross the strinted region does not exceed 0.019, or less than one-fiftieth of the total surface of the glass, it might very one-interts of the total surface of the gains, it might very reasonably be expected that, if worked into an object-glass, the mass of good light would so far overpower the injurious effect of what sirise might remain, as to give a rery satisfactory result, and that for many purposes of high astronomy it might prove extremely efficient. On the other hand, if it should be resolved to sacrifice

the defective portion, or so much of it as to leave but a very riffing part of a comparatively inoffensive region still encroaching on the edge (suppose a spot of an inch diameter), it would be practicable to cut out from the whole disc a smaller one of 22 inches (29 - 14 - 54) dinmeter, apparently quite perfect in every other part, and of 2.2 inches in thickness is superfinous, it might be found practicable, by eautiously heating the glass to the softcuing point, and applying presence, to extend it in surface whilst reducing its thickness to 22-29ths of its present amount. Supposing this operation successfully performed, and that in the manipulation some portion of the good glass adjacent to manupulation some portion of the good guess agreed to the strinted part being retained could be pressed inwards, so as to drive out the small strinted corner, a disc of 25 inches diameter, of apparently perfect ffint glass, would he produced.

he great object-glasses of Pulkowa, and of New Cambridge in the United States, do not exceed 16 Inches, Compared to this, a 25-inch, or even a 22-inch object lass would be as great a stride in advance, as the glass would be us great a stress in manager. Pulkowa leus is beyond the largest achromatics proviously constructed,

On these grounds the Committee have had no hesits tion in recommending that a Council Medal be given to Messrs. Charce for this disc. They desire it to be clearly understood, however, that no examination to which a disc of glass waverled can be subjected, will afford more than a reasonable probability that a telescope worked from it shall turn out perfect; since, independ-ently of peculiarities in the glass which this kind of examinntion may fail in detecting (though no better has yet heen devised), the perfection of the resulting instrument will still be dependent on that of the crown less and of the optical workmanship,

MARS (France, No. 656, p. 1209) has exhibited specimens of a new kied of glass; the basis of which is the oxide of zine, a certain quantity of borax, a borneic neid being added, to give the glossy character for which the remarkable, combined with an easier fusibility. As a material in the arts, the Jury lave so further concern with this glass, than as regards its probable utility in the construction of telescopes, prisms, and other entiral apparatus, for which it extreme limpidity and total freedom from colour, and, so far as appears, from veins and strise, seem eminently to fit it, and which have induced them to propose its being rewarded with a Medal. The low dispersive power of the zine compounds, points to its use as replacing the crown glass in achromatic telescopes, Suppose it should be found practicable (and the experiment is recommended to the attention of artists, as one in which, when tried on a very small scale, some success has actually been obtained) to form colourless and uniform glasses in which fluorine enters as a distinguished ingredieut, in combination with silics, alumina, or other materials; the combination of such glass, as a convex lens, with this new material of Mr. Maes, or with ordinary crown glass, as a concave, might be expected to produce achromatic object-glasses of a very perfect description, The coloured dispersion to be removed, being much less than that of erown glass, owing to the peculiarity of the fluorie compounds, which beset the manufacture of flint glass, arising from the intense solvent power of the oxide of lead on the crueibles, and give rise to strin and veius, would be evaded. Mr. Maës, besides two prisms of his new glass, of the most limpid purity and perfect freedom from veins or strine, has exhibited two discs of 4½ and 7 inches in diameter, prepared for optical use. In an examination, through faces cut on their edges, no veins or strie were detected, and, consequently, should there arise no objection to this material, either in point of durability or facility of working, it will probably prove very valuable for the use of the optician. Some small astronomical leoses, in which ainc is substituted for crown glass, are also shown. Its refractive index is 3°285, and its dis-

persive ratio, as compared with a flint glass of specific gravity, is as 3.55, to 0.6502. It has been long a theorem in every treatise on optics, that the achromatic union of the whole spectrum cannot be accomplished by any combination of dispersive media, and that two media of different dispersions enable us to unite but two rays procisely, the rest only approximating, leaving two masses of uncemented colour, the one cooverging to a longer, the other to a shorter focus three media, admits of the exact union of three rays at different points of the spectrum, and a very much greater approximation to union among all the rest, provided their scales of action on the different rays of the spectrum differ sufficiently. In this point of view, the new glass, whose dispersive action on the spectrum, from the introduction of a new metallie oxide, may very reasonably be expected to differ from those of the crown and fine glass, will, perhaps, become available in this third medium, so long a desideratum in optics; and its use may open a new field in the theory of the construction of telescopes. Should It prove (owing to the boracic acid it contains) less durable, or more open to atmospheric corrosion than the other media, its place in a compound lens will be intermediate, as a defence from air or moisture, and one of the conditions of the structure may be that of a perfect coincidence of one or of both its surfaces, with those of the adjacent lenses, to allow of cemeuting them. A Prize Medal was awarded

DAGUET (Switzerland, No. 75, p. 1271) has exhibited discs of flint glass of 15½, 12½, 10½, 9½, 7½, 7, 6½, and 4½ inches in diameter respectively. On examination, by inches in diameter respectively. On examination, it chords and diameters, they were all found to be good string were suspected to exist in the largest; hut, if so, it was in one diameter only, and but to small amount. A discof crown-glass, of 7 inches diameter, and one of 42 inches, were examined, and found to be good; another, of 65 inches, was less perfect. The specific gravity of the flint was stated to be nearly 4, and that of the crown to be from 3.5 to 3.6.

Mr. Daguet, by a process of his own, gives to fliot-gluss a degree of hardness not attained by any other manufacturer; his glass, porticularly the fliot, is in general use among all the best opticians, heing distinguished both by its homogeneousness and its peculiar property of resisting all decomposition by the action of air. The Council Medal was awarded to Mr. Daguet,

spherical aberration, and give a true view on their whole surface: also long leases, with the axes parallel, equally true throughout; they are useful in photographic regis-tration of changes in the position of magnets, &c., as adopted by Mr. Brooke.
M. Beyersé also exhibits lenses ground on curves of

M. Beyerie and examine muses ground on the conditions of different foci, &c.; also many achromatic lenses of short focus. The working of these reflects high credit upon M. Beyerlé, and the Prize Medal was awarded to him. Jamin (France, No. 548, p. 1204) exhibits a fine

assortment of prisms, chiefly crown; a large flint disc, and plane and concave reflectors, mounted on brass swing frames, of large dimensions. Honourable Mention was made of M. Jamin

Berraun, Jun. (France, No. 1549, p. 1251) has exhi-hited some of the finest possible Nicholl's prisons; some slices of crystals, prepared to show that, in certain crystallized bodies, heat is unequally transmitted in different directions; with many other specimeus of most difficult, yet beautifully cut prisms, reflecting the highest credit upon the maker. The Prize Medal was awarded to

BUBON (France, No. 443, p. 1199) has exhibited various prisms,

Lighthouses

CHANCE (Class XXIV., p. 477, Class X.) has exhibited a design for a lighthouse, consisting of a dioptric apparatus of the first order, and constructed with revolving leases and catadioptric zones.

This apparatus combines the principles upon which the fixed and revolving dioptric lights of French were constructed, with an improved method of reflection, by which the use of motal reflectors is entirely suner-

In the fixed dioptric light of Fresnel, the flame is placed in the centre of the apparatus, and within a eylindric refractor of glass, of a vertical refracting power, the breadth and height of the strip of light emitted by it, being dependent upon the size of the flame and the height of the reflector itself; above and below is placed a series of reflecting prismatic riugs, or zones, for collecting the upper and lower divergent rays, which, falling upon the inner side of the zone, are refracted, pass upon the lancer size of the zone, are retracted, pass through the second side, where they suffer total re-flection, and, passing out on the outer side of the zone, are again refracted. The effect of these zones is to lengthen the vertical strip of light, the size of which is dependent upon the breadth of his frame and the height dependent upon the breadth of his frame and the region. of the apparatus.

The system adopted by Fresnel, in his revolving dioptric lighthouse, is open to some objections. A largo flame is placed in the centre of a revolving frame, which carries a number of leuses, on a large scale and of various cursatures, for the avoidance of spherical aberration. With the view of collecting the divergent rays above the flume, an arrangement of lenses and silvered mirrors is placed immediately over it. By this compound arrange-ment the simply revolving character of the apparatus is destroyed, as, in addition to the revolving tlash, a ver-tical and fixed light is at all times seen; added to which a great loss of light must be sustained from the use of metallic reflectors.

The lighthouse constructed by Mr. Chance may be described as Fresne's revolving light, rendered holophotal. It is divided into three compartments, the upper

and lower of which are composed respectively of thirteen and six entadioptric zones, which produce the vertical strip of light extending the whole length of the apparatus, and is similar to that described as Freszel's fixed dioptric The central or cutoptric compartment consists of light. eight lenses of three feet focal length, each of which is the centre of a series of eleven concentric prismanio rings, designed to produce the rame refractive effect as a solid less of equal size. These compound lesses are mounted upon a revolving frame, and transmit horizontal flashes of light as they successively rotate. The motion is Lenses and Prisms.

Bernauds (France), 70,765, p.1217) exhibits many lenses ground with cylindrical surfaces; they are free from last there are eight lenses, a flash of light is transmittened to the lense, a flash of light is transmittened to the lense, a flash of light is transmittened to the lense, a flash of light is transmittened to the lense, a flash of light is transmittened to the lense and light is transmittened to the frame by a clock movement, and performs one revolution in four minutes of the lense and light is transmittened to the frame by a clock movement, and performs one revolution in four minutes of the lense and light is transmittened to the frame by a clock movement, and performs one revolution in four minutes of the lense and light is transmittened to the light is transmittene every thirty seconds to the horizon. The system of a fixed light, varied by flashes from prisms, originated

with Fresnel.

The apparatus is lighted by an Argand lamp, with four concentrio wicks: it is provided with four sizes of hurners, the largest of which is 3½ inches, and the smallest 1 6 inch in diameter, and is stated to consume I pound 10 ounces of oil per honr; carcel oil being employed.

The interior edges of the framework, carrying the

catadioptric zones, are silvered; the workmanship is not characterized by any great degree of finish; a fact in its favour, as any great degree of finish, or adoption of ornament, would involve an increased ontlay of capital

ornament, would involve an increased outny or capital without compensating advantages. The glass of which the apparatus is manufactured is ark and of a greenish colour; this we are informed is due to its having been subjected, in melting, to a very high temperature, with a view of draining off the alkali, which, hy rendering it dryer and harder, would prevent the exiding of moisture from the surface, in defect to which glass is liable when exposed to the air; it is, buwever, bable that the colour will have no injurious effect, as it is known that such tinge does not affect the transmission of light. The presence of strise, which are

ubservable in many points, will, by scattering the rays, cause a loss of light to some amount,
WILKING (Class VII., No. 157, pp. 326—328) has exhibited a revolving catadioptric apparatus for a light-

house of the first class,

This, also, is constructed upon the holophotal system and does not differ very materially from that exhibited by Chance. For the moveable cylindrical lenses, is substituted a single revolving eylinder composed of four lenses, alternated with an equal number of fixed ones, according to the succession of flashes to be produced during each revolution. A new arrangement is also introduced, whereby the friction rollers which revolve introduced, whereby the friction rollers which revolve on two parallel planes, may be so fitted on an iron axis with regolating seriess, that, when one part of the plate becomes worn, they may be adjusted to another part. The glass, though white in colour, is not more free from stris than that exhibited by Mr. Chance, and though great finish and ornament are discernible in the manufacture of the apparatus, these would seem to be rather objectionable than otherwise. For a detailed description, see Illustrated Catalogue, Class VII. The Jury make Hunograble Mention of this light-

Physical Optics.

Dunosq-Soletl (France, No. 1197, p. 1235) has exhibited Silberman's heliostat. The principle of this instrument is quite different from that of S'gravesaudes, which is that of making the perpendiculars to the reflocting plane, describe an oblique cone. In the reflecting plane, describe an oblique cone. In the instruments exhibited, the reflector, by a peculiar gimbal suspension, is always kept equally inclined to two axes, suspension, is aways keyn expany incurses to two sex-one of which is fixed, and directed towards the line which the reflected ray is to take; the other is kept by a clock motion always parallel to the sun's direction, the plane of the reflected ray being by the same gimbal

plane of the reflected ray being by the same gimbal suspension, kept perpendicular to the plane in which both these axes lie; thus the incident ray parallel to the one will be reflected parallel to the other.* Demony-Solent (No. 1197, p. 1935) has also exhibited a saccharometer. A double gauge is formed by a rotato-polarizing plate of quarts and Icedand part, of which two semicircles, juxtaposed, and viewed through a telescope of about double magnifying power, are brought to exact coincidence of colour, by turning the spar. In this situation, the images are viewed through an empty tabe, closed at either end with glass, and of a given length. The saccharine solution is passed in, and the quality of colour disturbed: the semicircles no longer match: they are then re-adjusted by sliding one upon the other two achromatized prisms of Iceland spar acting against each other, so as to leave their difference of thickness outstanding, the amount being estimated in parts of a finely divided scale, which is graduated so as to show, by inspection, the saccharine matter present, beautiful and delicate instrument, carefully executed and well-finished.

Dunosq-Soleri. (No. 1197, p. 1235) has also exhibited Bravais' kaloscope, for the exhibition of all the phenomenas connected with halos, parhelions, &c. This beantiful instrument consists of a clock-movement for the purpose of giving a rapid revolution to a vertical axis; two glass prisms (one hollow for the reception of water); a quadrangular prism, and a small arm carrying a mirror, all adapted for mounting on the vertical axis; two opaque plates of glass for the purpose of obscuring one or two sides of the prisms, as necessary, and a plate of glass monuted. To produce a representation of the parhelion, it is necessary to place a candle in a darkened chamber, on a level with, and 10 or 12 feet distant from, the glass prism on its axis of rotation, the prism having two sides covered. On looking in a horizontal direction, the parhelion circle will become visible. By obscuring one side of the prism, only three horizontal lines are seen; two being formed from the exterior and one from interior reflection.

To produce an imitation of the white parhelion, the candle is placed in the same position, and two sides of the prism are again darkened; when, on looking at the parliction circle, at a distance of 120° from the candle,

the white one will be perceived.

Colonred parhelions may be exhibited by means of the prism of water, viewed at an angle of 20° ur 25°. One side of the prism being obscured, the colonred parhelion, red on the side near the candle, with a white train pro-longed to 15° or 20°, will be seen.

longed to 15° or 30°, will be seen.

To imitate coloured pathelious, formed at a distance
of 98° from the sun, the arrangements are the same. By
obscuring the prism, and looking at the distance of 98°
from the candic, a coloured spot will be observed, red on
the side opposite to the candic, and less bright thum the parhelion.

The circumzenithal tangent of the arc may be imitated

hy means uf the prism of water, the candle being lowered by means ut the prasm of water, the calddle being lowered from its original position, and two sides of the prism darkeased; on placing the eye in a proper position, the image will then appear reducted upon the ceiling. Several changes may be produced by simply turning the prism. The circumstenithal are may be produced by the above arrangement, the position of the eye only being altered

To imitate the anthelion, it is necessary to make use of the quadrangular prism; its large transparent surface is turned towards the observer, and the candle placed a little above the prism, at the distance of six or eight feet from it. A small eircular mirror is then so placed that its centra is on a level with the top of the prism. Tha eye, being situated behind the prism, will perceive a laminous circle described beneath its edge. If a little slip of paper be placed beneath, it will be perceived more distinctly without moving. By moving the position of the eye, several distinct phenomena will become visible. There are means of adjusting the apparatus, to render that image for a time permanently fixed. Other phenomena besides those detailed can be shown by this instrument, and great merit is due to M. Bravais, the inventor.

bosq-Soleil, besides these, exhibits a very great of delicately constructed philosophical instruvariety of delicately constructed philosophical variety of deficielty constructed philosophical instru-ments, for exhibiting the phenomena of polarized light and other physical experiments of the property of the Arago's apporatus for exhibiting the interference of polarized light; Pressel's screw for polarizing glass by compression; Ibilialet's gonimeter, Hewster's steroscope, &c. 1 M. Dubous-Soleil also exhibits an apparatus, invented by hisself, for fixing the charcoal points for electric light.

A Council Medal was awarded to M. Dubosq-Soleil.

Spectacles and Opera Glasses It is with regret we observe that exhibitors of spectacles in the British portion of the Exhibition have done nothing

^{*} See " Comptes Rendus de l'Académie," 1843, tome xvii., p. 1319.

mere than exhibit a collection of shop years, and have matter of little memoric. They have view with our matter is meaning spectricles in the fixes and most more elicites than my which have before been made. The spectra of the spectra of the spectra of the Tollevie is the every wide have been been been been started with the spectra of the spectra spectra of the spectra of the spectra of the spectra posture as of the spectra of the spectr

incident upon the use or spectanes. Upon spectacles, as constructed by M. Henri, we have no objection to report, combining as they do the work of the opticins with a knowledge of optics; but we emnot consider we are called upon to report apon spectacle-frames, or articles which have swidently been manufactared and exhibited with a purely commercial whew. BOWLEY (N. 250, p. 439) has exhibited spectacles of

BOWLEY (NO. 299, 4-39) has exhibited speciacles of various kinds, chiefly remarkable for their durability of mounting, both as regards material and construction, soma being of no greater weight than 11 grains; the whole weight, including glasses, not amounting to more than 2 penoyweights. The steel frames of these has tresemble hair lines, and are imperceptible at no great distance.

Waarsa (No. 273, p. 438) has exhibited several pairs of spectacles, many of them distinguished by a mounting of extreme lightness; also a steel hand frame, to be adjusted before the eyes, without pressing upon the none. Baararawara (No. 283, p. 439) has exhibited several ventilating eye-bandes, designed to allow a carrent of air white the contract of the contract

Catabugar Buvruras (No. 29.9, p. 436) has exhibited several pairs of datale steel-framed speciates, designed to combine lightness with durability, and spectates for to avaious purposes. These, as well as everything exhibited by Mesrs, Chadburn, are remarkable for extreme chapses, and in this respect they deserve Honcombile Mention. Batury (No. 273, p. 438) has exhibited various spectacles, in monature of gold and silver,

HYANS (No. 278, p. 438) exhibits a solid piece of glass of a conical shape, or rather of the form of a finatrum of a cone, ground at the base or larger ead to a convex surface, and at the smoller end to a concave surface, intended for concentrations.

intended for opera-glasses.

Dixir (No. 271, p. 438) has exhibited a variety of spectacles, some of them remarkable for their lightness, a variety of eye-glasser, and several binocular opera-glasses.

CLARR (No. 276, p. 438) has exhibited spectacles adapted for use, if required, as an opera-glass. ELLIOTT and Soss (No. 370, pp. 443, 444) exhibit specimens of blue steel and gold spectacles of a very light and flexible kind; also gold hand-spectacles, intended for use with oue hand, and various specimeus of opera-glasses.

Hoave, Thornythwaite, and Wood (No. 220, p. 434), exhibit Smee's optometer, for ascertaining the refractory humours of the eye, and the required focus of spectacle glasses.

House, (No. 280, p. 422) has arbibited various hinds

glusses.

HRAHAM (No. 289, p. 439) has exhibited various kiuds
of spectacles.

CALLAGRIAN (No. 268, p. 437) a pair of steel spectacles.
SOLOMON (No. 288, p. 437) a pair of eye-protectors.
WHITEROEXI (No. 280, p. 438) various spectacles; a
pair for sketching, mousted without a rim to prevent
obstructing the vision.

YEATES (No. 532, p. 446), of Dublin, spectacles of the ordinary kind.

within y sing.

Havan (Prance, No. 262, p. 1189) has exhibited several blade of supervised spectuales, for correcting the defects of straight of the straight or left as will. They are designed for the cure of squinting, either converging or diverging. Spectacles for both requirements are exhibited.

M. Heari has also exhibited spectacles for preserving the eyo-sight (conserves gardes-rues) designed for the use of persoos suffering from weak eyes, ophthalmin, &c., and particularly adapted for the use of those who work much at sight by artificial light.

With the skill of the optican, M. Heari has combined the knowledge of the oralist, and great praise is due to him for the inprovements he has made in spectacles adapted to peculiar states of the eye; he has the further ment of being the only exhibitor of such spectacles in the Exhibition. The Jury considered him well worthy of Honouruble Methon.

men Andrews and Section of the American Section of the American Section of the Control of the Section of the Control of the Section of the Control of the Section of the Se

an general, owing to the reason before mentioned.

All Poullet considers that he has made spectacles which always preserve the visual ray in the courte of the glass; he has also exhibited metallic worst spectacles for the admission of air to the eyer, which subdue the light and serve as a screen against dust, insects, &c., or any curraneous rebasence which might be highrous to the

cyc.
LEBRUX (France, No. 298, p. 1191), exhibits many very cheap spectacles and opera-glasses.
PRUMENT (France, No. 1412, p. 1243) exhibits a fine

collection of opera-glasses, none of which have large object-planses. Braco (France, No. 443, p. 1199) has calibited a number of opera-glasses, both single and double, of which the mountings are of various materials, such as cunnel,

ivory, tortoiseshell, &c.

Breuz (Frasaia, No. 89, p. 1053) exhibits various
spectacles, differently mounted; single and double operaglasses, leases, &c.

Latinz (Belgium, No. 184, p. 1157) has exhibited

Harding Chronical Co. 1, p. 11-77 and exhibited warnous pairs of spectacles.

Backst (France, No. 25, p. 1172) spectacle glasses.

Planovalo (France, No. 1679, p. 1257) spectacles of various kinds.

Pick (Russia, No. 170, p. 1372) exhibits a pair of

spectacles,

Dissolving Views Apparotus.

Amazus and N. Ya. (20), p. (40) establis a trinograte primatic lances. (2), Ya. (20), p. (40) establis a trinograte primatic lances. (2), through the corter of which a tole passes for the purpose of supplying oxyge gas, by which amena as intense light is obtained. A disc of 25 feet for each tube may be obtained, and each on be darkened to any extent, without any shadow on the picture. The three discs, by means of the primar, can be thrown together, or they can be placed as various distances on the picture of the picture of the picture of the picture. The three discs, by means of the primar, can be thrown together, or they can be placed as various distances on Archana and G. (a) nor cabilly a dioproje grimment.

Abraham and Co, also exhibit a dioptric primute lantern, with two discs, which can be used as a dissolving apparatus. CAMENTER and WESTER (No. 270, pp. 437, 438; exhibit a pour of phantsamagoria lanterus; a lanteru with the addition of a microscope, together with a set of leases to be used in conjunction with them; a series of subject in outline, and various paintings adapted for dissolving lanterus.

House, Thousernwarrs, and Woos (No. 220, pp. 434, 435) exhibit a disording apparatise for the oxylydrogen jurice light, aboving the contrivance for disording the picture; also an oxylydrogen alternoryen, and a refer picture; also an oxylydrogen alternoryen, and a picture oxyl

Photographic Cameras.

The camera is the principal instrument of the photographist, as by its means light is made to become a chemical agent.
This instrument, the invention of Baptista Perta, to-

wake the end of the sixteenth century, was slingly a dark commer familiated with a single double-convex lens, fitted in a sube, and serving for the fixed significant color for the sixteenth of
Illy degrees a least concave towards the object and convex towards the image was undpret; the picture was thus rendered clearer, but the colours of the spectrum was the finispinals when were after orrected. At length an achromatic lens was used, the finispinals when worst the object. In Disquere participation of the causers, which, for the most part, are still adopted; the interior being carefully darkened, for the purpose of avoiding causat refereion upons the field of

Mr. Ross, in addition, preparet those for portraiture with the greatest intensity yet produced, by procuring the coincidence of the chemical actinise and visual foci. The spherical abornation is also corrected very carefully, both in the central and bilious peculiar.

both in the central and ublique pencils.

One of the exhibitors of photographs, M. Everano Blanggara, proposed the use of a white chamber, for accelerating the process; but there are serious objectious to its advantage, and it therefore is not used.

The object-glasses calibited are, for the most part, achromatic and double, and consist of two lenses placed at a distance from each other. A photographic object-glass without defect is yet a desideratum.

Boss (No. 24), pp. 435, 4365 has explicited the house

Hoss (No. 234, pp. 435, 446) has chabited the best camera in the Exhibition. It is fermibled with a double ackromatic object-less, about 3 inches aperture; there is no step, and no part of the field englighted which does no most on the control of the control of the control of middle of the picture are well liteminated. The field is flux, and the image is very priefer up the feel, or that a revelues and adjusting back-board for the reception of two plates. The same exhibitor has a necond camera, formitted with a single softwarmite less of small aperture, image could not be examined.

HENNEMAS SOM MALONE (No. 297, pp. 441, 422) exhibitgless, aperture 44 inches, the light is admitted through aperture 02 inche, 04 inch, 05 inch, 05 inch diameter, 4 about aperture 02 inche, 04 inch, 05 inch, 05 inch diameter, 4 about sourface, the combination being mounted on a house constance of the combination being mounted on a house contached to a malograp plate, which siddee and revolves on the front of the box, to allow any given point of the picture-plate to become the centre of the field. The

picture-board is 8½ by 10 inches; the focus varies from 10 inches to 17 inches according to the distance.

In hickes to 17 interes according to the distance.

In the content of the content

Hosse's Tourserwartz, and Woon (No. 20) by 63% of the Month of the Mon

CLAIDET (No. 296, pp. 440, 441) has exhibited emeras; the largest has an aperture of 3 inches in diameter, double achromatic object-glass; when the whole aperture is open, about non-third of the breadth of the lens is ent off on either side, so that only about one-third of the breadth of the lens is ent off on either side, so that only about one-third of the breadth of the picture receives full light from the lens, and the illumination is in consequence very unequal. The image is good and the field is list.

In Cluster's motipalying camors, the multiplying in performability consisting meltions of the picture-point, performability consisting meltions of the picture-point, performability consisting melting melting melting and performability consistence of the picture-point content of the picture-point consistence of picture. The camera is stored flowards, to give and in different apprecia in decidence of the picture point of the picture point of the picture
Witzarre (No. 96.8, p. 437) exhibits a persible photoproject comers with a brakbe (etch body) intend of a graphic comers with a brakbe (etch body) intend of a and it subjectible to lenses of various focal lengths; it has, also, an angular adjustment of the frame of the lowes, the historie for the proposed tecyping the longes in histories. The education of the photography is 104 by 45 hieless. The educ hody of the naturament is mounted and it has formly attacked to the example of the context. The whole instrument is easily taken to spices and put The whole instrument is easily taken to spices and put

VARLEY and Son (No. 257, p. 436) exhibit a single reflecting camera. This is a plain speedum with thin edges, placed at an angle of 45°, and designed for making reversed copies of drawings on lithographic stone or wood blocks. It may also be fitted with leuses for cularging or reducing copies, and for sketching from nature upon the stone. A Prizo Medal was awarded to Messrs, Varley and Son.

and Son,

Annaham, Annaham, and Co. (No. 253, p. 436) exhibit
a portable sketching camera, furnished with a meniscus
and prism in the place of a less nad mirror. When
down, the size of the box is 15 inches in length, 8 in

width, and \$\frac{1}{2}\$ in depth.

PLACETOR, [Proces, No. \$1679, p. 12575. This is by far the largest camers in the Exhibitors; the picture-local to the largest camers in the Exhibitors; the picture-local conditions of the picture-local control of

side.

The second section of the second section of the second section
HARRISON (United States, No. 223, p. 1450) has exhibited two or three cameras, but as they are mit mounted in boxes, and consist only of the heast-work and lenses, there were no means of trying their performance. They are constructed on the untal principle of dondle-exhromatic object-glasses, to give a flat field. The fargest is about 4 inches aperture.

Annar (Frankfert-on-Maise, No. 7, p. 1121) exhibits no camen, with a damble achimostic object-glass, \$\frac{1}{2}\$ inches clear aperture: there is a slight stop placed between the rog glass, but it can soft only the reflected light at the two glasses, but it can soft only the reflected light at the two glasses, but it can soft only the reflected light at the two glasses, but it can soft only the state of the same fully illuminated is only \$4\$ lackers in diameter, and the converse are very dark. With the full apperture the image in the centre of the field is somewhat importunity and sharpy dear definition of the state of t

to Mr. Albert. There (Pance, No. 1823, p. 1872). Because as freedom and flowers are proping derivates, by referrious and vision at the same time, through a large vertically-placed test of plant gas. The drawing to be copied at half or the copy on the other; the cuttiens are then copy on the other; the cuttiens are then copy in the other; the cuttiens are then copy has with reference and full time being no of the bread. His the implied form of the cutter-breads of the large derivative and the cutter of
Photographic Glass.

Messes, Chance and Co. (Class XXIV., No. 22, pp. 700, 701) have exhibited flint glass, in disea and in plates, adapted for the construction of object-glasses for Duguer-rootype and Tailbotype apparatus and camerus. Of these

discs one is as large as 20 inches in diameter, and there are some thin plates of the same kind of glass for catting up.

The density of this glass is 3'20; the index of its

refractive power is 1500, Branox (France, No. 443, p. 1499) has exhibited a collection of glasses of 6, 8, 10, and 12 inches diameter, for dissolving views.

Photography. Rapid as have been the discoveries connected with Photography, and great as are the improvements it has received since the invention of M. Dagnerre, there is yet much to be done to enable it to rank amongst the sciences of the age. It holds a place at present intermediate between an art and a science, a position eminently favourable to development in either direction. Its pursuit, as an elegant and most extensively useful art, affords a strong motive for isquiry and experiment in the improvement of its processes; in the course of which, an infinity of facts, new and nnexpected, come forward, every one of which may tern out to be the embediment of some pregwhich may turn out to construct the smallest minution of manipulation on which it is found that success or failure in the production of artistic effect depends, may, if duly observed and reasoned on, afford indications, linking together the known and the unknown is optical science, and tending to bring these mysterious operations of light within the sale of exact reasoning. On the other hand, science is too much in the habit of repaying to art, with interest, every assistance of that nature, to leave room for doubt of similar results in this instance, when once the principles of operative chemistry shall have assumed a definite form and subjective connexion. It is this which affirds us full assurance that Photography is yet in its infancy, and that all which has been hitherto accomplished-marvellous and exquisite though it be, is as nothing to what will be performed when the veil shall be removed, which, for the present, obscures its true scientific principles. In this point of view the photographic study of the prismatic spectrum per se, apart from all artistic combinations and coloured media, cannot be too strongly recommended to experimenters, and we lament to observe only one instance, in the whole Exhibition (that of M. Clandet) in which this study appears to here been in any way followed up, so as to afford exhibitable results. Mr. Ross is understood, also, to construct the object-glasses of his photographic cameras, with especial reference to the excessive development of the actinic spectrum beyond the luminous one, in the direction of the violet rays. When hromine is used in the preparation of the plate or tablet, it may be questioued how far this is really an improvement? Should means be discovered of truly representing the celours of objects, and limiting the action to the luminous ray, the con ditions of achromaticity for the photographic camera will

The fine cellection of Pholographs now exhibited will, yet call make the the descrement of the boundle str., by decided now, by the constraint of the boundle str., by that which it is not made in the constraint of the constraint

be the same as for the telescope,

ees of the present day is most striking. It is not the object of this report to trace the history of liveations, nor to decide on elaims of priority, especially in relation to a subject which has received accessions from such innumerable guarters, and called late action

the skill of so many emineut chemists and photologists of every nation. Suffice it to say, that, after the introduction of M. Chudet's accelerating process by the appli-cation of chloride of iodine and chloride of bromiue (an invention which he liberally gave to the public through the medium of the Royal Society and the Academic des Sciences); the Daguerreotype process, as publicly practised, became reduced to some system, and two Daguerreo-type establishments were formed in London. The portraits taken, at this time, were, however, deficient in expression; but in spite of all deficiencies, the receipts of these establishments several times amounted to 60% in one day. At a somewhat later period that remarkable variety of the Talbotype process, designated by its inventor by the name of "Kalotype" was also publicly employed for the production of portraits by Mr. Callen: the artistic effect in these representations was susceptible of being much heightened by the hrush and the defects of expression might be removed, and the likeness in consequence greatly

improved by one or more subsequent sittings.

M. Claudet, who, from the earliest time of the Ducuerrian invention, displayed great genius and ability in perfeeting the various processes, first perceived the necessity of aiding the artistic effect of his representations by subsi-diary adjuncts of a different kind. He it was who first praaury any anomato of a different kind. He it was who first practiced the placing of painted back-grounds behind the persons whose portraits were to be taken. Thus an infinite variety of scene might be afforded by the operator simply providing himself with a few subjects skilfully adapted to the requirements of the occasion. To him also we owe that extremely pleasing adaptation of mechanical adjustments for bringing many miniature representations of the same individual under different aspects, to be impressed in regular compartments of the same plate and framed together,—of which we find specimens exhibited in his collection,

collection.

It is not necessary to detail, step by step, the successive improvements in the different processes and apparatus for Daguerrotypic Photography, though we may mention that to the exertions of Messre Claudet, Gandin, Fireon, and Draper, the public are indebted for many improvement. To M. Firean is due the reproduction of the proofs of electrotype; also a new process for cugraving

proofs of electrotype; also a new process for cugraving the Daguerrain image, and of preserving that image from destruction by gilding the surface.

The Exhibition presents many fine calotypes, or as they are sometimes called in the Catalogue "sun-pictures," for the production of which the preparations of Mr. Talmor hold the first rank. M. Bayraparations of been colobrated for his achievements in this line, and has contributed many splendid proofs, obtained on various sensitive papers. Mr. Talbot has, himself, exhibited nothing; but many of his productions will be recognized among those exhibi by HENNEMAN and MALONE, as adapted to the practical wants of travellers, collectors, &c. This branch of the wants of travelers, consectors, &c. Inst branch of the art offers inestimable advantages, viz.: 1st, That the papers may be prepared at leisure, some time before an occasion for using them arrives, 2ndly, That when pressed and fazed, they may be carried without follury in a port-folio, like other drawings: 3ndly, That from one good negative original, any number of positive copies may be taken, to the extent, indeed, of two or three hundred taken, to the extent, indeed, of two or three hundred copies in a raing day, as proved by the practice of M. Everand Blanquart (France, No. 1551), and supplied EVERLARD BILANGUARY (FFARCE, No. 1851), and supplied to the public at a cheap rate; 4thly, That they may be wholly obliterated so as to reduce them apparently to the original condition of white paper, and carried about in that state for an indefinite period, though susceptible of revival at any instant. Considering it probable that the following communication, addressed by M. Arago to the Academy of Communication, addressed by M. Arago to Academy of Sciences, on the granting a national recom-pense to M. Daguerro, may be as useful to a portion of the public, now, as then; we subjoin it in the words of M. Arago himself:—

M. Ango himself:—
"A short time after the law was voted, granting a mitional recompants to M. Daguerre, some opinions, have a minional recompant to M. Daguerre, some opinions, have a minional profite of the public, which rendered it and August 1800, and have a minion to be estimated in respect to art only, but to the public, when the public of the public with rendered in the public was a minimal profit. Specific most to be estimated in respect to art only, but to the public with the public of the public was a minimal profit. Specific most to be estimated in respect to art only, but to the public with the public of the public was a public or the p

valuable subjects for investigation which it presented in reference to the physical sciences Without further remark, we proceed to the discussion of the Potographs exhibited

Daguerreotype Pictures,

CLAUDET (No. 296, pp. 440, 441) has exhibited a large collection of daguerreotype portraits, both plain and coloured. Amongst various excellences of which they are possessed, we may particularly mention that of their non-inverting. This is a great improvement, and by it M. Chaudet has annulled the superiority which the sun-pictures have so long possessed, in this particular, over the daguerreotypes

On examining the uncoloured specimens exhibited by Claudet, it will be found that they are distinguished by orristic arrangement, indicious distribution of light and shade, and great elearoess of definition. The general tone is good,—M. Claudet having uniformly avoided violent contrasts of light and shade; a circumstance to which much of his success may be attributed. In this collection are several female portraits in white draperies. which pictures deserve commendation for their beauty of detail and freedom from solarization. Many of the above remarks apply, equally, to the colonred specimens, most of which are portraits, and are distinguished by careful and harmonious colouring, the focus having been so jud eiously selected, and most of them present an artistic and natural appearance, seldom hitherto obtained by Daguerreoty pists.

Photography may be said to be too faithfully exact in its results, for the purposes of art; detailing, as it does, the accessories in the back ground and the main object of the group with equal fidelity. When blending colour with photographic works, or in visibly uniting art and science on the same plate, the operator should be possessed of knowledge and feeling sufficient to know the proportions in which art and accence should interminate so as to be subservient to each other; in this knowledge, which is cliefly dependent upon the proper focal adjust-ments of the picture, M. Claudet excels; and the admi-rable manner is which he sacrifices the details, afforded him by science, to the requirements of his subject, is the result of long and laborious investigation.

An uncoloured deguerreotype by Chudet is worthy of particular mention; it represents various articles of verth, pictures, &c., grouped together: the perfect focus of each part and general relief of the whole prove it to be a suceessful application of his focimeter.

M. Claudet also exhibits the dynaetimometer* and focimeter. He also exhibits the effects of the spectram on the daguerreotype plate, as prepared by him, and a variety of curious and instructive specimens illustrative of the different refrangible rays. The Council Medal was awarded to M. Claudet

KILBURN (No. 294, p. 440) has exhibited a case cou taining several carefully-selected specimens of coloured daguerreotypes. The subjects of these pictures are confined to groups of figures of small size, and are very brilliant and elaborate in their details,-too much so for artistic effect. For novelty of design we may mention a small picture of the interior of a room, including a whole length portrait of Jenny Lind: beside, and near her, is a large mirror, in which the figure is reflected. That the reflection in the glass is equally perfect with the original is the point worthy of remark and commendation. To-wards the centre of this case is a plain deguerrotype portrait of the Queen. The finish and execution of this little work are very great. The Jury awarded a Prize Medal to Mr. Kilhuro

MAYALL (No. 291, pp. 439, 440) has exhibited in this department in large collection of dagnerreotypes, uncoloured. They are characterized by great contrasts of

* The reader is referred for an account of the dynactimometer to the "Reports of the British Association," August 1850, and to the "Philosophical Magazine," June 1831, and for the focimeter, to the "British Association," Reports," September 1849, and "Philosophical Magazine," light and shade, disposed in large masses. Among the subjects exhibited are four tableaux from the "Soldier's Dream," and several groups from Nature, variously arranged. Mr. Mayall's strong and broad masses of light ranged. Mr. mayan a strong mus mrout masses on ugar and shade are better adapted for landscape scenery, of which the "Falls of Ningara" is a favourable specimen, His "Bacchus and Ariaduc," 24 in, by 15 in., is, perhaps, the largest dayserrostype which has yet been executed. The difficulty of daily preparing so great a surface must be extreme. He has also exhibited a crayon danuerreotype, produced by a process of his own invention. Beard (No. 202, p. 440) has exhibited a case of dagner-reotypes, some of them enamelled, according to a process

invented by himself.+ vented by numsex.7 Labocitic (Class XXX., No. 252, p. 837) has exhibited three small daguerreotypes: two are coloured: the third,

a group of statuary, is good, VOIGTLANDER and EVANS (Class XXX., No. 254, p. 837), Knightshridge, have exhibited coloured daguer-

Of the remaining exhibitors in England, - Garrerrus and Le Beau (No. 404, p. 453) have exhibited a case of and Le Brau (No. 404, p. 433) have exhibited a case of dageerrectype ministrures, colonred, Paine (No. 225, p. 440), n series of photographic pictures, intended to allow the processes of the art. Tyras: (No. 239, p. 442), coloured daguerrectype portraits; and Channocx (Class XXx, No. 227, p. 534), photographic copies of various engravings.

On examining the daguerreotypes contributed by the United States, every observer must be struck with their beauty of execution, the broad and well-toned masses of light and shade, and the total absence of all gare, which render them so superior to many works of this class. Were we to particularize the individual excellences of the pictures exhibited, we should far exceed the limits of space to which we are necessarily confined. Where all is good, it follows that remarks must be restricted to peculiar excellence alone

Hefore speaking of the several works exhibited, it is hut fair to our own photographists to observe, that much as America has produced, and excellent as are her works, every effort has been seconded by all that elimate and the purest of atmospheres could effect; and when we consider how important an element of the process is a clear we must be careful not to overrate that superiority of execution which America certainly menifests.

LAWRENCE, of New York (United States, No. 151, p. 1446), has exhibited several dagaerreotype portraits, uncoloured. They are remarkable for clear definition and general excellence of execution. In this series two large portraits of General J. Watson and W. Bryant, Esq., each of which measures 124 in, by 104 in., deserve particular commendation. Notwithstanding their large particular commendation. Notwithstanding their large size, they are, throughout, perfectly in focus, and are beautifully finished in all their details. These are two of the best pictures in the American collection. A portrait of General J. W. Wells, and of a lady in a black silk dress, of a smaller size, are also remarkable. A Concil Medal was awarded to Mr. Lawrence by the Jury, but

not confirmed by the Group.

Baady (United States, No. 137, p. 1441) has exhibited forty-eight daguerreotypes, nacoloured. These are ex-cellent for heanty of execution. The portraits stand forward in bold relief, apon a plain background. The artist having placed implicit reliance npon his knowledge of photographic science, has neglected to avail himself of the resources of art. The portraits of General Taylor, Calhonn, General Cass, and James Perry, are strikingly excellent; but all pre so good that selection is almost impossible. The Jury awarded the Prize Medal to Mr. Prady.

WHIPPLE (United States, No. 451, p. 1464) has exhibited several specimens of diagnerreotypes, amongst which one of the moon may be mentioned with the highest commendation: this is, perhaps, one of the most satisfactory attempts that has yet been made to realise, by a photographic process, the telescopic appearance of a heavenly body, and must be regarded as indicating the commencement of a new ern in astronomical representation. The same exhibitor has included in his collection three pictures, containing several full-length figures, well grouped, and artistically arranged. Each part is well in focus, and the definition is admirable. An agreeuble tone pervades all these pictures. A Prize Medal was awarded

to Mr. Whipple. Mayall (United States, No. 491, p. 1465) has con-tributed largely to the American collection, his works here being characterized by the same broad masses of light and shadow as those which he has exhibited in the British Department (No. 291). The subjects of the pic-tures in the present series consist chiefly of small groups and portraits; also two cases containing illustrations of the Lord's Prayer. The majority of these (most of which are uncoloured) are effective, verging upon the theatrical are uncotoured are enecutive, verging upon the streament in point of style, but they are not all equally well defined. We should be doing Mr. Mayall an injustice, were we not to mention, as a brilliant exception to the above criticism, a small figure of a female reclining; it is exquisite in delicacy of execution, harmonious distribution of light and shade, whilst an admirable tope pervades the whole pieture; this, the finest of Mr. Mayall's contributions, is free from colour, and is daguerreotyped from a classic work of art. The Jury awarded Honourable Mention to this exhibitor

EVANS, New York (United States, No. 105, p. 1440), as exhibited several portraits of great merit. Those of has exhibited several portraits of great merit. Those of the Rev. - Ingersoll, Dr. Nott, Dr. Lord, and Dr. Shelton, are characterized by peculiar excellence; also two portraits, each of a lady sitting near a table upon which a group of flowers is displayed, deserve to be noticed as fair specimens of the perfection to which this application

sair specimens of the perfection to which this application of science, to the purposes of art, has been carried. Million BROTESING (United States, No. 109, p. 1449) have exhibited a scries of portrains of more than ordinary size. Conspicuous among this collection are the heads of Wallack and H. W. Mende. The modulation of light and shade upon these last is admirable, as well as the details of the features, and the total absence of all barshness: the artistic effect is excellent. Greater credit is due to this collection of portraits, than to the series of allegorical subjects exhibited by Mr. Meade.

Paarr, Richnoyd, and Co. (United States, No. 264, p. 1452), have exhibited several daguerreotypes, of

various degrees of excellence. The profile of an old man, assisted by colour, is the best. WHITEHURST, Virginia (United States, No. 377, p. 1461), has exhibited twelve views of the Falls of Ningara. These are admirable, and possess a degree of reality not always attained in landscapes produced by the daguer-

reotype process. Among the remaining exhibitors of daguerreotypes in the United States Department are

the United States Department are—
GATTY (United States, No. 125, p. 1441), Boory (United States, No. 25, p. 1445), Whytramarur (United States, No. 25, p. 1445), Whytramarur (United States, No. 25, p. 1447), and Hoon (United States, and of whom, 25, p. 1447), and Hoon (United States, No. 25, p. 1447) and the control of the Comparison of Philadecology (United States, No. 22, p. 1427) has trained to present the Comparison of gias, designated by him under the name of hyaletypes, being delicate manistreet, excluditly adapted for magic-bonic delicate manistreet, and the properties of the being delicate manistreet, and the properties of the life of the properties of the certific. This is also taked in separate comperments: it is clear and good in colour, and forms an effective piece. Hazanos (Ultitled States, No. 22.), p. 1450) has the properties of the properties

also some dagnerreotypes of a very superior description.

In turning our attention to France, we find several dagaerreotypes, which, in contradistinction to those of America, are characterized by large masses of light, in

^{*} See the Illustrated Catalogue, and the Athengum for See the Illustrated Catalogue, note Il. p. 428.

which is expressed the greater amount of detail and minutia. They are not so entirely free from glare as those of America.

THIBMAY (France, No. 1038, p. 1238), has exhibited eight diagentrotype views of Lyous; they have a samp look, and are very brilliant, but are wanting in artistic light and shade. Apprint of M. Thierry, himself deserves particular commendation, and is far superior to the above-mentioned pictures. The Joseph Considered the above-mentioned pictures. The Joseph Lyounder of the picture of

MACCOMBLE (Funce, No. 620, p. 1207) has enhibited in ran of very high-coloured diagnerotype portrait, no ran of very high-coloured diagnerotype portrait, are than to photographic science. It is difficult to any whether the harmonics and rice hosting of the President choice, it applied to these portraits, or the materly most commendation. Art is here engrified on science, the latter being merged in the former, and the impression of a beautiful artistic prediction. They are charming, but we repeat belong more to set than to science. The Juny have a surface those works the countries directly are constituted to the contract of the con

Jury nave awarest uness works monourned sensition. Sanatrian (France, No. 1467, p. 1246) exhibits a single disquerreotype portrait of large size (8 in, by 6 in.), which is every way excellent. It is entirely free from glare (to which its low position contributes not a little, the light coming from above), and in expression, freedom from constraint, and perfect representation of texture,

may rank with any single piece in the Exhibition,
PLAIONOL (France, No. 1679, p. 1257) exhibits dagmerroot jees rather as specimens of the production of his large
camera (though not of the full size which that instrument
is expalse of producing), than as elaiming especial distineton in this surricular department of art.

timeron in this particular department of art.

GOTIN (France, No. 241, p. 1188) exhibits a series of
coloured daguerreotypes, which, however, want brilliancy
and purity of colour; the back grounds are also out of
focus. Au mondoured portrait, 73 in, by 6 in, does
better justice to the powers of this exhibitor.

KOUNKE (Hambargh, No. 103, p. 1140), and VON
MINETOLI (Prussia, No. 191, p. 1058), have exhibited

Vouga (America, No. 739, p. 1044) exhibits dagnerrectypes, to which Honourable Mention was awarded by the Jury.

Talbotypes - Calotypes - Sun-pictures.

Bleezas (Clau XXX, No. 30), p. 800), of Potentionoph, has calabided a great many esterpy pertures, compared to the property of the compared to the compared and expansize of execution, and electre to be made cannot be found to premise as of beingraphy in the banded among the first of premise as of beingraphy in the property of the compared to the compared to the compared described at some length; it is now subpined here, from any of the compared to the compared to the adjusmentable. He observes that, with regard to the adjusmentable in the compared to the entire of the compared to the entire to be decided out to the compared to the the less as also the time of exposure, are so much as the compared to the compared to the compared to the compared to the continuous compared to the compared to the compared to the continuous compared to the compared to the compared to the continuous compared to the compared to the compared to the continuous continuous compared to the compared to the compared to the continuous compared to the compared to the compared to the continuous compared to the compared to the compared to the continuous compared to the compared to the compared to the compared to the continuous compared to the compared to the compared to the compared to the continuous compared to the compared to the compared to the continuous compared to the compared to the compared to the continuous compared to the compared to the compared to the compared to the continuous compared to the compared to the compared to the compared to the continuous compared to the compared to the compared to the compared to the continuous compared to the compared t

Ross and Thomson (Class XXX., No. 292, p. 839) have exhibited several beautiful Talbotype pictures, consisting of views from nature, interiors, groups, &c., and they are the only exhibitors, in the British section, of photographs by the albuminous process; which, in practice, they appear to have carried to a high state of perfection, having not only substituted it for the old method of taking the uegative proofs on speer, but having, in soore than one instance, exhibited the systility proof upon the all-unmerited glass itself. In addition to the extremo clearness observable in the details of their instance, or objects in general, we may take notice of the executive objects in general, we may take notice of the executive boast of the time which their works childs. No easy are the shadows deep and Rembrand-to-cking, where mainle to the effect required, but the middle distance display a beauty of colour nowhere equalled, excepting December 1997.

Department, reason of the variation of time which there weeks present, in controllationation to the fine Vanajake linewa and deep hadaway, we may mention a mail joice howes and deep hadaway, we may mention a mail joice which is the first of the produced by taking the negative proof on althouranteed glass, and wrater to be reported by the process that the produced by the process the whiten become black, and rice creat, the proof to high copingly that days a backer pround, they then become black, and rice creat, the proof to high copingly that days a backer process the whiten become black, and rice creat, the process that which have been been been also become a support of the process that the process that the continue of the days are and possibly to the contenting of the larget and possibly profes, and effecting a vast range of beautiful time of incatamathic relations to a vast range of beautiful time of incatamathic relations.

the finance of a defined operation, the alternate is a difficult operation; the method adopted by Boss and Thomason differs from the Freech process (which is due to M. Nispeco, and is usually selled the "allemantons process"), plate and revolving it over a slow best, for the purpose of counting its even startibulisms. As above in the practice of these exhibitors, this method would neen to be perfectly on the process of the control of the

of Messrs. Ross and Thomson, A number of Talboxypes, also exhibited, display equal variety of tiut, and a depth and richness of tone without any straining for effect. A Council Medal was awarded to Messrs. Ross and

Hina and Adamson (Class XXX., No. 500, p. 800), have exhibited very many Takety pag groups, remarkable for easy and graceful arrangement. They are, in effect, after Rembrandt, being made out in broad and deep-toned masses of light and shade. As a whole, they are very sketchy and spirited. The titus are rich and varied both in depth and colour, and are of a rich sepia. They have received Hanourable Mention from the June.

have received Hanourable Newton from the Jury.

HINSNESS and MALONS (No. 27), pp. 441, 442) have
callitated Tablopyees upper, essaining of opies of
various small groups, for. These are all natural and
pleasing, and great delicacy is observable in the lights
and should, the tone of which is a fix own me spin frown.

The greater part of these pictures are small portrial;
ore, however, which is fix by 64 in, is very good, and
one, however, which is fix by 64 in, is very good, and
arrainst allil which they display.

Messrs. Hemerana and Malone also exhibit specimers of the eyanotype and chrysotype processes of Sir J. Herschel, the chronotype of Mr. Hunt, and Tabbotypes tinted by the application of caustic potash and a lead salt. A Prize Medal was awarded by the Jury to Messrs, Hennemana and Malone.

Colla, R. and L. (No. 303, p. 449.), have exhibited reveral sun-pictors on poper. They per rather blotty in appearance, but are good in colour. Views of Window Carle and Soke Church deverse high commendation.

Hansan (Class XXX, No. 298, p. 839) has exhibited two calcutpe picturers, one a landscrape; the reflections as shown in the water are excellent. The fluctuation of the reflections caused by the ripple of the water is very

reflections caused by the ripple of the water is very beautiful, and true to nature. The execution of the pieture is good, and the tints are clear and delicate. Owen (No. 670, p. 467*), of Bristol, has exhibited a series of calotype pictures, most of them landscapes and wood scenery. They want clearness of definition, being somewhat black and heavy. Mr. Owen states binned! to have been able to execute in a single day, in a journey of 300 miles, ten large-sized Thiotypes of local scenery, each paper being prepared on the spot. The preparation is greatly facilitated by a glass spreader, of his own

invention, by which the colorious are evenly applied.

COLLES (No. 22, pp. 941, 942), of Jeney, has exhibited
a frame, containing several calcetyee pictures, chiefy
portrain and demosties seeces. These are not all equally
good; many of them are bleety and wanting in depth,
several Tallovly-pp, being a series of untouched pointives,
from collection negatives, oo plate glass. He also exhibit
nother photographs from paper acquirees, but they

bitty and want mero light.

Historian (Class X., No. 302, p. 442) is an exhibitor of Talbotype pictures, lundscapes chiefly. Being near objects, such as cottages, trees, &c., there is no room for acrial perspective. They are very cleanly exceeding.

Field and Son (No. 250, p. 435) have exhibited calo-

Town.

Towns. To the No. (10, p. 1971) has contibuled as reveral layer and beautiful place-graphic product, angian and paper, dublined by an appearing made by Levilous and paper, dublined by an appearing made by Levilous trees on glass, front of the thirty of the North Bane, "the levil tree of glass and the levil trees of glass and the levil trees of glass and the levil trees of glass and are pre-centionely beautiful. Two places of residence, from the "Arche of Toronian, Banes of the groups contains seven find-length figures, topic of these groups contains are not full-length figures, topic of the groups contains are not full-length figures, topic of the groups contains are not followed by the sevent beautiful. Two the place of the graph of the grap

Whether to a remember. A Contact Medial was swended to M. Martena. One M. 44, p. 1189 has relabilised Barrano (frience, No. 44, p. 1189) has relabilised Barrano (frience, the subject of which are chiefly object of the contact of th

Factorion-Haramo (France, No. 856, p. 1209) has crabibied several suspicious of missi is logatio, lious, and Paris. These are all excellent; the colour is good, and the atrinic effect admirable. They appear to be pocompared to the several several several several several deserves especial mention for the perfectly artistic expression of the whole, combined in M. Endernea several sampletance. Some of these are good, last many new heavy and wasting in defall. These petteres war, in we heavy and wasting in defall. These petteres war, in

tint, from sepia to olive citrine.

HENRI LE SECQ (France, No. 592, p. 1206) has exhibited several calotypes; the subjects are architectural.

These pictures may be mentlosed with great commendation as regards their photographic flishis, lut usersyl and of them exhibit a degree of acciliprose in sulpating the visual axis of the account to the true benriood literation, visual axis of the account to the true benriood literation, and trivial axis of the account to the true benriood literation, stilling converges in the picture, contraverse the rules of perspective, and produces an effect highly supplexing. This is the most common fluid of photographic representation by the aid of a canous, and it is might to modes it to implicate the provided with a small quint-level to secure than alignment in the field, independent of trial.

this adjustment in the field, independent of trial. Fernann, Blasspaars (France, No. 1531, p. 1251) has exhibited several Tallout pe pictures, the positive provise being obtained by a process which admits of 200 or 500 impressions being taken from the same negative proof, the price varying from five to fifteen entires, necessing to the size. These are not wholly successful; several of the pictores are dark and blotty, and somewhat resemble

energravings taken from a worn-oot plate.

Coursex (France, No. 1572, p. 1223) exhibits a series of positive Talbotypes, from negatives on paper, in all seven subjects, six of which are of exquasite beauty.

Albert (Frankfort)-on-the-Maine, No. 7, p. 1121) has

ALERT (Franktort-on-the-Manne, No. 7, p. 1121) has schahited sun-pictures of large size, but they are "fuzzy," being ill-defined and void of effect. Two specimens of smaller size, one of them coloured, are good. CREVALER (France, No. 1729, p. 1259) exhibits some photographic proofs.

photographic proofs.

MATER (France, No. 622, p. 1207) has a series of miniatures, coloured on Talbotype grounds. They are of crushitish enasty, and give the idea of perfect likenesses; hat the use of the brush being obvious, they are rather to be regarded as works of art than of science.

To Be regarded a variable of the control of the con

In closing our remarks on this department of the Exhi hition, we may be permitted to record some degree of disappointment at the absence of specimens of the application of photography to any departments of representation, other than such as please the eye or administer to personal feelings. As regards its application to an infinity of useful and instructive purposes, we have literally nothing! find, for instance, no specimens of copies of ancient in-scriptions (a few incidentally occurring on the Roman ruins, perfectly familiar to every one, only excepted)-no delineations of tropical or remote scenery-no specimens (for the single exception of Claudet's spectrum is hardly to be cited) of the actinic spectrum on chemical prepara-tions, or on natural vegetables or animal colours, -no impressions of the lines in the photographic corresponding to those in the luminous spectrum, - no magnified representations of the microscopic products of nature, or of the dissected parts of plants or animals,—no copies of pages of ancient manuscripts,—no miniatures of printed books (bolding out the promise of future publications in miniature), or that of condensing in volume for preservation in Muscums, * &c., the enormous mass of documentary matter which daily more and more defies collection from the mere impossibility of stowage, but which will one day become matter of history, - and a thousand other applica-tions that it would be tedious here to mention.

Connected with photography, we saw also notice the absence of any specimens of scotography, or the art of copying engravings by simple juxtoposition in the dark by obscure inter-radiation, invented by Mosec.

Magnets.

Exhibitors of magnets are few in number; among them LOGEMAN (Netherlands, No. 87, p. 1147) and HENLEY

 WE are informed that a catalogue of the National Library of Paris, in which the photographic fac-timile of the title-page of each work, in ministure, is registered, in actually in progress. (England, No. 428, pp. 457, 458) have exhibited the most powerful steel magnets; it is satisfactory to learn that both these exhibitors are still applying themselves to their further improvement.

HEABORN (No. 439, p. 461) deserves special notice for the attention he has devoted to ascertaining the receptive and permanent magnetic powers of cast iron, both in

separate plates and in their combinations.

As early as the year 1832, Dr. Scoresby commenced n aries of experiments on the magnetic properties of cast iron, bat which, owing to the thickness of the masses employed, did not yield decisive results; prior to the year 1844, he repeated his experiments upon different kinds or east iron, and found that "cast iron possesses considerable powers of magnetism, both in capacity and retentiveness, though greatly inferior in both qualities to those of properly-hardened steel;" with several other interesting results. The general results arrived at hy Dr. Scoresby, though calculated to show the nasuitable character of the specimens and forms of the cast iron employed by him to general magnetic purposes, were yet of such an encouraging nature, as to lead to the hope that more important results might be obtained by the employment of cast iron in large masses, and in different forms

Mr. Hearder was led, in the course of his experiments to consider that cast iron had not been subjected to a sufficient variety of tests, and he was still more coofirmed in this opinion, by observing how its mechanical properties varied, according to the temperature of the different kinds of iron, and he concluded that the conditions which acted against its being used as a bar magnet might be made available for one of the horse-shoe form. In 1843, he made the magnet now in the Exhibition, which is still concessed of considerable power, as determined by the

The following are the particulars of the magnets exhi-

bited:-LOGEMAN (Netherlands, No. 87, p. 1147) has exhibited the most powerful permanent magnets in the Exhibition.
The following are the results of the experiments:—

One whose weight was 1 lh. & oz. carried a weight of 16 lbs. 94 az.

One whose weight was 6 lbs. & oz, carried a weight of 66 lbs, 34 cz. One whose weight was 101 lbs, 12 oz, carried a weight of 436 lbs. 12 oz.

A Conneil Medal was awarded to Mr. Loreman. The exhibitor of the next best magnets was HENLEY (No. 428, pp. 457, 458), and the results of the experiments

are as follows: A magnet weighing 21bs, 5 os, carried a weight of 31 lbs. 51 oz.

A magnet weighing 8 lbs. 4 oz, carried a weight of 56 lbs. 14 oz

A magnet weighing 32 lbs, 6 oz, carried a weight of t20 lbs. 44 oz. SHAW and Sov. Sheffield (Class XXII., No. 216, p. 617),

exhibited several magnets:-One whose weight was 7 oz, carried 4 lbs., and

One whose weight was 7 lbs. 2 oz. carried 61 lbs. 72 oz. HEARDEN (No. 439, p. 461) has exhibited a cast-iron

compound horse-shoe permanent; magnet. This magnet was constructed with a view to its being applicable to every porpose requiring high magnetic power. It con-sists of 24 plates, 2 loches wide and 0 19 inch thick, cast in the form of a horse-shoe, which is t6 75 inches in The 24 plates are strongly fastened together; the poles, which are distant from each other 1'25 inches, are capped with soft iron, for the purpose of concentrating

the magnetic power; at the same time it renders the the magnetic power; and grinding of the poles nanecessary.

The bars being made of

The construction is simple. The bars being made of iron, hardened as much as possible, require no preparation to adapt them for magnetization. The economy of construction, as compared with a steel agnet of the same dimensions, is estimated as 4 to 1.

It is designed to be made available for the construction of electric machines for telegraphic or electro-chemical purposes, and was manufactured at Mr. Hearder's esta-blishment at Plymouth.

Mr. Hearder observes that, whatever be the relative powers of the plates previously to their being put together, as a mass they are found to undergo a considerable change; the two external magnets having their poles slightly re-versed, the two next being neutral, and the rest baving direct polarity, being strongest in the centre, and grade ally diminishing towards the two external plates. O say inministring towards the two external panes. On testing the individual powers of each magnet, after their several combinations, for three years, the znm of the whole was less than 15 lbs., whilst collectively they were

capable of lifting n weight of more than 100 lbs.

Other particulars concerning this magnet are to be found in the Report of the Royal Cornwall Polytechnic

Institution for 1850. This magnet was found to weigh 71 lbs, 8 oz., and to carry a weight of 120 lbs, 9 oz, Mr. Hearder has exhibited a powerful horse-shoe per-nament steel magnet, intended for all purposes requiring

high magnetie power. It is composed of a large number of wide and extremely thin horse-shoe plates, cut out of thin sheet steel, tem-pered and hardened sufficiently to admit of their being tlattened with a hammer. The magnet weighs 391bs., and Mr. Hearder says will support pearly 250 lbs., with a round-faced keeper. It is intended for magneto-electric purposes, where great power is required in a small space. purposes, where great power is required in a discount of this magnet was found to weigh 39 lbs., and to carry a

liunnett (No. 438a, p. 461) exhibits a carbonized castiron magnet; the carbonization having been performed by prussate of potash and oil. This magnet is offered as an improvement on Mr. Hearder's cast-iron magnet, as shown at the last Polytechnic Exhibition. On trial, this magnet was found to weigh 27 lbs. 8 cr., and to carry 35 lbs. 9 ex.

Magnetical Instruments.

weight of 1121bs. 9 oz.

Brooke (No. 144, pp. 422—426) exhibits photographic apparatus for the self-registration of the changes of position of the declination magnet, of the horizontal force magnet, and of the vertical force magnet The three magnets are so placed, that the residual effect of each pair upon the third is a minimum, which is to be

determined by experiment. The principle is the same for all, viz., wrapping prepared photographic paper around a cylinder whose axis ix placed parallel to the direction of movement to he regis-

treed, and which is turned round uniformly by clockwork.

The light, from a gas-laup, passes through a small aperture placed near it, and falls upon a concave mirror m metal, which rests in a stirrup firmly connected to the magnet, so that it partakes of all the angular movements of the magnet. The pencil of light is then deflected from the mirror to a plano-convex lens, placed parallel to the anis of the cylinder, and near to it: this lens condenses the line of light to a definite spot of light on the paper. This spot of light, therefore, moves with the movements to be registered,-to the right and left, in a horizontal plane, in the case of the declination magnet and horizontal force magnet; and up and down, in a tical plane, to register the movement of the vertical force reagnet; the cylinder, as before stated, being turned round by clockwork. Consequently, there is traced upon the paper a curve, of which the abscisse, measured in the direction of a line round the cylinder, is proportional to the time, while the ordinate, measured in the direction of the axis of the cylinder, is proportional to the movement of the magnet.

^{*} See Scoreshy's "Magnetical investigations," Part II., Chap, vill., pp. 3%9-347.

† It was described in the "Electrical Magnalue," October. 1845, vol. II., p. 137.

2 These magness are termed "permanent," In contra-

distinction to the temporary electro-magnets.

A base line, or a line from which to measure the ordi-

yellow light :-

nates, is traced upon the paper by the action of a spot of light proceeding from another gas-lamp placed near the cylinder, and passing through a slit fixed to the carrier of

the cylinder. To the horizontal force magnet there are uttached upparatus for correction of temperature. That for the horizontal force magnet, which is described

that for the normonial love magnet, which is described in the Illustrated Catalogue, page 411 (Second Part), is based upon the following consideration:—

Let (b) be the lower interval between the two divisions

of the suspension skein, the equation of equilibrium

$$m X = \frac{o b}{b} \sin t$$

en the arrangement adopted is to make the variation of b, by the effect of temperature, equal to the variation of m, arising from the same cause. This is attempted to be of which are inclosed in two zinc tubes, whose adjacent ends are separated by the width of the clamp. The zinc tabes and glass rod are clamped together at such a dis-tance from the centre of suspension, that the ratio of the difference of linear expansion of the length of glass and sine, intervening between the clamps to the interval (b), may be equal to the temperature coefficient.

The clamps are adjusted in order that, when their position has been approximately determined by calculation, the error of position may be corrected by experiment.

As the expansion of glass and zine are both taken to be As the expansion of glass and rise are both taken to be miform, and are a say rea for beyond the limits of miform, and are a say rea for the beyond the limits of sent the coefficient of (f), and the residual error of the corrected instrument must be expressionally determined. The arrangement for the correction of the vertical The arrangement for the correction of the vertical to the magnet, parallel to its acts, and in the same plane as the knife-edges. The middle point between the free-ing point of the thermonwer and the centre of the ball

ling points in the proposite the centre of the magnet.

Let *pe the weight that at a distance of from the line of suspension would be equivalent to the temperature correction for 1° Fabrenheit, or 32°; we the weight of merenry contained in one degree of the scale of the thermost the distance of the freezing point from the

nometer; p the distance of the freezing point from the centre of the ball, and 2 the length of one degree of the scale; also let $cx + \epsilon x^a$ be the temperature coefficient of the magnet; then if

q = p w, and c::::p: ».

The statical moment of the mercury displaced from the ball at any temperature x° above 32° , will be equivalent to cx + cx, and will represent the temperature cor-

We will now proceed to detail the process of preparing the paper, bringing out and fixing the photographic im-The paper used should be of a strong even texture, and

prepared with attention, to the exclusion of all foreign anbetances which might combine injuriously with the chemicals used.

The first preparation of the paper is with-

Isinglass 4 grains, Distilled water 1 fluid ounce,

The water is boiled, and a portion then poured upon the isinglass, which, when dissolved, is poured into the remaining water, and all is boiled together. To this solution, filtered, is added-

12 grains of hromide of potassium, and 8 grains of iodide of potassium.

• The correction for temperatura has hitherto, at nearly every place, except at Greenwich, been applied to mag-netical observations, on the supposition that the decrease of magnetical force was proportional to the increase of least; but this is found to be very far from being that case. The correction for temperature of the horizontal force magnet at Greenwich is represented by 0:00009050 (t = 32) + 0.000000626 (t - 32"; the second term here becomes very large, when the temperature departs much from 32°, and in Mr. Brooke's arrangement is not taken into account.

One side of the paper is then washed with this solution, and dried quickly before a fire. The paper thus prepared will keep in a dry place for two months.

When the paper is required for use, it must be washed with the following solution, in a darkened room with a

Crystalline nitrate of silver 50 grains Distilled water I finid ounce.

To bring out the impression, the paper is washed with the following solution : -

Saturated solution of gallic acid 1 onnce. Acetic acid a few drops,

To fix the impression, first wash the paper well with water, then with the following solution:-Hyposulphate of soda 1 drachm. Distilled water 5 ounces.

And, lastly, wash excefully with water, and leave the per to soak for a short time. The impression is then A Council Medal was awarded to Mr. Brooke for this beautiful application of photography to the registration of natural phenomena.

Wilton (No. 402, pp. 452, 453) has exhibited three Fox's dipping-needles, furnished with needles of 61 inches, 4 inches, and 2 inches in length respectively. with the longer needles are identical in all particulars with those which have been used successfully on board of ships, both for the observation of dip and relative mag-

netic intensity.*

PARKES and SON (No. 671, p. 467) exhibit a number of ocket-compass

GREEN (No. 446, p. 462) has exhibited several magnetic sun-dials, with metal and agute caps, adapted to every degree of latitude. They are mounted in boxes made of various materials. Mr. Green has also exhibited various other son-dials, some of which are fixed in round mahogany boxes with levels and adjusting screws, and others fitted up for north and south latitudes; also several horisontal sun-dials, and ivory circular thermometers, with compass or magnetic sun-dials attached to them. Mr Green also exhibits pocket-compasses with metal and agate caps, and others also with floating cards, &c., variously mounted in round boxes with improved hinges, Several compasses are fitted up in variously constructed boxes of ivory, brass, German silver, &c., together with others in the form of a watch, of various materials, some being made of leather, others in gilt and silver case Mr. Green also has exhibited cone-compasses and hrase

gimbal-compasses, intended for use in small boats. YEATES (No. 352, p. 446) exhibits a prismatic compass adapted to measure both horizontal and vertical ingles, with spiral level attached in such a way as to be appli-cable in both cases,

Electrical Instrum

The electric instruments are few in number, and there is not one adapted for the purpose of determining the quantity of atmospheric electricity for meteorological pur-poses. This is a matter to be regretted, as the present

state of meteorology greatly needs a simple, inexpensive instrument, adapted for the observation of atmospheric electricity, and one which would be pniform in its action under uniform circumstan One exhibitor, Westmoreland, (No. 444, p. 462) has,

however, the merit of exhibiting a gutta-perena electrical machine, which holds out the hope of obtaining electricity of tension on a large scale by the application of steam-power, and thus a motive force, which may serve for the movement of machines, or enable us to accomplish objects at present quite unforescen, but which the habitual use of an electric power commensurate with that of lightning

may bring into view. WESTMORELAND (No. 444, p. 462) exhibits a gutta-pereba electric machine. It consists of two rollers of equal dismeters, placed one above the other, over which a band of gutta-percha, 4 inches in width, is stretched;

^{*} For description, see Hustrated Catalogue.

opposite to the axis of each roller, and on either side, are placed too brashes of bristles. There is a double conductor connected by a curved brists roll hasping over the top of the machine, similar in form to the conductor of plate-glass machines, and also a simple means of tightening ar loosening the band, to correct the expansion and contraction of the guitts-percha

Contraction or tag guara-per cells.

It is stated that the cleerineity given off appears to be of high intensity, and, under favourable states of the weather, nearly as much in quantity as that from an ordinary plate-glass machine. The muchine exhibited, when it good order, gave off sparks from about three-quarters

of an inch to an inch in length.

This application of gustra-percha is quite new in practice," and indicates the discovery of a new motive power, which promises to be a measure of obtaining a snepty of electricity of almost unlimited extension: this application of gustra-percha opens a new field in electrical research well worth explaring. A Prize Medal was voted to Mr. Westmorefund.

With the control of t

gold leaf. This is a benithfus instrument.

They also exhibit a deflente statistic givenometer, for estimating minimte currents of voltac deletricity; the lower needs is auromated by a cold of wire 23 yands in lower needs in surrounded by a cold of wire 23 yands in which a rack-work motion, and a niscroscope for roofing. And they also exhibit larm's thermo-electrometer, for estimating small currents either of atmospheric or voltaic electricity, by the heating of a form metallac with

DELEUIL (Prance, No. 100, pp. 1173–30) exhibits an electrical machine for medical purposes, furnished with an arrangement to vary the strength of shocks. It is simple and effective in its operation.

MESSIM (No. 437, p. 460) has exhibited hydro-electric chain batteries, consisting of the metallic combination of

various galvanie clements; soarranged as to be very postable.

They are designed to be worn on the body for the purpose of effecting the entre of various chronic diseases by means of the electric current, which in its passog from one pole to the other passes through that purt of the body encircled by the chain.

Thermo-Electricity.

In 1811, Lemore, of Berlin, found that, if two metals of different kinds be in any way inventi and coles comester, and heated at the points, a current of electricity flowed through the metals, while, rousined passing in the same direction whilst the heat increased, cassed to flow when, the integrations was continue, and flowed in the work of the competition was continue, and flowed in white the continue of the

animos on the district, by the Corros-disposal health gasment of the control of the control of the control of the A control led of health inc. 3 in their in distincter, imported on host stand, relative to five therms-elective by substring, and are exciteded. In sace gridlent about 4 inches in situacter, and connective by caper roles with possible the control of the control of the control of the pushing resid and even of soft from. The circuit data onespletes, the majorate power for divideys. Led as gained to the control of the

The electric power of vulcanized enoutchout is even more powerful than that of gutta-percha, and is excited with singular facility. HOTFMANN and ERITHARDT (PITMIA, No. 88, p. 1053) exhibit an apportant for showing the action of the carth's magnetism on electric currents, in illustration of the vellknown experiments of Ampere, in which helices and frames of copper wire, delicately susqueded, when in the set of transmitting the electric current, place themselves in the magnetic meridian.

Application of Electro-Magnetism to the movement of Machines.

The great discovery of Professor Ocrated in 1819, for which we have before referred, speech as we first philosophic injury, and, especially for the application, to a native flower, produced, without external influence, to a mirror flower, produced, without external influence, is since engaged the attention of scientific mee, is pretty with represented in the Exhibition; although no great power has a yet been obtained, many important difficulties, professor in the contraction of the contraction of the conputational production. The contraction of the conputational products, the state of the contraction of the Haston (Demanda, No. 47, pp. 1819, particularly as Mr. Haston (Demanda, No. 47, pp. 1819).

lister, and we cannot help flattering careleve that the stationant of this majoritors amonic frow will some be authorized to the part of the part of the part of the Dorzur Ka., 400, pp. 614, 162, children an electro-majorized constructed of a fact of well-amonical wanglorized. The state poles, which are 3 lackes in breadth. The checking through a bandle of capper wite (to yeak in both and to wit in weight) with which it is enveloped, excitation of the part of the part of the part of the valuable of the part of the part of the part of the valuable of the part of the part of the part of the textilised for the part of the part of the part of the valuable of the part of the

Mr. Jone Jan cothikis a surface electromagnet, consisting of a thick piece of wranght time enveloped by a honder of supervisor. The contract of the contract of the contract of the contract of moderate power produces such a powerful attraction between the above dectromagnet and its any to be applied in order to draw them assuder. This libration the extraordinary attractive power of iron

Hansson (No. 420, p. 455) exhibits an electro-magnetic engine which acts on the principle of the induced augustic power of a compound coil of insulated wire conveying the current to a series of plates of soft iron, and nitracting them within a suitable aperture.

As there is only one body of wire in connection with cach coil, the retarding influence of the electromagnets acting upon each other, after the current from the barry is cut off, is avoided, and by this arrangement the effects of the secondary currents are much revision. The effects of the secondary currents are much revision. The effects of the secondary currents are much revision. The effects of the secondary currents are much revision. The excellent limitation of the source of the secondary cut of the sec

1st. An almost malimited power and length of stroke.
2nd. The greatest possible amount of power from the
battery, by reducing the influence of the secondary
current to a minimum.

3rd. Avoiding the retarding influence caused by the retention of magnetism in the ordinary method of application by magnets; and from the body of iron netestances and powerful induction of magnetism ensures and the colls exposing a large surface, an instantaneous and powerful induction of magnetism ensures, and thus the highest speed is obtained.

4th. By the employment of a compound conducting material, a strong current of electricity is transmitted, and a much greater magnetic effect within the same space is obtained.

5th. The larger the iron plates, and the greater the power of the battery, the greater is the economy of this

engine.

KNIGHT and Sons (No. 453, pp. 462, 463) exhibit an electro-magnatic engine. This is probably the simplest form by which an electric current can be made to work by its action on permanent magnets, though not the most effective. Four coil-magnets are fixed rectangu-larly on an axis, and revolve within a circle formed of four fixed magnetized quadrants. The contacts are made and broken by rubbing springs on an axis (so it appeared on examination); the nicety of construction consisting in the adjustment of the moments of union and disruption. so as to obtain an effective difference of action always in the direction between the two opposite poles of the per-

manent magnet. Knight also exhibits another electrical machine, in which a bar is alternately pushed and polled, and so working on a crank and turning a fly-wheel. these machines the mechanism itself provides for the occessary alternate making and breaking of the circuits. It is probable that little power is obtained, for the greatest care appears to have been taken to destroy fric-

on, by making the fly-axis revolve on friction-rollers. WATKINS and Hill (No. 659, p. 466°) have exhibited electro-magnetic engine. Two horse-shoe electroan electro-magnetic engina. magnets are alternately excited by two electric currents, and each as it becomes a magnet attracts one of the arms of a rectangularly bent iron har, which is thus kept in a state of oscillation round a pivot from one magnet to the other. The ends of the bar carry rods working on which are connected with cranks rectangularly placed on an axis. Thus the dead point of one crank with the active state of the other, and the axis is majotained in rotation with its fly-wheel. The magnet, bars, and erank are so arranged along the axis as to give room for the cranks, of which there are two, though, in fact, there might be any number of magnets and eranks working simultaneously.

The alternation of the circuit is kept up by a mechanism worked by the machine itself. ALLER (No. 413, p. 454) exhibits an electro-magnetic railway-train alarm; it consists of a copper chain, intended to be placed over every carriage, the connection between each being established by the guard-chains; on the circuit being completed, the ordinary steam-whistla discharges the steam. The arrangements are as simple as well can be.

CRESSWELL (No. 417, p. 454) exhibits an electro-mag-netic engins for the production of motion; it consists of two pair of electro-magnets, between which a keeper vibrates and communicates motion to a wheel and cank, FROMENT (France, No. 1609, p. 1254) exhibits an electro-magnet acting alternately, by elevating a lever, which communicates motion to n erank. He also exhibits a circular arrangement of coils, two of which are

io action successively. Barron (France, No. 1113, p. 1231) exhibits an electromedical apparatus with a double current; but as this instrument is intended for medical purposes, and not as a motive power, it scarcely falls within the provioce of this Jury. Ньовти (Denmark, No. 47, pp. 1359, 1360) has cxhibited an electro-magnetic engine. It consists of two sets of hollow horse-shoe electro-augments, conical inside, with a corresponding number of solid electro-magnets, which, by mutually attracting each other, make a double stroke of 4 inches in length. The power has been found, by means of a spring-balance, to be about 30 lbs. at tha commencement of the stroke, when the distance of the commencement of the strong, when the distance of the respective poles is about half an inch, decreasing slightly by degrees as the piston enters the hollow electro-magnet. The current is broken by the end of each stroke, and the destroying effect of the spark prevented by moistening the surface of communication with diluted sulphuria acid;

ne repelling power is applied.

Mr. Hjorth also exhibits a diagram and plan for an

conical inside, and are connected outside with the arma tures (?) of the magnet, which form the connection between the respective poles. From the apper and lower part of the arrangement extend withinside four iron plates with ribs, which in the centre are connected with corresponding diamagnetic plates and ribs. These plates are applied for guiding the motion of the piston, and serve at the same time as a means by which metallic contact may during each stroke be established and broken between the piston and any one of the respective plates. For this pur-pose, four pairs of rollers are placed withinside the piston or hollow shafts, which are arranged on the fourwaycock principle, with a ring inlaid with a diamaguetic metal between the rings and shafts, that the magnetic bearings may be brought into contact either with the similar or diamagnetic parts of the same rings

The required motion of these rings is produced by small eranks inside the piston, joined to the connecting-rod in such manner that each pair of cranks moves in opposite

Whilst the engine makes a down stroke, magnetic contact is established between the north pole and piston; the polarity thus acquired causes it to attract the south When the down stroke is performed, the magnetic contact between the north pole and the piston is broken by turning the upper pair of emaks in one direction, whilst similar contact is established between the south pole and piston hy moving the lower pair of cranks in the opposite direction. A reciprocal motion being obtained in the above manner, the electric current passes continuously in one direction round the piston and each of the poles, the motion of the piston being reversed by simply breaking and establishing magnetic contoct. On the piston passing out of the one pole it enters the other, and induces thereby, according to the law of the secondary currents, two currents in opposite directions, and thus both are neutralized. The advantages assumed are:—

lst. The obtaining a stroke of any length with one hollow electro-magnet, the piston being a moveable extension of either of the poles, ottracted by a succession of polarities, the acting surfaces of which extend to the whole circumference.

2nd. The arranging the pistoo in such manner that it may be extended to any size, without its being beovier thou a pisson in o low-power steam-engine of the same size, the power being expressed in pounds per square inch. 3rd. A prevention of the destroying effect of the electric spark,

4th. A neutralization of the secondary currents and o vention of their reaction The following table, as obtained by Mr. Hjorth, shows the attractive power obtained with o borizontal electromagnetia engine of 16 inches stroke, the poles of the moveable magnet being seporoted 6 inches, or, in other words, the piston being 6 inches square:-

Inches, Distance of the respective $\begin{bmatrix} 5\\4\\3\\1\end{bmatrix}$ The $\begin{bmatrix} 72\\80\\98\\14\end{bmatrix}$ attractive $\begin{bmatrix} 72\\80\\98\\140\\160\end{bmatrix}$ 75-58 And the angle of magnetic

A Prize Medal was awarded to Mr. Hjorth, Electric Telegraphs,

As might have been expected, there are exhibited voltain butteries; galvanometers; electro-magnets; tele-graph wires; wire for submarine purposes; printing telegraphs: in fact, the Exhibition is rich with a large number of very ingenious contrivances, applicable to every stage of electric telegraphic communication

The Electric Telegraph Company, which was esta-hlished in the year 1846, have evidently used much diligence in possessing themselves of numerous patents, commencing with Cooke and Whyatstone's five-needle the fine collection they exhibit are some of the most improved arrangement, consisting of only one bollow valuable inventions, in point of real practical utility, that electro-magnet, the respective poles of which are divided into three or more square rings, which are nonewhat into three or more square rings, which are nonewhat in the provided of the provided into the control of th of, have been, it is presumed, found to be of little practical

It would seem that the needle telegraph, giving conventional signals, has obtained a firm standing in this country; and with the recent improvements in the galvanometer, it has certainly attained a high degree of surfaction.

The form of the needle in most general use is that of a small rhomboid, into which much magnetism can be imparted, and which winners with great steadiness and rapidity. It, however, has the disadvantage of parting with its magnetism much more readily than longer needles, and requires to be re-magnetised more frequently. When we reflect how year, few years have claused since

When we reflect how very few years have elapsed since at the was known just the subject to the elapsed since at the was known just the subject to the elapsed of the subject to the property of the subject to the subje

ance which he has freely given.

The idea of utilising the electric form of force, so as to have the means of rapid intercommunication between places far apart, is coeval with the discovery of the exceeding velocity with which this force travels through good conductors; and hence, as far back as 1782, we have a M. Lesage proposing to deflect twenty-four different leaves of gold, at the end of twenty-four distinct wires; and in 1787 we have a Mr. Lomond passing signals from room to room, by means of a Leyden jar and an electroscope, experiments useful enough as scientific illustrations, or as philosophical toys, but of no practical value. Indeed, so long as we were in possession of no other form of electric force than that which is obtained in a state of high tension from the joint friction of suitable bodies, there were no hopes, even had man been ready to take up such an invention, of an electric telegraph, pro-perly so called. We find Reizen and Salva at the close of the last century, and Ronalds at the commencement of the present, doing their best to reader this wild and way-ward form of electric force subservient to their purposes; and the latter effectually controlling It within certain limits, and making a telegraph that did some actual work.

It was not, however, until Galvani's discoveries had opened out a new field of electric research, which was so successfully trodden by Volta, when it was found that ecrtain relations existed between heterogeneous bodies, attended always by the production of electric force in a new and much more manageable form; -it was not until this discovery of voltaic electricity that the idea of an electric telegraph became developed with any distinct-ness. We then perceive an advance; and although the applications that first occurred were sufficiently elamsy and impracticable, as compared with the knowledge we now possess, there was enough in Soemmering's decom-posing points, in Coxe's decompositions, in Vorsselman de Heer's electric shocks, and in other original ideas, to prove that the prospect of ultimate success was still entertained.

But when Orrated had discovered that this new form of force, voltaic electricity, had a constant relation to magnetism, and that its presence caused the compassneedle to deflect according to unvaried laws; and when M. Arago had discovered that the same force would endow an inert mass of iron with all the wonderful proendow an inert mass of iron with all the wonderful pro-

review of a magnet, we became possessed of powers, which only reprinted righty to be handled and controlled, which the only required righty to be handled and controlled. Per section of the controlled right and controlled right and controlled right of the controlled right and controlled right and controlled right and controlled right and controlled right of the controlled right and
The Exhibition contains many inventions which are most valuable. Perhaps it would be well to consider here the essential or findamental points of an electric telegraph; they are three in number and are as follows:—

The generation of the force,
 The insulation of the force,
 The utilization of the force.

might be greatly in its favour.
The onlinary add battery has been almost invarially and the control of the cont

does not seem to have been introduced into actual practice. Perhaps the most curious proposition for the conversion of battery power into language is that of M. Botto, whose signals depend on the number of pairs of battery plates employed to deflect the distant needle, and are interpreted.

^{*} At the time of our writing, the wires are being laid from Dover to Caisli, thus connecting the Continent with our system of relegraphic communication; and arrangements are being made to connect the observatories of Greenwich and Paris.

at the receiving station by turning on pair after pair of plates in the reverse direction until the needle comes back to zero, when the number of cells required to do this gives the letter or signal. The idea is original; but in order to carry it out the batteries must be precisely of equal power, and no portion of the force must be last in

The carth itself has been made to furnish a supply of electric farce; in other words, a single pair of zine and copper plates have been huried sufficiently below the surface to be in the wet subsoil, when the earth, asturated with water, represents the sand naturated with acid water, of an ordinary bettery cell; by this means a current of or an oventuary contrery cent; or this means a current of low intensity is obtained, even when the plates are some miles apart. It was thought by some that this feeble current might be made available for telegraphic purposes, by laying one metal at one station and the other metal at another, and very exaggerated propositions were put forth. Steinheil rejected this mode of obtaining the current, which is only available, and that very indiffer-

enily, at the place where both plates are huried.

The means of turning on the electric force, or setting the current in motion, are as various as are the different inventions: in one case, consecutive depressions of a single stud are made, and a current is sent in one direcon only; in another, handles or levers are moved in either direction, and two directions of current ensue; in another, the current is turned on in a constant direction. and the action of the instrument breaks and renews the circuit; in another, the whole force is sent along one wire, or is divided between two, and is directed this way and

that as the case may be. that as the case may be.

The magneto-electric machine is a casstant fountain of force; it does not vary in power, as do batteries, nor ultimately become exhausted, but remains for an unlimited time capable of generating the induced electric manent magnets, and a coil or coils of copper wire wound upon iron cores; the ends of the copper wire being led off to adjustments proper for distributing the fisrce in the right direction. The current is obtained by hriskly moving the coils in presence of the magnet, making, in fact, the conducting wires to more among the lines of magnetic force. Where single currents are required, one motion of a lever ou the other arm of which the coils are fixed, gives an instantaneous current. Where, as in Wheatstone's instrument, a number of consecutive curreots are required in rapid succession, the coils are mounted on an axis which can be made readily to rotate, and to rest at any required point. Where, as in Henley's instrument, the force is required along one or other, or both of two wires, coils are mounted oo levers near each end of bar magnets. Steinheil, Dujardin, and Hatcher are among those who have employed the currents from this source. When the current of high tension, induced from an ordinary current of low tension, is wanted, a cell or two of the more constant form of battery is employed to pass a current along a coil of stout wire surrounded by a long coil of thin wire, which latter is permanently in the telegraph circuit, and out of which is generated the active fores

II. The Insulation of the Force.—This is inquestionably the most difficult part of electro-telegraphy. It has engaged the attention of practical men from the outset. It is in vain that on short our form. is in vain that an abundant supply of electricity is ob tained; it is in vain that the best measures are contrived for turning on this supply, and vain is the expenditure of thought, and contrivances for converting this electricity into a representation of our ideas, if the means are defecinto a representation of our ideas, if the means are defec-tive for conveying it in its integrity to its destination, Electricity of high tension, such as was employed for the early illustrations of signalling, might have been suffi-eirally sell passed by Lomood from room to room, if his wires were carefully suspended, not the atmosphere tolerably dry; but when Roualds proposed to pass the same agent along a distance of only 175 yards, he was compelled to surround his wires by thick glass tubes, well coated with wax at the joints, and placed under-ground in wooden troughs lined within and without with pitch. Frictional electricity, as Is well known, requires

perfect insulation to prevent it passing off in the form of the electric spark. Weber, in 1833, had found the voltain current to be retained in wire of about a mile and a half in length, which was merely suspended from the steepies and house-tops of Göttingen. Steinheil, in 1837, erected and worked his telegraph at Munich, through a distance of about six miles, with no other insulation than a piece of felt placed between the wire and the support; but he found the insulation imperfect, and the more so in wet weather; and saw clearly that the force would have been altogether dissipated, had the circuit been longer.

he suspended wires are, at the present time, occasionally insulated from their supports by glass, but more commonly, as in England, by hard, well-glazed stoneware. Much ingenuity has been exercised in the form to be given to the insulators, of which there are many in the Exhibition. The barrel-shape, pierced longitudinally, universally prevailed here until long circuits called for some more perfect form; and now in the bell or mash-room, the bold, open-mouthed cone, or other analogous forms, we can discover that the actuating idea has been to keep the points of contact dry, and to let the interval between the wire and the pole be a maximum. WALKER (No. 430) has gone a step further, and has placed a closed (No. 3-30) had gone a step further, and nas piaced a closed for of over his insulators. Cases occurred in which it was found convenient, even in the early days of telegraph, to day the wire on near the grounds, and eventually under the public streets, when it was covered with cotton statutated with thar and pitch, and protected by leaden pipes. This was found to be very inefficient, noe did much better assecs attend the use of casuatchone, which was not only expensive, but neither manageable nor durable under the conditions to which it was subjected. durable under the countrions to which it was subjected, By a most happy coincidence, gunta-preba appeared in the market at the time, when resize and varuishes, and the known gunsa had been tried and found vasuishes. It was appropriated by Stemens in Prussia, who employs buried wire very largely, and by Walker in England, who used it at first between Dover and Folkestone, and now extensively in numels and under water, and who demonextensively in timines and unser water, and who demonstrated its value for submarine parposes, by scuding signals to London with two miles of gutta-percha wire (a piece af which wire is exhibited) in circuit, in the sea at Folkestone, in January, 1849. The street wires and transed wires, as well as those submerged in England, Bellumel wires, as well as those submerged in England, Bellumel wires, as well as those submerged in England, Bellumel wires, as well as those submerged in England, Bellumel wires are submerged in England. gium, America, and elsewhere, are now perfectly insulated by a coating of this valuable material. It is applied warm, by a conting of this same material. It is approx warm, either by powerfully pressing it upon the wire, or by causing it to follow the wire through a hole of the given size. In the streets the wires are sunken, and protected hy being enclosed in iron-pipes, which proves to be very necessary, for in Prussia, where they are buried without protection, they suffer so frequently from the attacks of vermin, that it is in contemplation to suspend them as

Under rivers or harbours they are protected by pipes, or are scenred in a mass of timber, or otherwise. In all the tunnels on the South-Eastern line, Mr. Walker has the tunnets on the South-Eastern line, Mr. Walker has laid them in grooved boards, which natched has been since followed by the Telegraph Company, and is also adopted by the Belgian Government on their lines. It is unquestionably the simplest and safest of all methods. The protection required for submarine wires is very great. The wire, by means of which a telegraph com-

great. The wire, by means of which a telegraph com-munication was obtained for n few hours between the coasts of England and France, was not enleulated, neither was it expected to remain perfect for many days. It was clearly not laid down with the intention of remaining permanently, but for some special object. It was a copper wire, coaled in the ordinary way, but thickly, with gutta-percha, and where it reached the shore, protected

by a leaden pipe.

McNam (No. 421, p. 455) has exhibited some excel-

lent specimeus of his process of covering gutta-perela wire, first with cotton and then with an outer coat of gutta-pereba, and finally with lead, in the application of which latter the cotton becomes impregnated with guttapercha from the onter coating.

Wrought iron chain-pipes, with swivel joints, have been constructed by Wishaw (No. 419), and are exhi-

bited an means of protecting submarise wires. Beet shows a sort of errobranch holdes time chains of considerable arroughts, which is proposed to be built about the continuous control of the control of the control of the protected by a strong net-work of wire woren over it, which inguaris great investigat and clusterity, and will often be unminication between Pagistan and Prance, are content for with gatta-perbar, and then witsted negotive, being from in massler, highly covered with rape-yara saturated with its control of the control of the control of the control of the time-wise of the thickness of a quarter of an inch.

A plus worthy of commendation for its simplicity, and for emabling the being occusined and amounter wite. For emabling the being occusined and amounter wite creequits to result any strain to which it night by extremely the contract of the

commission in a yea allow dispension can be used of the crimit, that is now, on the relative assumed of relations, crimit, that is now, on the relative assumed of relations, deciver insulation is not man, left, for the resistance of the property of the relative of the relative of the relative insulations, and the relative of the relative and waster or either had conducting material near the luminosists; the relations of these resistance war with the substance of the relative or the relative of the wine is hereased by buddy-made joints. In early and the legals for wave ploud by these connect, which the wine was tightweed formed part of the circuit which the wine was tightweed formed part of the circuit and the substance of the relative of th

Stainholl had discovered, in 1327, that it was not account to lead a visit from each plee of the history, to concar to lead a visit from each plee of the history, to concar to lead a visit from each plee of the history, to distant nation, as weak let done in all experiment on a small scale, that the the conducting provider of the cards and each provider of the card of the cards and each provider of the cards of the card of the cards and each provider of the cards of the card of the cards and each provider of the cards of the provider
111. The Utilization of the Electric Force, — Almost every effect by which the presence of electric force is made manifest, has been in turn emisced for the purpose of transmitting our ideas to a distance—not excepting aren the heating effect of electricity, which have been employed by Horn to ignite wire and singe signals on power.

paper.

1. The spark was employed by Reizen, who pasted strips of tin-foil on glass, and cut out the letters by diding the strips, which intervals were illuminated by the spark. Salva used the spark, but hew converted into language was not known.

2. Recession of similarly electrized bodies occurred to

Lenge, who proposed twenty-four wires, with a pair of good leaves at the end of each; one or other of the pairs was to diverge by an electric charge. Tribuallist preposed structuring similar, with only one wire and coverped the ending of the charge of the charge of the chine and a pair of pith balls and conventional rignals. Bounds employed pith balls, and two well-regulated time-pieces, which carried round similar discs of signals, each preventing the same signals at a fixed point at the charge of the charge of the charge of the charge of the the electricity, allowing them to fall when the right signal arrived at the given point.

agual arrived at the given point, worth the electric shock, was proposed by Vernelmana & Horv, and security revolving the control theory and Horv, and security revol in 1939. He had too wive, and Horv, and security revol in 1939. He had too wive, and the control of the control of the control of the control of the property of the control of the theory of the control of the control of the control of the theory of the control of the control of the control of the theory of the control of the control of the control of the theory of the control of the control of the control of the theory of the control of the control of the control of the theory of the control of the control of the control of the theory of the control of t

4. The decomposing powers of electricity suggested themselves to Seemmering. Some twenty or more wires terminated in gold points, within a vessel of seid water, and according as the circuit was made by one or other of the wires, a small stream of gas ascended from its termi unting point, and hence the alphabet. He also contrived that an inverted cone should collect the gas, and would then float and cause a little ball to fall on a detent to liberate a clock mechanism and a bell. Core proposed the decomposition of water, hat gave no plan, Davy im-pregnated cotton with hydriodate of potassa and chloride of calcium, and having marked it off in checquers, securred it on a cylinder that rotated by a clock movement. The current has to be directed through the cotton, and to produce a spot; the checoner on which this spot fell termined the signal. The clock-work was released by an electro-magnet, actuated by a current in other wires.
Bain's printing telegraph depends on the same principle, applied, however, to the decomposition of more sensitive bodies, and reduced to actual practice. He acts upon a mixture of sulphuric acid and prussinte of potash, with which he moistens paper bands. The paper is interposed in the circuit, and receives a mark wherever the current passes and decomposes the solution. The alphabet consists of a combination of short and long marks, produced respectively by instantaneous currents, and by enrrents of short duratico. These currents are sometimes sent by hand, by mere making contact; at other times short and long holes are pauched in a dry paper band, and this is drawn by clock-work between the metal point and cylinder, which closes the circuit, and thus the current cylinder, which closes the circuit, and thus the current is cut off, when the sound part of the paper intervenes, and passes when the presence of a hole allows the point to touch the cylinder, and complete the circuit-the moist paper receiving the spots is made to move an at a like rate. Bakewell places his solution in like manner in a paper band; but he writes his messages with varnish apon tin-foil, and places this between the point and eylinder, and causes the latter to revolve, and hence the current is intercepted wherever the varnish intervenes: the moistened paper revolves at n like rate, and both progress axially, so that a fac-simile occurs of what had

been written.

5. The gulvanometer has been most successfully pressed into telegraph service, and forms the essential part of 'he needle telegraphs which have obtained so marked a reputation in England.

nation in Legipand.
Sciulabeli used one galvanometer coil containing two needles, which carried ink-exps, and made dots as they were selfected. Alexander had thirty wires and galvanometers, the needles of which carried screens and disclored letters on their boing deflected. Schilling, according to one account, used thirty-rix wires, and galvanometers, and, according to another account, only one;

and he had a plan for checking the oscillations of the needle. Davy showed, in 1836, what was apparently a needle telegraph, somewhat similar to Alexander's. Gauss and Weber had a single needle telegraph, the deflections to be observed with a spy-glass. Feehner sug-gested twenty-four galvanometers and their respective wires. Botto's plan of one galvanometer, whose deflec-tions were to be neutralized by an adverse current, has been already named. Mason suggested a single galvano-meter. Galton has published a description of a very complex apparatus, the electric parts of which are three galvanometers, whose office is merely to present needles as mechanical obstacles in certain spots among a train of machinery. Cooke and Whentstone at first used five needles on a lozence-shaped dial, two of which were always used for a signal; and the letter was found where the points produced met. The needle lastrament now in common ass, and in which one or more delications of either or both needles in one or other direction, gives all the combinations necessary for conducting rapid correspondence. The details of these instruments have been much improved, and there is little wanting to make them There is also a single needle instrument, which gives all necessary signals, but not so rapidly. The suceess of the needle telegraph has led to many modifications of the galvanometer. Brett and Little coil the wire on a circular bobbin, and make a crescent-shaped wire on a circums sousing, and more a re-meedle, the poles of which are properly presented to the coil; instead of reading from the prime motion of the acedle itself they read from Indices, which are moved by a tap from the needle. Hightou's galvanometer needle is horse-shoe shaped, and the coil also circular and duly adjusted to the needle. He reads from an index carried on the same axis with the needle. He has also three needles, each carrying a screen, transpierced in such sort that by a combination of motions twenty-six different letters can be exhibited to the eye. Little has ruspended an ordinary needle to the pole of the magnet, and withinside a tube of alcohol. The galvanometer coils

are flat bobblus. are flat bobblus.

The electro-magnet has been used by Bain, Bakewell, Barlow, Breguet, Brett, Cooke, Davy, Dering, Dujardin, Garnier, Blatcher, Heuley, Highton, House, Lotlefink, Morse, Nott and Gamble, Palmieri, Siemens, Smith, Vail, Wheatstone, Wishaw, and others. In the hands of some of these inventors it, has been made to give direct signals; for instance, in Henley's instrument the armature carries the index needle, and the combination of the deflections of two needles gives the alphabet. In Morse's the armature carries a point which impresses permanent marks on paper; it is also connected with wheel-work for moving the paper onward. In Dering's the mag-netized armature carries the index needle. In Dajardia's the armature carries a point that dips in ink and makes Siemen's prints by the direct blow of a hammer entried by the armsture, although his type is brought in by a secondary action. In the hands of others it com-municates motion to the ladex, as in Breguet's senanphore instrument, where the armstore acts upon scapewheels, and gives to the indices the eight positions of the ordinary semaphore. In Nott and Gamble's the armatures carry claws that draw a wheel round, and with it the index, till it points to the given letter. Siemens', the armature acts in a similar manner. also find a third class of instruments in which the motion of the armsture releases a detent, and liberates a clocktrain, the motion of which produces the signals. Cooke and Wheatstone's alarms is sounded in this way, the hammer is some cases representing the pendulum bolt, and in others, being carried on the produced radius of one of the wheels. Brett prints by the successive action of a detent liberating clock-work. It would be no easy task to follow the several inventors through the essential that he follow the secret investments menight are constant to fram some coverger or some many the compared to the constant of
absolutely useless -that many others are too countex for actual service-that some perform badly and with uncertaints that which others accomplish rapidly and suc-

The French Government required signals to resemble those of the old semaphores, and they have extensive We have in England preferred conventional sigpals, thinking it better to train young men to read a new alphabet than to have an index going through the comalphabet than to have an innex going through the com-paratively slow operation of pointing to every letter. In Prinsia the latter plan is preferred. There has been also a choice between reading and printing instruments: In Antorica the latter have prevailed; in England the former. But whatever be the neural sign by which we obtain possession of the ideas transmitted to us, it would seem that the instruments that bave obtained a standing, are, almost without exception, those whose action is direct, and are not the result of any extraneous mechanism

We will now proceed to a careful description of the The Electric Telechaph Company (pd. 477°, 478°)

exhibit many telegraphs. I. Patent 1846, a rhomboidal needle. The galvanometer coil is in two halves, monnted on arms, which are made to open for the reception of the needle, and to close again. On the same axis is mounted the indexneedle that is presented to the eye on the face of the telegraph, and which oscillates between ivory studs. The study are now made moveable, as first proposed by Inc. studs are now made inovanic, as nest proposed my Charles V. Walker, Esq., Telegraph Engineer to the South-Eastern Railway Company, for the occilles to work between, so as to keep the neutral position, by adjustment, half way between them during periods of magnetic disturbance.

II. WHEATSTONE .- The instrument marked " Magnetic-electric Induction Machine," consists of a strong horse-shoe magnet, of eight plates, and 10 inches from either pole to the centre, fixed on a beard; over it is placed a handle, which raises and depreses two coils of soft iron core and armsture. On breaking contact, by depressing the knowle a current of montentary duration posses out from one coil along the wire to the other in one direction. This gives a single impulse only, and always one way: and is used to excite an electro-magnet. and ring a bell.

III. HATCHER'S magneto-electric induction machine to send currents ad libitum, in either direction. This is effected by the same application of coils to a horse-shoe magnet and breaking connet; but there are two handles, and according as one or other is used to break the contact, cross communication takes place. "Hatcher's Cur-rent Director" affords a mode of making and breaking contact by cross communication, as an appendix to any telegraph. In this machine the horse-slove is 12 inches in length, and consists of eight plates.

IV. WHEATSTONE'S potent rotating induction machine for working the disc telegraph (1841). A dial wheel with spokes and letters. Each letter as it is wanted is brought to a given point. The wheels work a pinion, which causes a pair of coils and armature to revolve over the poles of a great horse-shoe magnet. Every letter brought past the given point makes half a revolution of the colls and Invaks, and renews the circuit opposite ways. The currents thus established oud sout off to a distance, pass through coils and actuate local electro-magnets, which alternately attract to and fro an iron plate, and thus alternately release and lock a detent. A clock, driven by a spring or weight, being thus allowed to get at intervals, drives round a dial-hand, click by click, at the other station, and thus imitates the motion of the original dial-wheels. This clock, however, re-quires to be wound up, and it does not seem to provide

for my notice being given when it is down.

V. Bankow's patent, 1815. A printing telegraph, emissing of n circle of letters brought round in succession till the letter wanted comes to n given place; contact

usdock an escapement, and cause a wheel to imitate the motion of the letter eirele. This wheel brings round type panelies, and on coming to ress, a hammer strikes the panels (worked by a coil-magnet), and impresses a paper ribbon, which is drawn uniformly along by clock-

VI. Norr and Gamme's telegraph presents two double alphabets; the one direct, the other inverse, and the digits are many times repeated on a circular dial, having an index, which moves with a step-by-step motion, and is brought to rest at the letter required. The force is derived from the voltaic battery; and current after enrrent is set in action by the successive depression of an ivory key hy the finger; it is made available by means of two U-shaped electro-magnets, acting simultaneously and in the right direction upon two levers, furnished with clicks, which work in a scape-wheel that carries the index, and propel it, noich by notch, as each contact

VII. HATCHER's induced current machine, patent 1847; to produce currents in either direction by one motion of

a handle. Two make and break circuit arcs of brass and ivory pieces, alternating with rubbing-springs, so arranged that when the springs on the right are connect bress and brass, that on the left shall connect ivory and ivory, and rice verse. In either state, a depression of the handle breaks contact of coils of magnets, and throws a shock along the wires.

VIII. COORE's patent, 1845. A portable telegrapi for the guard on a railway to receive messages in case of an accident, hy making a contact with the regular wires

an accident, by manage.

1X. Bart's and Little's patent, A conventional alphabet by needle oscillations, in which the handle at the first station, by working to and fro, establishes alternate the control of the desired station. nately one way or other. There are two needles, but each predie oscillates in only oue direction X. WHEATSTONE and COOKE's patent, 1840. In this

arrangement the rapid alternation of circuits is effected by the dial-wheel turning a pinion, half of ivery and half of brass. The motion of the dial-wheel is imitated at the second station by an escapement-wheel, driven by the oscillation of a pair of deteuts worked by a four-coil local magnet apparatus, alternately urging a piece of soft

iron to and fro. It is an imitation telegraph, and reads the netual letters

XI. HATCHER, 1847; electro-magnet printing telegraph. The usual reciprocating action between coil-magnets, in-stead of carrying round a wheel, makes a series of deta

ou paper constituting a conventional alphabet, XII. Harse' patent, 1846; chemical printing tele-Signals are given by marks arranged in one line of different lengths and intervals by the pressure (on pressure-murinted paper) of a link of iron wire, which deposits prussian-blue, the paper being adjusted by clock-

A Prize Medal was awarded to the Electric Telegraph Company for the exhibition of this fine series of tele-

The Barrish Electric Telegraph Company (No. principle is economy of wire by encircling the poles of a horse-shoe rather than going round a straight magnet. The power gaioed is stated to be as 7 to 1. An improvement is also claimed in the mode of throwing two lines into connection by a single spring and cross bars, so as to halve the risk of a spring breaking. Thirdly, earrying a coil all round a borse-shoe, and thus causing each part of the magnet to act on each part of the coil; but this is in opposition to the first principle, so far as a saving of half the wire is concerned. Fourthly, application of the principle of the arrangement of the letters on the rim of a eighe of the arrangement of the letters on the rim of a dial-plate, not according to alphabetical order, but ac-cording to frequency of occurrence in writing; but arrangements of this kind lawe here in use in printing-offices, on the principle of the more frequent letters being placed the most within reach. Fifthly, a reedy mode of bringing the usedle on the alphabetical-dial to zero, by touching a key. The step-by-step current which works the needle round is thus thrown out of gear, and its power thrown on another magnet, ereating a force which lifts the detents of the escapement, and lets it pass round to the stop in the same direction. Sixthly, is exhibited a very ingenious piece of mechanism for locking the printing-wheel, so that it cannot hy any possibility run on two letters for one motion of the alphabetical needle. Seventhly, since $3^4 - 1 = 26$, the number of letters in the alphabet, and since $3^6 - 1$ is also the number of electric combinations of three oscillating needles; thus-

of which b, be, be is an inactive combination arising from a quicecent position of all the needles; a conventional alphabet may be constructed by a simultaneous use of any three of the combinations, except b, b*, b*, thus, may indicate A; \ / may indicate B; and so on.

Tais principle is worked out by a system of cross combinatious of three batteries, acted on by keys, as in a piano. The key n being depressed brings simultaneously into circuit the three positive currents; b brings into action the positive current of hattery 1 and 2, and throws hattery 3 ont of action.

Another application of this principle to a reading alphabet consists of three pendulums, each carrying screens, with orifices pierced so that by each combination (bringing the screens into twenty-seven different relative positions behind one mother) only one orifice shall be exposed, showing the desired letter. This principle is also applied to prioting telegraphs; thus, no type can be pressed till three conductors compire, and these are directed and ensured by the three positions of the needles, and, which comes to the same thing, by the combinations of the three

comes to the same thing, by the combinations of the three currents creating twenty-seven electro-magnets. HIGHTON, patent of 1850. Use of a permanent magnet to keep up the magnetism of a soft-iron moveable magnetic needle (as a security against lightning destroying the magnetism of this needle), by continually re-magnetism of this needle), by continually re-magnetism of this security assumes the also exhibited. The eirenit-wire, covered only with bituminous paper, is made to pass through a hox of iron filings. This is found

to be insulation enough for the galvanie current, but not for the tension electricity of lightning, which is therefore carried into the carth by the filings.

The use of the secondary battery, the 3s - 1 combination principle, is made applicable to printing, by touching

keys carrying the letters to be printed; and a patented application of the chemical principle, that sulphate of alumina in solution may be advantageously used, instead of sulphurie acid, to keep the hattery in action.

A Prize Medal was awarded to the Barrish Electric TELEGRAPH COMPANY for the exhibition of their ingenious

telegraphs. HENLEY (No. 428, pp. 457, 458) exhibits two powerful compound linear har magnets. The electric force is produced by a semi-rotation of a double electric coil and armature opposite either pole. The movement is extremely simple and nent, and the shock delivered very powerful. It has worked through 560 miles of wire, also through 60 feet of water. Experiments on the Serpentine were made, when several feet of the wire under the water were stripped of the gutta-pereba coating without dissipating the current; and when (as the Jury were told afterwards), on further trial, the wire was divided under the water.

yet the shock passed between the ends sufficiently to deflect the needle effectually. The principle of using permanent magnets as a sub-stitute for a buttery is not new. At Göttingen, in 1839, Sir John Herschel was present when Gauss telegraphed

from his house to his observatory by its means. This is a double-needle telegraph, but the needles move only in one direction. The magneto-current employed actuates electro-magnets, the armatures of which earry the index-needle, and move it as they move. These carrents do not need so good insulation as do hattery

A Council Medal was awarded to Mr. HEXLEY. J. Barry (No. 429, p. 458) exhibits an electric printing

telegraph, which consists of two parts, called by Mr. Brett the communicator or key-board, and the printing machine; thu former is supposed to be at the station from which intelligence is to be transmitted, and the latter, the place to which it is to be seut,

The machinery is propelled chiefly by the power of ciohts, or hy ordinary clock-springs. The motion of weights, or hy ordinary clock-springs. the printing-machine is regulated by the galvaoic current, by means of an escapement, and which requires much less power than is necessary to impel the machinery; thus both the advantage of the instantaneous action of the current, and the greater power of the weights, combine to accomplish the work for which this machine is designed.

The key-shaft is about five inches in length: the finger-keys act upon pins by means of rods and levers. The circuit-wheel is fixed to the axis of the key-shaft, which works upon a hollow axis with ratchet-wheels and clicks, so as to move forward in one direction with the cirenit-wheel. Immediately after it has revolved the desired distance, a number of points, to correspond to the letter or character indicated by the finger-key, and required to be printed by the printing-machine, are released and return to zero, by means of a polley and weights, independently of the circuit-wheel. The type-wheel is so nttached to the key-shaft that a message may

be printed in duplicate. There is another arrangement by which the type-wheel or wheels is attached to a hollow oxis, which carries the type-wheel hackwards or forwards by a pinion occed upon by a train of wheels in connection with it: this train communicates motion to an arbor, to which a disc is fixed firmly: against the disc a ratchet-wheel is placed, mounted loosely on the arbor, between o fixed washer, and adjusted hy a spring-catch, so that it can turn a short distance only on its axis. A slot is cut in the disc of this ratchet-wheel, and also through the adjoining disc, in which a pin works, connected with the tail of o click; this click is so adjusted Therefore, as to earch into the teeth of the ratchet-wheel. when the click is locked into one of the teeth, it causes the type-wheel to travel with the axle and pinion; but when the click is released, the type-wheel returns to zero, hy the assistance of a pulley with cord and weight, or of a spring connected with the hollow axis. A lever is put into action hy a pin attached to the cummon wheel of the printing train of wheels, and by its means the type-wheel is returned to its starting-place immediately after a letter or sign has been printed. Mr. Brett considers this or sign nos ocen printed. Mr. invest considers this arrangement very important, as it insures safety from the derangement to which the type-wheel, by a continuous step-by-step movement, is liable, on account of the accumulation of errors, arising either from atmospheric or other causes. From the momentary effects of lightning or atmospheric influence the machine immediately corrects itself, and the sense of the subsequent correspondence is not disturbed.

The train of wheels which give motion to the typewheel is controlled by means of a secondary train of wheels, fixed to the back of the frame-plate, which controls and reduces the furee of the escapement, and relieves the galvanie or magnetic power required for its regulation. The type-wheel upon this arrangement may have any

desired number of letters and characters without retarding the operation, as they would be so economically placed in the order fitted for their general application. Mr. Hastr has adopted an arrangement of letters on the type-wheel in the order of frequency of occurrence. The arrangement is as follows: - c. f. a. i. a. n. a. h. r. w. a. l. c. f. m. e. n. b, q, p. j, y, k, v, x, q, x. In Mr. Beet's patent of 1845 the key-shaft was worked

length suited to the number of the finger-keys, and the pins were fixed in a uniform belical row, extending its entire length. In the arrangement exhibited, the circuit-wheel is fixed to the end of the key-shoft, as before stated, Connected with this wheel are two pieces of metal, which form the conductors of the current; one of these rests upon the periphery, and the other upon the collar of the estruit-wheel, being olternately upon one of the teeth and over one of the stores. Whilst resting on the tooth it completes the circuit, and when over a space the circuit is broken, and so on alternately.

In connection with the printing train of wheels of the printing-machine, is an eccentric or cam-wheel, which revolves upon the shaft, and is connected with an hydraulic regulator; so that when a piston is raised by the revolution of the type-wheel, a partial vacuum is formed in the valve-chamler, and water passes through holes into the chamler, and momentarily takes off the dead weight of the piston, and some of the friction of the lever, from the escopement. On the type-wheel being arrested, a lever descends, releases the cam-wheel, and the paper is pressed against the letter upon the type-wheel.

Plumbago or vermilion is preferable in use to printingink, as it does not require replenishing for a considerable

Mr. Brett also exhibits a small instrument which he calls a pocket communicator, designed for the use of guards of railways, to communicate with the nearest stotion on the occurrence of accidents, or on assistance being required. In use it is placed in connection with the lines on the railway, and o galvanic battery on the tender, the wheels of the carriage completing the circuit, It consists of an oxle, to which is fastened a ratchetwheel, over which is fixed a circuit-wheel, with seeth and spaces suited to the number of letters and characters required. On its face is placed another ratchet-wheel, which causes the circuit-wheel tu rotate when the click is put into operation, by moving forward a handle, connected with which is a pointer, by which the letters or signs are pointed out.

The arrangement admits of a double eireuit-wheel being employed, for the purpose of reversing the poles of the bottery, and thus changing the direction of the current of electricity.

An electric circuit regulator is also exhibited by Mr. Brett. Its porpose is to give a controlling power over all the stations on any line of electric telegraph, so that any important telegraphic information could be transted to one or more distant or intermediate stotions. without the knowledge of such communication transpiring to any other place than the one intended; the other stations on the line being put out of circuit for the time, wire in connection with a very by means of a separate small apparatus at the different stations. This apparatus it is necessary to construct with a full knowledge of the number and relotive importance of the stations open the line, for the purpose of making the calculotions correctly : it will be necessary to exceeplify this. Take, for examp five stations, - Louden, Dover, Calais, Amiens, and Paris; and suppose the remaining stotions to indicate upon thu dial a suiterant communication with all the five stations, Ten other divisions will give all the changes of one station to another, than: London to Poris, London to Dover, London to Calois, London to Aluiens, Calois to Amieus, Calnis to Dover, Amieus to Dover, Paris to Dover, Paris to Calais, Paris to Amieus and London, Calais and Faris; making in all twelve points or changes.
At each of the stations should be o soull apparatus having n dial, similor to a watch, having indicated upon at the number of points, or the names of the respective stations. At the number indicated a small hand or pointer would show that station which was engaged with outther in the occupation of the line, as all these would be acted upon daneously; and thus any unaccessary interruption would be prevented.

By the use of Mr. Brett's telegraph, communication are made in any language, and printed upon paper with considerable rapidity and precision; the paper and ink are In Mr. Brett is patent of 1844 the acyonists was worked commenced repairing one processors, an appear aims in not by means of o bevelled friction-wheel, set in austion by a self-supplying, and sofficient may be placed in the inpatrain of wheels and a weight. The barrel was made the ratus of both to last for some time. Mr. Brett mys, that the letters may be printed at a greater speed than a wellpractised persons could write them, and that a clerk, after some experience, might manipulate upon the finger keyboard npwards of 150 letters per misute. Mr. Hertt has also exhibited a specimen of the line used

Mr. Hvrt has also exhibited a specimen of the line used in the first experiment, across the Dover Strait, after having been submerged in very deep water for more than aix months, and in part of the isame wire through which the first galvanic current was transmitted from the coast of England to that of France. The experimental line and the strain of the property of the property of guttapercha about five-eighbit of an inch in diameter.

Mr. Brett also exhibits a specimen of wire cable. This a c is a portion of a permanent line, now being laid down cut.

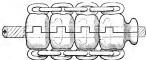
from the Seath Fortisand to Sangaste, new Calaia, the cost of we find in found of four copers wire. No. 163, each of which is insulated and covered with two separate costs of which is insulated and covered with two separate industrial control of the control of the control of the laybeauting of the inner benefits of which, so destroying the and caused the gattle-percha to divide, so destroying the control of the control of the control of the control of the top-the-perchapt of the control of the control of the top-the-perchapt of the control of the control of the top-the-perchapt of the control of the control of the top-the-perchapt of the control of the control of the the formed, is protected by one parlament into wires with which they are completely exceeded, The core than formed, is protected by one parlament into wires of the control of the contro



Mr. Brett also exhibits a vertebrated iron tabular cable, I come when situated in the vicinity of shipping, and may This is designed to protect a cable of submarine tele-tegraphic wires, when situated near the sen-cosst, from without either damage or derangement, as is the following asstaining damage by anothers, or by causalties likely to [Squre.]



One of the iron cables exhibited, is constructed with a greater degree of strength in dangerous situations, as the addition of a chain of links, for the purpose of giving shown in the annexed figure:—



A Countil Medal was awarded to Mr, Blatter, and Countil Medal was awarded to Mr, Blatter, between their their parts, depending, like that of Mr, Blatter, on the development at a distance of the chemical explanation of Provides and State of the Countil Co

screw motion, along a line to the centre of the disc, and leaves traces on the paper as it passes beneath it, in Provisin blue corresponding to the stamped line in the original paper hand, and which may therefore be read off or at lesiner; other preparations, such as that of starch with ciotine, potsab, dee, may be used for preparing the paper. There is much mechanical ingenuity and skill displayed in every part of this apparatus.

A Council Medal was awarded to Mr. Bain.
Barkwart, (No. 433, ps. 43-60) exhibits a copying
electric telegraph, which is fully deserved in the Illustrated Catalogue, with the method of use, excepting the
method of transmitting invisible messages, which is
effected by using paper moistened with distrolled in effected district the control of the control of the control
made on the paper without any mark, the writing living
nabelequently made visible by a solution of the prussiste

of potess.

A Council Medal was awarded to Mr. Bakewell.

WALKER (No. 430, pp. 458, 459) has exhibited a mode

of insulation of telegraphic wires. The great practical a more dead beat, and are less disposed to part with mag-difficulty in telegraphic operations is to overcome the netism. They have not yet been tried in extense; but defective insulation consequent on the dampness of the climate. To speak first of the wires suspended in the open air. Mr. Wulker has substituted for the old form of cone, to which there were many objections in practice, a large open-monthed cone, or rather hollow double cone, so constructed that the wire and the cone should be in contact at the smallest possible surfaces; also that, as the place of contact is as far as possible withinside the cone, t should be as inaccessible as possible to wet; also from its shape, that any wet attaining to the cone would, by mere gravity, run away from the place of contact; also that the part of the cone, where in contact with the wire, should be at the furthest distance from the timber of the ole sustaining all. After suspending the wires, Mr. Walker has the cone covered in with a roof, having sides and ends

The wires from Red Hill to Shalford, a distance of 19 miles; from Ash to Reading, 19 miles; from Ashford to St. Leonards, 28 miles; and from Tunbridge Wells to Robertsbridge, 15 miles, are all suspended in this way, These lines are remarkable for their perfect insulation and good working order. It was feared that the birds would build nests in the roofs, but such, as yet, has not been the case. This plan involves no additional expense,

I, In regard to Taxael Wires,-The deposit of damp and dirt on the suspension apparatus of Mr. Walker tunnel wires, on the South-Eastern Railway Company's lines, as first erected for him, caused so great a loss and distribution of the voltaie force, that without some improvement a total obstruction of telegraph business would provement a total contribution to a graph and and messages to Dover, instead of passing direct, must have been transmitted through an inter-

About the time that Mr. Siemens, of Berlin, was contriving wire covered with gutta percha, it occurred to Mr. Walker to direct Mr. Foster's attention to that sir. Wasker to direct Mr. Foster's attention to that substance, and to request that a specimen should be prepared for him. The result was, that Mr. Foster obtained a patient, of which the Telegraph Company have the monopoly. It was first used in Mr. Walker's tunnels, monopoly. It was next used to suspending, it is now where, instead of the old mode of suspending, it is now where, instead of the old mode of suspending, it is now laid in a grooved board covered in. The grooves are ploughed by machinery; the board is prepared with mineral varuish, and is secured close to the tunnel walls, remaining, when once nulled on, in good working order, and in a perfect state of insulation. This grooved board, simple as it is, will doubtless prove a valuable invention. and those who have felt the charge of badly insulated wires will appreciate the improvement. Compared with wires will appreciate the improvement. Compared with suspended wires, it is important to the safety of trains and passengers. The old wires lave many times been entangled with trains, not only being torn down, but putting the lives of all exposed in jropardy. Several sarrow escapes of this kind have occurred. The last tunned on the South-Eastern Company's lines, that between Higham and Rochester, is now being fitted up with grooved boards; and this board is used on all sustaining walls, of which there are many an the North Kent line; in leading in to stations sometimes down the wall, at other times under the floor. Being prepared by ma-

elinery, it is not at all costly,

II. Compound Needle.—The first telegraphs made were fernished with long coils and needles. Mr. Holmes introduced the needle, now in general use, in the form of a rhombold, with a much smaller coil of silk-covered wire. By means of this improvement, legible signals are abtained through longer distances, and can be conveyed very rapidly and distinctly. But the great inconvenience with this needle is the readiness, as we have already mentioned, with which it parts with its magnetism, losing it by little and little during the ordinary use of the instru-ment, at times suddenly and often totally when lightning discharges occur near the wires. With a view of obviating these inconveniences, Mr. Walker has substituted vacing these inconveniences, are wanter has automatical for it, in the same small coils, an ivery disc, having several short rectilinear needles placed side by side apon-it, and at small distances upart. These needles possess all the good qualities of the rhomboidal; but they give

Mr. Walker has tested them for long periods at important stations, and is now about to use them extensively on account of the serious interruption that has occurred simultaneously in all parts of the country from loss of magnetism. During this summer it was not of unfrequent occurrence to have two or three magnetizers, travelling as rapidly as possible from station to station, in remagnetize; and sometimes before their day's work has ended, demagnetization had again occurred at some

111. Bell Transferers.—This application is not generally employed, and is constructed specially for the chief office at Toabridge. It is for placing the bell, when one part of the line is in use between London and Dover, on the part or side not in use, so that its ring may be heard, and thereby notice given that the line is wanted. By this arrangement the necessity of entting short the communication, or rendering it as brief as possible, is indicated,

The bell and needle being on the same wire, this wire is ent at Tonbridge in the three proper places, viz., between London and the bell, between the bell and the needle, and between the needle and Dover, making six ends. These ends are made to terminate in springs. which rest on brass plates, inlaid in a wooden extinder In one position of the cylinder the springs are connected in the order, London, bell, needle, Dover; so that when talking to Dover, having the line eat off between the needle and the bell, by connecting the wire here with the earth, the bell can be heard to ring, should London send a enrrent along the wire. In the other positions of the cylinder the springs are consected in the order, London, needle, bell, Dover; and similar advantages are expe-rienced in respect to Dover. This plan works well. On the same principle of combination Mr. Walker constructs all his turn-plates, of which he has many varieties : the following is one:-

IV. Branch double Tern-plate.-This apparatus is used at junction-stations for putting branch lines of telegraph in communication with either end of a main line. It is constructed by intercepting the branch wires before they terminate in the earth, and by cutting the main wires and providing springs at the intersections. The springs are so arranged thut, in the normal position of the drum or cylinder, the terminal stations of the main line are open to each other, and the branch line terminates at the junction-station. In another position of the drum, the London terminus of the line is connected with the branch line, and the wires from Dover end at the searction-station. In a third position of the drom, the Dover terminus is in connection with the branch line, and the wires from London end in the junction-station. This is in daily use at the stations on the line, and acts well,

V. Lightning Conductor. — This consists of a small hollow metal cylinder connected with the earth, its purpose being to conduct away the discharge. The line-wire, in its passage from the railway to the telegraph, passes within this cylinder; traversing which it is first presented to the inner surface in the condition of a thick wire, furnished with spars, whose points are in the closest possible proximity to the cylinder, without being in actual contact; it is then continued on and presented as a short coil of very fine wire,-finer, in fact, than that of the instrument coils, wound on a bobbin,-the outer convelation of the coil being very close to the cylinder. Thus a better means of escape is presented to the lightning than is to be found in any part of the instrument, contion is to be some in any pactor in instances, con-sequently it always escapes by this conductor either through the points or by huming the fine wire. As yet no instance has occurred in which these conductors have failed to act, and to preserve the instrument; while instruments in the same office, not thus protected, have on several occasions been damaged.

VI. Graphite Battery .- The ordinary telegraph battery consists of plates of aumigamated zine and clean copper, in cells filled with pure sand, saturated with diluted sulphuric acid. The majority of telegraph latteries are in actual use during a small portion only of each day.

remaining at rest for the remainder of the twenty-four hours, ready for use and in good working order when required. During this time of inactivity there is a continuous slow action between the diluted acid and the copper, whence is produced sulphate of copper, which in its turn becomes decomposed, and the copper released upon the sine, indices local action, greatly reducing the power of the battery and destroying the aine, so that it requires to be changed and cleansed more frequently than would otherwise be the case. To obviate this, Mr. Walker songht for a substance that might possess the good pro-perties of the copper-plate, but which should not be acted upon by the acid. The corrosion deposited on the inte-rior of old gas retorts is admirably adapted for this rior of old gas reforts is admirably salapted for this purpose, and be has had it cut into plates by circular saws, worked by steam machinery. He has preserved the history of a 12-plate battery, which was connected up to do telegraph daity, where the waiting-time was very great as compared with the working-time. It was charged in the usual way, with diluted sulphuric acid, on April 5, 1849, and remained efficient till the middle of February, 1851, without having been washed or having had the sand changed. It was supplied with about a dessert-spoonful of acid water twenty-one times during the above period of ninety-seven weeks, and six times with merely warm water. It suffered most from mere with merely warm water. It billiered files from severe evaporation; in some cases it did duty for thirty-four, thirty-nine, and forty days, and in one instance for seventy-seven days, without having been touched. On September 15, 1851, it was dusted and had a little acid water poured in, when it still gave a feeble working

Will. Merodo Such.—This is a very simple armagnet, and originare will Mr. Walker. The audits of two small freezy stude. In the year test there were many susperier increase and other harmanic conditions, either direction, and often faired up to the stude, so either direction, and often faired up to the stude, so upprope of signalling was been for the student propers of signalling was been for the student propers of signalling was been for the student of
pany have adopted it. VIII. Ringing Handle,-This is used at stations where the bell has a distinct wire to itself. It enables an inter-mediate station to send the electric force in the direction only of the station whose attention it is required to call. This improvement is Mr. Walker's, as are also the essential details of the apparatus; before the introduction of which it was found difficult to keep the circuit good. The line wires are cut between the ringing key and the bell, and strong springs are inserted, which press on brass studs and keep good the circuit when the apparatus is in a state of rest. To the handle is attached a moveis in a state of rest. To the handle is attached a move-able cylinder, furnished with two strong stude in proper connection with the respective poles of the hattery. By moving the handle, one of these studs, and consequently one pole of the battery is put in connection with a strong brass boss, connected by a wire with the earth, and the other stud, according as the handle is moved to the right or to the left, raises the spring on cither side the bell, and sends the current up or down the line, as the case may be. This arrangement is used throughout the South-Eastern Company's lines, and works well.

A Pinis Medial was warded to Mr. Wakkens.
A Pinis Medial was warded to Mr. Wakkens.
A Laka's Patent (No. 2011, p. 431) consists of a circular
dial plate, arranged in a sloping position, with an alphabet and a pointier, which by a handle is brought round to
the letter required; at the same time it makes, breaks,
and reverses the current. By this means the pointers
on the second or telegraph dials are made to indicate the
same letter at distant stations. The chief feature is the farm and disposal of the many-podel perments magnet which works the rachet-wheel arrangement, thereby giving motion to the pointer or index; of the telegraph. The power in this instance or index; of the telegraph. The power in this instance of the projecting the telegraph of the power in the instance of the projecting let very thereton, the projecting the very thereton, and the projecting let very thereton, the projecting the very the projecting of ungaractical as to act calcertrictly in conjunction with the poles of the temporary magnets; by this means the frame acting reasonable projecting the projecti

To impart a rapid movement to the index-hand, this current changer is formed of three metallic dires, insulated from each other, and so arranged as to the number of letters on the dia-plate, that the current is made, broken, and reversed accordingly, and causing the index-hand to poss round at once to the letter required, with great rapidity.

Affair a world referrable consists of four electric eglander only, placed between the arm of a map-poled lamber only, placed between the arm of an amp-poled magnetized to as to possess the state polarity, that when the current passes through the cells, the conservation of the contract of the current, thereby gridus according to the novement of the current, thereby gridus according to the movement of the current, thereby gridus in forming magnets out of one piece of steel, with any massler of poles required, and picture poliner-coin, or massler of poles required, and picture poliner-coin, or massler of poles required, and picture poliner-coin, or and company, and the are presely disministed recisance and company, and the are presely disministed recisance to the policy of the current passing is within effective is to placed that the current passing is within effective.

innerver or a majorite poer, soon is seen, which was to addressly the action, too, being direct, likewise prevents the loss or waste of the current power.

The great advantages gained by these combinations are shown by the fact of there being surplus power sufficient to overcome the frietien of the artective armapement, without the assistance of weights or common needle telegrands power as the common needle telegrands power may be proved to the common needle telegrands now in unexp power as the

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A Price Notal was needed to Mr. ALLAN

Drawns (No. 482, p. 460) has exhibited an electric
Drawns (No. 482, p. 460) has exhibited an electric
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have its centre of gravity below the points of anipension:

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ing secret signals without extra wires; viz., signals which shall be read off only at given localities without passing along the whole line included in the primary wire, This he has accomplished by placing at each station a step-bystep revolving disc, included in the primary line of wire, but so arranged as not to be set in rotation except by a galvanic force greatly superior to that which makes tho ordinary signals, or, when only enrents in one direction are used for these signals, then, by the reverse current. This disc, being brought at every station to correspondence in point of position with its position at the initial station, made by a system of non-conducting interruptions to the enntingity of its elreumference to establish a break, according to its position, cross connections, or short cuts by which the signal current can pass (and therefore will which the signal current can pass (and tnerebere will pass) from our point to another of the primary line of wire, without running through the length of wire con-stituting the local working coil of the station, so that the working of the telegraph at that station is temporarily suspended, the electricity finding for a time a shorter and easier passage. Besides this ingenious con-trivance, Mr. Dering has exhibited modes of preventing the disturbing action of atmospheric electricity and the

Mr. Dering considers-I. The steel best suited for the electric magnets is that employed to form the balance-springs of watches II. As regards the mode of suspension for single telegraphic accelles, instead of suspending the accelle in a round hole by a round pivot in the middle, or nearly so, round note by a round pivot in the inddile, in ready so, Mr. Dering finds it in all cases better in practice to use a triangular-shaped hole at the spper cod of the needle, with a round pivot on which to suspeed it. This allows freedom of motion quite sufficient, whilst it entirely checks wibration. The instrument on this principle exhibited, shows the great rapidity in the change of place of the needle combined with freedom from vibration,

III. By a peculiar arrangement of coils for producing motion in telegraphic needles, with the same number of convolutions, the total length of wire is lessened, and thus the battery force required is diminished. IV. In the apparatus for the transmission of secret

messages, by throwing stations out of the line of commu-nication, there is a means provided of instantly restoring the revolving discs at any moment desired, and from any

position, to the starting point. V. In case of a telegraphic needle being deflected by the aurora borealis, or other slight atmospheric influen Mr. Dering places in the circuit of the line-wire a battery of sufficient force (regulated by the number of galvanic elements) to counteract the disturbing influence, and thus restore the needle to its ordinary position of equilibrium.

VI. An instrument for protection against atmospheric electricity is also exhibited, as described under the eighth hend of specification in Mr. Dering's patent. In this the size of the balls may be increased to any extent, provided their distance from the opposed plates be in a proper pro-portion diminished. This would prevent the chance of The destruction of any part of the safety apparatus.

The Jury considered Mr. Dering as descring of very Honourable Mention for the great ingennity he has dis-

played in these inventions.

Barry (No. 422, p. 455) has exhibited a patent electric telegraph alarum-bell, bell-handle, and battery. The various letters or numbers represented on the face of the dial of the electric telegraph are made by the motion of either or both of the indicators, the number of which motions for each letter or number is defined by the figures on the centre of the dial, commencing at all times with the indicator on the side next the letter or number, and when both indicators are used, finishing with the opposite one. The belies being double and of a circular form, the greatest amount of electricity is conevotrated in their centre, and the magnet being in the form of a ring or horse-shoe, suspended in the centre of the believes, its poles are acted upon by the maximum amount of force, by which great certainty is attained, and the magnet is deflected to the right or left according to the direction taken by the current. The poles of the magnet being equidistant from the earth, the magnet is rendered static, and is not affected by terrestrial magnetism.

LITTLE (p. 455) suspends a common sewing-needle within a tube containing alcohol by means of a permanent magnet at the upper end, so that it can deflect without friction, and does not jar against the electro-magnetic coil on either side which deflects it, while the permanent magnet keeps up the magnetism of the needle. ALEXANDER (No. 426, pp. 455, 456) exhibits a model of an electro-magnetic telegraph, described in the Illu-trated Catalugue. It is interesting as representing an early development of the idea of a needle telegraph, It bas 30 line-wires, 30 galvanometers, and 30 seedles; the Intter carrying each a paper-screen, which, when moved, unveils a letter, &c. The galvenometers are not calculated for actual work in real practice; and, as only one wire is used as a return wire, common to all the galvanometers, there must follow a distribution of electricity among the rest of the wires, fatal to real signalling. The earth is the return circuit in all practical plans, Surin (No. 424, p. 453) exhibits a comic electric tele-triph. This is a three-wire telegraph, and the author

ousiders that, by three combinations, all that is necessary in telegraphic communications can be performed.

McNata (No. 421, p. 455) exhibits specimens of electric-conducting wires for subsqueous purposes. The process of making this wire is by first placing a coating alternately of gutta-percha, or caoutchour, and braiding of cotton-thread, till the enaulation is of a given trick. ness: after which it has an outer coating of gutta-percha, and is then placed down a kollow mandril, and by means of a great hydraulic pressure, a lend covering is placed around it, embracing it so firmly that the whole is one compact body. This article seems to answer its purpose well; and, although there were many specimens of subaqueous wire in the Exhibition, yet, for the most part,

their base is Mr. McNair's wire. Whishaw (No. 419, pp. 454, 455) has exhibited wellmade gutta-percha tubes, furnished with ivory month-pieces, useful for talking across rooms, or in a railway carriage, or for deaf persons: an early specimen of guttapercha tabing and lathe-bands: submarine, insulated electric copper wire, covered with gutta-percha, braided with linen, and painted or variabled. These specimens would not bear the wear and tear incident upon the knocking about they would meet with. A long wooden box, to be used as a battery protection; a private cealer box—this is a box with a sloping front perforated with slits; letters are arranged vertically on the side, and harizoutally on the top. Within the box are us many rollers as there are slits in front, around which are wrapped long bands of paper, each Laving a communication printed thereon, and repeated many times. The end of each band projects so that it may be easily drawn ont. By looking at the two letters curresponding with those sent from the Telegraph Office, the consumulcation is at once discovered. A model to illustrate the hydraulie telegraph. The hydraulie telegraph was invented in the year 1837, and from that time there have been several modifications; some have been furnished with fleats and indexes earrying letters, &c., some with floats and metal-rods, which, on being either elevated or depressed, point to letters, &c. A reservoir for the supply of the water, and a tank for the waste are required at each station. In the model exhibited, a syphon-tube shows the application of the water itself, which rises and falls in the tabes by opening or closing the respective cocks. Patent plans tubes, to insulate and protect the wires of the electric-telegraph when placed under ground. The use of these would be found to be expensive, and probably, hazardous.

Patent multi-tubular pipes, of glazed earthenware, well-made; their use is to insulate and separate the wires of electric telegraphs when placed under ground. Pro-bably these would be perfectly insulated with gutta-perena wires, but, if broken, there would be some difficulty in replacing them. The desiderata are, great darability

and great accessibility. Wronght-iron pipes, with ball and seeket joints. length of each pipe is 2 feet, and allows an inclination of about 10 degrees, forming a subsqueous chain for rotecting electric telegraph wires when under water.

This arrangement seems to be good. This completes the British portion of the exhibition of electric telegraphs, and from it a very good picture of the English systems of telegraph is presented. One out of the only two specimens which have been sent from shroad is that of Siemens and Halske, Prussian system, and which we proceed to describe:—
Stemess and Halske (Prussa, No. 310a, p. 1067).

The telegraph exhibited by these inventors is extremely ingenious, and the construction and details are very good. It differs essentially from all others that have fallen under nur notice, in that signals are made by arresting instead of by causing, the passage of electric furce. consists of three ports,-an ularum, an indicating dial, and a printing arrangement. The force is derived from voltaic batteries. Datiell's constant battery is employed. twenty-five pairs of which, at each station (for the but-teries at both communicating stations act in concert), are said to act through about 250 miles of wire. The force, in all cases, is made available by means of electromagnets. And first, in respect to the arrangement, when no communications are passing, but the stations are each in a condition to receive notice that they are required to attend.

The bells alone are left in the circuit. When a current passes along the wire, the keepers of the electro-magnets, which are on one arm of a lever, are attracted, which causes a small hammer on the other arm of the lever to strike a hell. The clerk who desires to call attention turus his own bell out of circuit, by moving a lever, and, at the same time, turns his battery and his telegraph in strangest into the circuit, and then leaves them. This allows the electric force to have free course, and the distant bell to ring; but the electro-magnet of the alarum is so odiusted that the circuit becomes broken the moment the armature leaves its normal position, which it does by the attraction of the magnetism; the magnetism, therefore, ceases with the cessation of the current, and the armature returns again to complete the circuit; and so on, alternately, producing a succession of blows upon the bell. During this time, the telegraph instrument of the first station, although in the circuit, is perfectly inactive; being so arranged that its electro-magnet is much less sensitive than that of the alarum, its armature re-quiring more electric force, or more time to acquire motion, so that the circuit is broken by the action of the alarma before the telegraph has been able to move. When the sounding of the bell has gained attention at the distant station, the officer in charge there turns his alarum out of circuit, and introduces his telegraph instrament and his buttery. There are now in crecuit a bat-tery, and an instrument at each station, which are so arranged that the two batteries combine to produce a eurrent in one constant direction, and, hence, both act simultaneously on both instruments.

The instrument process a circular dial, around which are engraved the letters of the alphabet, or other conventional signals, and is furnished with an index, which, under the conditions above named, continues traversing the circle at the rate of about thirty times per minute. The two (or more, as the case may be) instruments act

precisely in concert, which is thus accomplished:—
The armainre of the electro-magnet carries a lever, at the end of which is a claw; that advances one tooth of a ratchet-wheel (mounted on the same axis with the index) at every attraction. But this armature breaks the circuit at each attraction; and the magnetism censing, it is returned to its normal position by the action of a slight spring, again to complete the circuit, and to draw on one more tooth of the wheel, and cause the index to nd-vonce, and so on. All things being in order, the alternate making and breaking of the circuit are simultaneous on each instrument, and the indices of each point to similar letters at the same time. In order to turn this prrangement to account, the dial is surrounded by a circle of pressing any one of these do an, it impedes the progress of the ratelet-wheel just at the time when the circuit has become discontinuous, and no current is passing. The index, therefore, of each instrument rests at the letter in question, and continues its course only when the stud is allowed to return, and the wheel is liberated.

stell a showed to return, and the wheel is illemented.

priming before Mr. The rethree-wheel for firmished with the priming before the priming before the priming before the rest. Here the stellar forms the rest of the rest. Here the stellar the rest of the rest. In the receivable of the rest, the rest of
to prose the payer against the blackward cylinder, which prints the form of the letter. Letter after letter is thus printed, and a blank is touched at the end of each word. When the blanks are struck, the leannare, noveling with no restaurce, moves a little further, and enables a visit to restaurce, moves a little further, and enables at the end of every word. At the same time that the hammer at these a letter is break the error of a bell is heveral at the end of every word. At the same time that the hammer at these as letter is break the error of the puring magnet, and thus the breaks the circuit of the pruning magnet, and thus the breaks the circuit of the pruning magnet, and thus the breaks the circuit of the pruning and the properties the latter is likevine provided in Riverie provided.

The lever that earries the hammer is likewise pravided with arrangements for advancing the paper the width of one letter as it returns in its position of rest, so that the letters follow in due succession; it also advances the blackweat eyilonder in the direction of its axis, so that it shall not become exhausted by always printing from the same surface.

There are other arrangements provided for facilitating the transmission of electric force to long distances, and for overcoming some of the difficulties that occur in practice.* A Conucil Medal was awarded for this benatiful

system of telegraph.

The remaining foreign Exhibitor—
Stöhrer (Sexony, No. 15, p. 1105), exhibits a magneto-electric telegraph. It is applicable to the ordinary

nes of telegraphs. In practice the hand always turns the same way. Attached is an alarm bell, which is readily put in and out of connexion.

A Price Medal was awarded to Mr. Stöhrer.

Domestic Telegraphs.

Brauerr (No. 423, p. 450) los exhibited a domestic hergriph distripted to respected the use of bells in the hergriph distripted to respect to the use of bells in The nacions intelligence of the control of the Theorem and the control of the down the lever at the foot of the dail; but, should down the lever at the foot of the dail; but, should down the lever at the foot of the dail; but, should down the lever at the foot of the dail; but, should down the lever at the foot of the dail; but, should down the lever at the foot of the dail; but, should down the lever at the foot of the dail; but, should down the lever at the foot of the dail; but, should down the lever at the foot of the dail; but, should down the lever at the foot of the dail; but, should down the lever at the foot of the dail; but, should be down the lever at the foot of the dail; but, should be down the lever at the foot of the dail; but, should be down the lever at the foot of the dail; but, should be down the lever at the foot of the dail; but, should be down the lever at the foot of the dail; but, should be down the lever at the foot of the dail; but, should be down the lever at the foot of the dail; but, should be down the lever at the foot of the dail; but, should be down the lever at the foot of the dail; but, should be at the dawn the lever at the foot of the dail; but, should be at the dawn the lever at the foot of the dail; but, should be at the dawn the lever at the foot of the dail; but, should be at the lever at the foot of the dail; but, should be at the lever at the foot of the dail; but, should be at the lever at the foot of the dail; but, should be at the lever at the foot of t

electric telegraphs, adapted for the use of hotels, taverus, public gardens, &c.

Also, another pair, for railway boards, public companies, mannfactories, &c.

A pair of electric telegraphs for domestic purposes,

A pair of electric telegraphs for domestic purposes, adapted to gentlemen's dressing-rooms, libraries, or ladies' bondoirs, &c.

Also an electrical apparatus for singing balls in larger

Also an electrical oppuratus for ringing bells in large mantions, hotels, &c. To be brought into immediate action by pulling a cord or lever, as with common bells. This instrument is designed to act at great distances with case and rapidity.

the mad rapidity.

Winstaw (No. 419, pp. 454, 455) has exhibited a donestic telegraph. The dial, which has an index hand affixed to it, has also engraven upon its face a number of short sentences or written orders for requisites, such as ore likely to be called for in the establishment to which the telegraph belongs. The index points to any one of these seutences as required, the communication

is at this moment between the hammer and the paper band. The armature, being powerfully attracted, causes the hammer to strike a suart blow spward, and then Telegraph, Britischweig, 183a.

Thus

being established by means of wires and cranks in con-

nexion with a clock movement. Brooks (United States, No. 222, p. 1450) exhibits a bell telegraph for the use of hotels, &c., consisting of one bell, with a series of springs; it seems well adapted for

its work. HOWLAND (Uoited States, No. 486, p. 1465) has exhibited a bell telegraph for the use of hotels, dwellingbouses, steam-ships, &c., and is designed to avoid the complication of bells necessarily cuployed in large establishments. Each signal on the dial of the instrument is distinct, and remains faxed until reflered by an attendant. It may readily be attached to the usual arrangement for bells. It is ornamental and requires but

Chemical Apparatus.

A very small number of manufacturers have contributed to the Exhibition, and, with the exception of QUENNESSEN (France, No. 1683, p. 1257), and STAFFEL (Russia, No. 148, p. 1371), no great preference can be given to one or the other of the principal Exhibitors. It may, however, be mentioned, that, more or less, the chemical glass and china apparatus, made by German manafacturers, have china apparatus, more by overnous manuscross, sore been exhibited by the majority, which indicates its adaptation to practical use, as might be expected from its greater lightness and durability.

No new invention, except that of Mr. Staffel, nor any new application of known construction of apparatus, is

little space.

KNIGHT and Sons (No. 453, pp. 462, 463) exhibit a KNIGHT and SOSS (No. 423, pp. 462, 483) exhibit a chemical cabinet, containing apparati for laboratorics, graduated cylinders, jars, blow-pipes, an improved bellows, paesumatic troughts, chemical testa; lamps, re-torts, and other glass articles; apparati from iron and carthewaver, arranging firmaces, mortars, &c., being a complete set of articles in daily use by the practical

This cabinet is intended to combine usefulness with economy: it is proposed that such cabinets should be fitted up with apparati and tests for the agriculturist, the analyst, the commercial man, and the student, with the analyst, the commercial man, and the student, with the prices attached to each article, so that the amount of the first outlay being under control, the ultimate expense may be known with certainty, and the difficulty of selecting appropriate and useful apparatus avoided; as necessity of devoting an entire room to the well as the purpose. This cabinet promises to be highly useful.

A Prize Medal was awarded to Knight and Sons for

their chemical cabinet. Knight and Sons also exhibit a chemical furnace on the same principle as that of Dr. Black, which is con-structed of stout sheet-iron lined with fire-bricks, and in

applicable to nearly every purpose for which a furnace is required: one sand-bath, stoppers, crucibles, muffles.

Knight and Sons also exhibit a galvanic battery, according to the arrangement of Daniell, consisting of a series of six cells, each holding a copper cylindrical ressel, to be filled with a solution of sulplante of corner. in the centre of which is a porous tube, filled with diluted sulphuric acid, and containing an analgamated sine rod; also a battery on Grove's arrangement, consisting of a series of six cells, each emprising a glass vessel, containing an analyzmated zinc plate, to be filled with diluted sulphuric acid, having in the centre a flat porous cell, with a platina plate, and filled with nitric acid; also another battery on Green's arrangement, consisting of a series of aix cells, each comprising a glass vessel, coa-taining diluted sulphuric acid; to each cell is a series of three plates, the centre one being of platinised silver plate, and the others amalgamated sine. These plates are connected to one rod and can be easily raised out of or lowered into the liquor, A galvanic lattery, on the Maynooth arrangement,

consisting of a series of ten cells, each being a cast iron trough, filled with diluted nitric acid. In each cell is placed a porous cell, charged with diluted sulphuric acid, ontaining an amalgamated zinc plate

A galvanic battery, consisting of cells formed of gutta-

percha filled with sand, saturated with diluted sulphuric acid, each cell containing a copper plate, and one of

analgamated zinc. GRIFFIN (No. 457, p. 463) exhibits graduated glass in-struments, applicable to the examination of carbonate of soda and carbonate of potash, of all degrees of impurity, ammonia, sulphuric acid, muriatic acid, acetic acid, and vinegar of all strengths, blenching powder, and bleaching liquors generally; the graduation of these instruments is executed on the principle of assigning a fixed volume to the atomic weights of each chemical compound when in solution, and so producing a series of equivalent test liquors. The standard is made on the consideration that none. The scandard is usue on the consideration than 100 grains of oxygen, in a deci-gallon of solution (being in the proportion of 1,000 grains in a gallon), at the temperature of 62 Fahr, produce a solution of 100 which represents a quantity of any chemical substance equivalent in 100 grains of oxygen, or its atomic weight expressed in grains, contained in a deci-gallon of the solution.

503.38 grains of hydrate of soda, 667.34 grains of subydrous carbonate of soda,

1793.13 grains of crystalline carbonate of sods, dissolved respectively in water, so as to make a decigallon of solution at 62 Fahr, are of the same chemical strength In like manner

> 643-19 grains of anhydrous acetic acid, 455-13 grains of anhydrous muriatic acid 501 · 165 grains of anhydrous sulphuric acid,

2028-64 grains of mitrate of silver, brought into aqueous solutions of the above hulk at 62° Fahr., are all solutions of 1000 of chemical strength. The extreme convenience of this system carried out in a laboratory in respect to the saving of time, thought, and calculation, and its power of securing uniformity of manipu-lation, must be obvious to every chemist,

The graduation of all the glass measures applicable to ese investigations, as well as all othera exhibited by Mr. Griffin, is exceedingly accurate and good, the divi-sions from 10° to 10°, being performed by Ackland's graduating machine, which gives correct aliquant parts. The unit of measure, to which the small measure, called Inc unit of measure, to which the small measure, called pipettes and alcalimeters, is referred, is termed by Mr. Griffia the septem, by which is meant the bulk of seven grains of water, at the temperature and under the barometric pressure at which the insperial measures are regulated: 1,000 septems make a deci-gallon, corresponding ing to 1 lb. avoirdupois of distilled water, and the tenth part of an imperial gallon of water. The septem, therefore, is identical with the milli-gallon,

Mr. Griffin exhibits a set of decimal weights and measures founded on the imperial gallon and the 1 lb, of 7,000 grains. This Exhibitor, in addition, has given a rich collection

of objects, for the most part similar to those exhibited by No. 453, consisting chiefly of apparati for making assays with the blow-pipe, mineralogical boxes, a large collection of graduated glass apparati, applicable to various purposes, boxes fitted with chemical tests, alcalimeters, saccharometers, arouncters, la the arrangements made by Mr. Griffin for special purposes, everything necessary has been included, to the exclusion of all else, with especial reference to economy and convenience.

A Prize Medal was awarded to Mr. Griffin.

Enwards (No. 438, p. 461) has exhibited retorts, phials, and capsules, covered with an electrotyped precipitate of copper, to protect them against crucking by heat; all these articles are good. The covering of glass vessels with copper is not, however, new; but its use would appear to be very little known in England, The Jury considered Mr. Edwards deserving of Hoourable Mention.

Interson (No. 459, p. 463). Illowing apparatus, con-structed with two circular bellows, for the purpose of a continuous blast,

STATHAN (No. 456, p. 463). Boxes fitted with chemical tests, in various sizes, parenmatical troughs, &c.

Bakea (Nu. 396, pp. 451, 452) exhibits a succlarometer and herometer; but it is to be remarked, with respect to the former instrument, that the optical analysis of sugar surrosses all other modes.

Currer No. 63-15, 6-63 exhibite chemical apparatus. It as few square feet are comprised the means of perfuring rooms of the most important and troublessome operations of the intervalone. It exists as a still cort steamer tracts, expansions, steam-shalls for retors, still, acc, dying-closed, no condenser for steam, and worses for other skills, the elaminer contaming them acting also as a store and condensing role. The temperature can be externed and condensing role. The temperature can be after and condenses of the still and the still according to the content of the still according to the st

the bolier.

Doussons and Marriery (Closs I., No. 477, p. 161) have calibilited palladium envisibles and exposites. The use of radiability planting envisibles and exposites. The use of intradiability, theographs not so great as that of platins, is well as to enable it to resist the greatest beam applied in all ordinary chemical operations, while it is not analyte, as to enable it to resist the greatest beam applied in all ordinary chemical operations, while it is not analyte, as the continue of the contin

It may not be irrelevant to the subject of this report, to suggest as well-by the attention of eleminate, the relationship of coating, by galvane-plantic processes, the laterior of clays of polinologo credibility with false of the subject of clays of polinologo architelia with false of which they are to be applied may require, of sufficient thickness and colonion to withstand an moderate amount of mechanical abrasions, and to intervept the action of anime matter in fasion on the credibiles. Much of the ariginal cost, both of material and flabrication, would thus regions of the control
Honer, Tronstruette, and Woon (N. 28), pp. 431, 435) exhibit a galaxine inachine for medical and other parposes, with a case of instruments for its application. The moreley of its construction, and that upon which its utility hepsals, is, that the current of electricity produced absolute at elementarilate intensity, and for in our should be also as the construction of the strength of galaxine currents the process of galaxine corrects to process of galaxine corrects to process of galaxine corrects to process of galaxine currents to process of galaxine corrects to process of galaxine currents to process of ga

multiple of the property of the collision of a plantage machine, with a president equalstee equa

TAYLOR (No. 466, p. 464) exhibits a pucumatic lattery for igniting gunpowder in blasting operations.

News No. 371, p. 100; exhibite a hydrometry, capable of secritaring the specific gravities of all fluids, its rauge including 0.4 to 2.0. The point of most increase in this interval in this interval in this interval in the height able to inserve in this interval in the height able to inserve in the height able to gravity, thereby rendering its uniform balls of any perifficulty, that may be required. By this means considerable accuracy and efficiency are obtained, and lateries, and claims improvement for his introduction of

Lross (Class VI, Nr. 203, p. 291) exhibits several louteries, and chains improvement for his Introduction of word intends of porous cells, which by readering the constant in its deposition, constitutes an arrangement by which no copper is lost, In consequence of the action of the sulphate or copper being limited to the surface of porous cells, holes were made in the cells, no that the Mr. Lysus, to dwist this, included a guita-perha tube, perforated with holes, and found the copper clear and equal throughout, also the solution of equal strength.

both at the top and bottom.

The principle here exhibited is that of economising the battery power.

battery power.
Mr. Lyons has also introduced methods by which he makes the usual waste available furbattery power, by having the usual waste available furbattery power, by having charged with augmentrie; by the introduction of plates of iron on either side, with raise in the centre, and snitable arrangements, he saves the oxide of copper by the side gramments are not to be suffered to the product of the proting of the product of the product of the product of the whose objects are constant and regular action, changes, and snitability to the performance of all that to which

add showman, to the pre-resonance, or the pre-resonance or the pre

CHUMBO (France, No. 123, p. 1177) exhibits a gazoscope, an apparatus so constructed as to indicate the presence of hydrogen gas, when in an atmosphere containing only 11st part of this gas, that is to say, 1 part of gas to 179 uf atmospheric air. In the year 1843, sevenal engineers were appointed to

test the gazuescpe, in the coal-mines of St. Metons, and they reported favourably pone in efficiency in preventing explosious of all kinds during the time of trial, vir, during the months of October, November, and Dacember, 1843. According to Srt Humphry Davy, the proportion necessary to an explosion in shout 4ph; and, comecessary to an explosion in shout 4ph; and, comelection in the control of the conleter on the control of the control of the conleter on the control of the control of the conleter on exclusion could take play.

M. Chard also exhibits a new activy Jamp, which has been made at the expose of the Band of Health at Paris, for the ase of establishments containing spirits, essences, ether, or any kind of volatile and inflammable substance. It possesses the advantage of having no wire game and it filled by a tube. It extinguishes itself when the game to become explosity, and in inexpensity. The construction become explosity, and in lenguage the day my greet (in a burning bown patients) their not being at likery to describe the control of th

The Jury awarded the Prize Medal to M. Chnard for his safety-lamp.

Bonner (France, No. 1096, p. 1230) has exhibited an assay furuace and a small assortment of crueibles of white clay. Also a small melting furnace, remarkable for the faculity with which it can be taken to pieces and cleaned. DEVECE (France, No. 476, p. 1200), has exhibited a large and complete assortment of atensils of the same description.

LEGOLT (France, No. 303, p. 1191) has exhibited a galvanic hattery, patented in France and England, in which zine is combined with a preparation of carbon

uggintinated.

KAPEALER and Son (Bavaria, No. 28, p. 1099) have exhibited black-lead crucibles, for melting gold, silver, iron, stock, &c. These crucibles have a high reputation

iron, steel, &c. These cruechies have a high reputation for supporting with security the highest temperatures, such as are requisits for sinching iron, steel, &c., and which is due to the introduction of a five-proof errogathway of the such as th

SERL, Jun. (Prusia, No. 483, p. 1078), has exhibited a remarkably complete and beautiful steam uppartus, fitted for chemical and pharmaceutical purposes, with still, digesting, and evaporating vessels, and cases for drying and filtration, at single temperatures, in German silver, and which may be considered one of the most complete things of the kind in the Exhibition. A Pine Modal was awarded to Mr. Seed.

social was a sense to \$97, \$775, \$1,000 has exhibited a good assortment of chemical spagarata, crucibles, eraporating basins, funets, &c., made of white clay from Thrungue Forest, unch resembling, to appearance and quality, our Wedgewood ware for similar mea. In particular may be noticed the great size of some of the vessels, such as a cylindrical one 2 feet in depth and 15 million of the control of the cont

in diameter, Grussia, No. 854, p. 1096) has exhibited a carbon battery, in which the zine rods have for their section a rectangular cross to expose a greater surface, and the exterior cylinder is composed of carbon powdered and strongly agglutinated by sugar, it is understood, or other ascelariue cement, so composed as to dissorbe with extreme allowness.

Dr. Reinkort (Zwichrieken, Bavaria, No. 831) has exhibited a galvanic battery of his own invention, in which a rine cylinder surrounds one of eartherware full of powdered coke, It is used to excite an electromagnetic apparatus.

Kisterlinken (Wurtemburg, No. 26, p. 1115) has exhibited a silver hydrometer.
Wolsy' (Wurtemburg, No. 13, p. 1115) exhibits various chemical apparatus and gradnated vessels for measuring fluids. Honomable Meution was mwarded by the Jary to. Mr. Wolff for his pharmaceutical apparatus for dis-

tilling.

Leiurus (Prausia, No. 83, p. 1053) has exhibited a rehe collection of pharmacepitied apparetus: Imaps of different lands for coloning calciung, distilling; gasometers mortars, machine for making pills, platine crucibles, an apparatus in platina for preparing hydrodenoic social simple apparatus for securities for secretaining the quantity of super in selection plating platine for preparing its relation to proper and thousand the second plating and the plating of super in selection plating and the second plating and the selection of chemical apparatus the Jury voted a Price Media.

Devining gass works. For ims vanishing tendencies of chemical apparatus the Jury voted a Prize Medal.

Barax (Austria, No. 135, p. 1014) exhibits boxes with chemical tests, kamps, retorts, supporters in wood, alko-meters, various kinds of apparati made from Rohenian glass, and a test apparatus for beer, after the design of Professor, Steinhell, of Vicuna. A Prize Medal was

voted to M. Batka.

Branzers (Austria, No. 133, p. 1014) has an apparatus
for the chemical analysis of beer, invented by Professor

Balling, of Prague.
STAFFEL (Russia, No. 148, p. 1371) exhibits an apparatus for assaying precious metals.
This invention of Mr. Staffel is intended to supersede

nis investion of Mr. Statlet is ratended to supersede neither the solution by fire, nor the various chemical tests which have been brought to a state of great perfection; it is simply designed for practical purposes,

when neither neids nor fire can be made available. apparatus is constructed on the principle of spe mucity, which has been extended to specific rolume. The great difficulties to be contended with were, 1st, the elasticity of the air; 2ndly, its temperature; 3rdly, capillarity; 4thly, the closing of the apparatus hermetically; and, 5thly, the furnashing a scale for various weights; but after four years of unwearied study and labour Mr. Staffel overcame these difficulties. The apparatus consists of a glass tube, fixed in a brass case, the bottom of which forms a cylinder, which receives its movement by menns of a screw. An annular dial, furnished with a hair, for an indicator, shows the degrees from 0 to 99. and controls the motion of this serew. The degree from 100 and upwards, are indicated on a plate, fixed at the side, which plate stands in counexion with the dial, The glass tube is closed hermetically at the top with a glass cover, to which is annexed a capsulo, a perpendienlar glass cylinder, and two brass bars, serving as a

which is able of the apparents in a lart by manus of which the dills obsequent to zero, and at the cases timewhich the dills obsequent to zero, and the time the time to the normal point. The object to be tweed in the explicit by mean of weights adapted to the purpose; and within the final, and the exposic correlally choice. The time final, and the exposic correlally choice is a second proposition of the contract of the con

24 - 8 = 16,

which will give the standard of the gold.

If the gold he alloyed with silver and copper, which
will be indicated by the peleness of the colour, it will be
necessary to refer to the hrass bar for the purpose of
showing the alloy. The differential weights of the alloy
between gold and copper, and between gold, silver, and

copper, are indicated by various scales.

If the object weigh 30 grains, and the cylinder show 11, then the result will be

$$\frac{39-11\times 24}{39}$$
 = 17-23 proof.

The volume of fine silver or gold is marked . F; The volume of experience of any other alluy is marked C_1 . The volume of specific difference is marked . D; The volume of weight is marked . . 1, 2, 3, &c. If a fusion of $28 \, F + 11 \, C$ is to be mude, the figurum to the F = C - D, of F + D = C, or $28 \, F + 11 \, C$ is to be marked to the figurum to the F = C - D, of F + D = C, or $28 \, F + 11 \, C$.

30 F + 11 D ≡ II copper or alloy.

The practical utility of the instrument will chiefly be—

1st. The determining the quantity of gold or silver
tuced in manufacturers' wares from either of these metals,
nand thereby caushing the employer to ascertain whether
the fluished article contains the exact amount of metal
furnished to the workmen.

2ndly. In ascertaining, if required, the value of a chain, though the gold used in the several links be of a different standard.

3rdly. In previously ascertaining the standard of a fasion, when various sorts of silver, of unequal size and weight, are to be melted together. 4tbly. In ascertaining the value of coins with the

greatest accuracy and despatch.

Fire Annihilators by Chemical Application.

PHILLIPS (Class V., No. 92, p. 222) has exhibited a fire maibilator. This is a portable machine for the immediate production of steam, and carbosin neid and other gases, which, being directed upon the hurning mater, is designed to check the progress of the finness more specifiy than the usual application of water. It is form cylindrical, and slightly coniect; it varies in size

from 16 by 8 inches to 24 by 12 inches, and is comparatively locapeusive.

For use, it is charged with a composition of powdered charcoal, nitrate of potass, and gypsum, in the following proportions: powdered charcoal, 20; nitrate of potass, 60; and gypsum, 5. These materials are boiled together in water, and afterwards dried in a store, at the temperature of 100°. The whole is moulded into the form of a brick, down the axis of which proctrates a bollow eavity, for the reception of a bottle, which contains a mixture of chlorate of potassa and sugar, sormounted by a globule of sulphuric acid. The charge so prepared in placed in a cylindrical vessel, perforated in many places, which is Itself within another cylindrical vessel, also perforated for the passage of the gases; both these are contained within a double cylindrical receiver, the lower part of which contains a quantity of water. apparatus is closed by two covers; in the outer of which is an opening for the escape of the vapour. In the centre of the cover is placed a spike, for the purpose of brenking the glass bottle deposited in the eavity of the charge. The spike being forced down breaks this bottle, and the sulphuric acid, falling on the mixture of chlorate of potassa and sugar, causes instantaneous combustion, and spreading over the charge, causes a second ignition at once to take place. The gases thus formed pass through the perforations, and by heating the air in the water chamber, and causing it to expand, forces the water up a tubular passage into the spaces between and around the eylindrical vessels placed each within each; and being thus converted into vapour, mixes with the gases, and escapes by the discharge tobe. The discharge forms a dense cloud, which continues until the charge is consumed and the water quite exhausted.

On Thursday, September 26, several gentlemen of the Jury assembled at Batternea Fields to witness Mr. Phillips' fire annihilator in operation. There were present—Sir John Herschel, Mr. Glaisher, Mr. Bowerbank, and Professor Collodon. A rough wooden house, two stories high, filled with planks of wood, shavings, &c., was set ou fire, and the doors and windows fast closed, previously to which, a quantity of spirits of turpentiae had been poured over the combustibles in the interior, from which in the course of a few minutes the fiames were seen issning from the windows, and on the door being burst speo presented an unbroken sheet of flame. The fire annihilator was then brought forward, and the vapour directed into the doorway. The effect was almost instantuneous. The great mass of flame was at once extinguished, and at the same moment dense volumes of smoke were seen issuing from the same place. In the course of a few minutes the fire was entirely extinguished, leaving the walls of the house standing, though considerably charred. Ten minutes after (a few lingering traces of fire to the windward being extinguished with wet mops), the Jury entered without inconvenience: the nir within being cool and moist. The experiment, which must be considered as a severe test to the powers of the machine, was considered satisfactory in the extreme. Shortly after, a tank, containing a mixture of tar, shavings, and other combustible matters, was ignited, and afterwards extinguished by one of these machines with equal success; the machine being placed to wind-ward, and the gas thus swept over the burning surface, in a state of most violent combustion, instantly aunihilating the flame.

The idea which Mr. Phillips has soccessfully applied to his fire annihilator was suggested to him by witness-ing, some years ago, in the Mediterranean Sea, an emption from an island, thrown up from a depth of 80 fathoms; he observed that, where the vapour formed by the boiling water, and precipitated upon the lava, en in contact with the flame, the latter was iostantaneously extinguished

The fire annihilator, in its action, may be said to resemble that of a pump drawing water, or the condenser of a steam-engine. The vapour which issues from it of a steam-engine. The vapour which issues from it outers the building in a highly-expunsive state, and extinguishes the flame chiefly by the presence of gases adverse to combustion, but partly also, uo doubt, by

reducing it to a temperature lower than that at which flame can exist. By degrees, the room being full of vapour, the temperature decreases, and the vapour condensing into water, fresh air enters to supply its place, and renders it possible for men to enter, and complete the work of extinction of the cohers. The machine is unattended with any practical difficulties in its use; the mixture of steam and gases may be produced within a few seconds after striking the top for the purpose of breaking the little bottle. The vapour itself possesses the advantage of being less destructive to the unconsumed articles with which it comes in contact, and being also a more penetrative medium than water, is better calculated to act simultaneously upon the innumerable particles of gas which combine to produce flame. It is stated to be perfectly innoxious to human life, which, of course, must be understood to mean during that short time, and in that state of admixture with air in which mee have occasion to inhale it.

When we take into consideration the large number of fires which, both hy day and pight, endanger the life and fires which, both ly day and night, endanger the life and destroy the property of individuals situated in or near the metropolis, the production of a machine such as that which Mr. Phillips has exhibited, promises to be of very considerable utility. By being provided with one of these, each househulder as possessed of an instantaneous means of checking a fire at its commencement, long before any great destruction of life or property could be apprehended. Its advantages on ship-board can scarcely be over-estimated, and are most obvious. The Jury, considering it well adapted in its application to the purpose intended, and being perfectly satisfied with its performance in this instance, have awarded Mr. Phillips a Prize Medal.

WEARE (No. 386, p. 451) has exhibited a fire annihilator, designed, hy means of a discharge of gas, to extinguish fire, and prevent the ignition and self-com-bustion of inflammable matter. As the Jury have had no opportunity of examining the machine, or becoming acquainted with its construction, they are not qualified to decide upon its merits,

Meteorological Instruments.

Considering the greatly increased attention which has been paid within the last few years to meteorological researches upon a systematic plan, a part of which is the using instruments well adapted to the work, it is both surprising and very lamentable to perceive, among the numerous exhibitors of barometers and thermometers, instruments of so ordinary and inefficient a construction, the greater part of them being ill adapted and totally unfit for meteorological observations. In the barometers exhibited, the majority of the makers, in their anxiety to render them elegant and decorative articles of furniture. have paid but little attention to its essentials as a philo-sophical instrument. Their forms, as exhibited, are various, it is true, not as might be expected with a view to discover that construction likely to give the soundest results, but more, it would appear, to suit the requiremeuts of those who can see in a barometer nothing more useful or important than a piece of household farniture, destined to take its place among the usual appurtenances of a well-furnished hall. This is much to be regretted, the barometer offering-as it does-so wide a field for the exertions of the instrument-maker to fit it for the increasing requirements of the present advancing state of meteorological observation. How disappointing it is to find all their exertium directed to the enshrouding it in a case which, with few exceptions, renders it not only cumbersome and inclegant, but, as typifying the apathy of a large class of instrument-makers to the fundamental principles of its construction, to us must offensive: oo the score of inelegance of construction, we may, however, except those exhibited by ELLIOTT and Sons. (Nu. 529). which are fairly models of claste design and excellent wood-carving. It would be well for the purchasers of these decorative and ill-constructed baroneters to remember that hy their adoption and use of such instruments they forfeit all claim to scientific notice, and they should also remember that to the well informed no instrument can be so pleasing in appearance as that which, from its construction, is well adapted to its work, and likely to lead to good and important results.

Of thermometers we cannot speak more favourably, the greater part of them being furnished with scales of ivory, a material most unsuited to a graduation of any kind; so much so, that the mercurial tube attached to an ivory scale cannot rightly be called a thermometer. The bulbs of those exhibited are nearly all too large, a defect which necessarily entsils a very slow change of temperature. In self-registering thermometers there is nothing new, and no attempt has been made to improve the work-ing of the instrument, either by the introduction into the maximum thermometer of a piece of enamel, as a substitute for the steel index, or by any other means. Very few of the tubes of the thermometers exhibited are sunk in the scale, so that the column of mercury may be in the same plane as the divisions, or the back part of the tube out away to attain the same object; and, what is still more to be regretted, very few thermometers in the superior to any for insuring delicacy of graduation and correct readings. These remarks do not apply to the foreign portion of the Exhibition; the exhibitors it includes, however, are few in number, but the instruments

generally are pretty good. No branch of physical science has suffered more than meteorology by the use of bed instruments. Many journals, after years of patient daily labour, have neces-sarily heen laid on one side as useless, owing to the imperfections of the instruments used, To judge from those exhibited, it would appear that as little attention is paid now to the construction of meteorological instruments in London, except by a few makers, as a few years ago, before the commencement of the systematic rescarches in meteorology at present being carried on by

very many gentlemen throughout the country. It is to be hoped that one of the good results of the Exhibition will be the calling into existence a better class of instruments generally, when not only shall be improved those accessary to physical research, but those also which are in general use by the public. That thermometer is the best whose bulb is small, whose divisious are cut on the stem itself, or engraved on well-seasoned box-wood or on metal. That barometer is the best which is made af brass throughout, and the ascreury of which has been boiled in its tube; there should be no plunger, no need of capacity correction; and the most means should be adopted for measuring accurately the distances between the surface of the mercury in the cisters and that in the tube, a measurement best attained by means of an ivory point, terminating a brass scale.

The best exhibitor of thermometers in the Exhibition is Fastrak (France, No. 511). All the instruments exhibited by him are distinguished by deliency, and are possessed of the essentials of first-rate instruments. The hest exhibitors of thermometers in the British portion of the Exhibition are NECRETTI and ZAHRRA (No. 160), whose instruments whose instruments seem to have been made with great care, the divisions being good, and mostly cut on the stems of the thermometers themselves. In appearance there is but little difference between those exhibited by Negretti and Zamhra and those by Fastre. The accuracy of division was not examined in either case.* We now proceed to speak in detail of the instruments

Self-registering Meteorological Apparotus.

exhibited.

Dollond (No. 145, p. 426, and see Illustration) has exhibited a self-registering meteorological instrument. which he has called an Atmospheric Recorder, This instrument registers simultaneously, for any period of time, according to the length of the paper use varying pressure of the atmosphere, the changes of tem-

* To examine a thermometer carefully, and determine its index errors at every part of the scale, is very trouble-some, and occupies a great many hours; yet every ther-mometer used for meteorological purposes should be thus

perature and evaporation, the variations in the electrical state of the atmosphere, the fall of rain, the amount of water evaporated from a surface of water, and the force and direction of the wind.

The apparatus is composed of a frame 2 feet by 3 feet 6 inches, and is firmly supported upon four pillars, the sides being strongly braced together. At the distance of to inches from either end of the frame, a roller 1 foot in circumference is placed. That near the south end is moved by clock-work, whilst the other acts as a reservoir for the paper; a third, of the same dimensions, is placed near the clock or driving roller, and so arranged as to press upon it equally throughout its length for the purpose of keeping the paper in contact with the driving-

A strong bar is placed near the north ond of the frame, upon which the fulcroms of several indicators, about a foot in length, are placed. Those far registering the variations of the barometer, thermometer, and bygrometer, have spring points at their ends; and those for the registration of the electrical changes, the fall of rain, evaporation, and the force and direction of the wind, luve cruporation, and the force and direction at the wind, have pointed pencils. The former are connected with a falling lever, and strike the paper once in every half hour, whilst the latter continuously mark the paper. Near the place of registration each element has its own scale. The in-dicators are continued somewhat beyond the fulcrams, and are thus connected with the various changes of the atmosphere to be recorded. Between each element on the atmosphere to be recorded. Jickwent each element on the paper a set of lines is drawn, which form zeros or base lines for the estimate of each. They also give a means of correcting any error caused by the hygrometric or other changes of the paper; on either side of the frame is a marker, which registers the time simultaneously at every half hour.

The barometer used is on the syphon principle, in the shorter leg of which is placed a float, so adjusted as to leave sufficient weight to follow the mercury. The regis-tered scale trebles the netual ebanges. The apparatus for the temperature consists of ten bent mercurial thermo meters, suspended upon a dolicate balance. The hygrometer consists of a sip of mahogany cut across the grain, which was divided as follows: being suspended from its upper end, in a cylinder filled with water, a weight of 2 lbs. was attached to its lower extremity, antij it was found, by repeated examination, to be completely saturated, and no longer to increase in length. Its whole length was then referred to an accurate scale. The slip rength was then referred to an accurate scale. The sing of mahogany was then placed beside the pipe of a stove, suspended and weighted as before, until its shortest length was obtained. The difference of the two results being earefully taken, the scale was formed accordingly. In its use it is suspended and weighted as before, in a tube placed outside the observatory, protected from the ann and rain, and has free power to not upon the indicator.

The electrometer is constructed as follows: a wellinsulated conductor is placed upon the highest convenient place, from which a wire is brought down to an insulator on the top of the observatory, and from thence to a standard, passing through another insulator to a usetal disc, between which and a spring a moveable disc is attached to n glass or insulating arm, in connection with the

tached to h game vergeistering pencil.

The electricity, in the first instance, is collected by means of points. There is n wire, connected with the means of points.

The rain-guage is placed on the top of the observatory, its receiving surface being I foot square. The rain is conducted by a pipe into a receiver inside the observatory. conducted by a pipe into a-receiver inside the observatory, and situated under the registering apparatus. An air-float is placed inside the receiver, and connected with a set of inclined planes, each of which is equal to a fall of rain I inch in depth. These inclined planes, as they pass upwards, being in connection with the indicating peucli, register the fall of rain.

The evaporating disb is an open cube of I foot square, covered with a plate of glass at such an angle as to pre vent rain fulling into it, yet allowing the air to act freely upon the surface of the water. The direction of the wind is shown by an Indicating postuli in connection with a sune. The force of the wind is shown by a surface of 1 fout square, being kept in opposition to the direction of the wind by a ware, whose proposition is the direction of the wind by a ware, whose proposition is the direction of the wind input the pressure plate, a nonoblasmon of mapended weights is ruised by a claim possing over a pulley in a line with the direction of the wind, and well proceeds from the westler. The wind, and well proceed from the westler. The keep and Indicating pencil. The scale has been determined by experiments. A Countil Medium was named to

Mr. Dollond.

1.1. pp. 423-420; sublite photographic Borona, fact he is deep registeration of the day and wet bells theremeters. It consists of two mercurist there was the mineral properties of the size and produced and produced the properties which is about most produced to the properties which is above the moreov, which we have been perfect to the properties which is above the moreovy affects the paper, period which is above the moreovy affects the paper, trace is first, strong brought may be about the properties which is above the moreovy affect the paper, trace is first, strong brought may be about the properties which is above the moreovy affect the paper, trace is first, strong brought may be about the properties which is about the more with the varying height set of the moreovy in the time. The homestage of light and the threater enflicient indication of the main register of the more placed of the more properties and the proper

exhibits similar inparatus for the variations of the reading of the barcometer. (See Illustrated Catalogue.) Newsax (No. 674, p. 468*) exhibits a self-registering anemometer and rain-gauge. It consists of a vertical rylinder, actuated by elock-work, and furnished with

paper for the consumption of a month.

GAITTER (No. 2011, p. 446) exhibite a knomuser of a reconstruction, giving the observes the power at all accounts of the power at all accounts of a table for the column of mercery, which evoke not the lety, and best at the lower part, a stap-exch and a stretcher to close the spee part of the distance of the column of mercery, and the column of the co

nir which may be above the column, and thus to insure a good vacuum.

Mr. Griffith says that no boiling of the mercury is necessary. The instrument, though not tried, and not of very careful workmanship, was considered by the Jury good in principle, and an attempt out of the beaten track to improve the instrument. A Council Medal was

a warded. No. 674, p. 464*) exhibits his well-known Kewaka (No. 674, p. 464*) exhibits his well-known few corrections as possible. The graduated response to the corrections as possible. The graduated response and to it is a fluxed a brans red, gassing down the inside of populated fivery is possible to the merceny is made of brans, and to it is a fluxed a brans red, gassing down the inside of populated fivery; this point is observation is made just to tooch the surface of the merceny in the existen, and the contact is easily search poly the welfered and serval point apcontact is easily search poly the welfered and serval point apcontact is easily search poly the welfered and serval point or to failed a paid of the search of the search well. The secks is divided to 900 isch, and the venier, where The reaction is divided to 900 isch, and the venier, to

* The principle is the same as that described in magnetical instruments, page 280.
† One large eistern will be found to not better.

which only moves by a slow motion acrew, subdivides the scale to 0.002 inch.

At the bottom of the instrument are three serews, turning in the fixed part of the support, and acting on the piece in which the lower pivot of the barometer frame turns for adjustment to verticality. The bore of the tube

is between 0° 50 to 6 of an inch' in diameter. Mr. Newman sherves that he has always found tabes boiled under atmospheric pressure to be foul, and that many betweeter made with larger token int holed look to rise to the top and depress the column. These difficulties were to be overcome before filling the tabe secondity, the bere of which measured from 0°5 to 0° 6 of an inch in diameter. Mr. Newman has adopted the next the defiding the tabe second that the column of the colu

Oscusan (No. 161, p. 429) has exhibited a standard barometer very similar in construction and workmanship to that of Newman; it loss, however, in addition a thermometer, placed in froat of it, with a hull of the same diameter as the tube, and there can be no doubt that the temperature of the two equal bulks of mercury will be the same. Vint (No. 324, p. 446) exhibits an ancroid barometer

of the usual construction. This beautiful instrument, so recently invented by M. Vidi, was rewarded by a Council Medal.

Nonzerty and Zasmas (No. 160a, p. 429) exhibits a bacometer arranged to register the lighest and lower readings. It is a plan isocounter, to the longer leg of readings. It is a plan is consister, to the longer leg of the property of the lower leg of the leg of the lower leg of the lower leg of the lower leg of the lower leg of the principal tube, and joining it at two inches from the top. The increasy flow freely in and cut of this mela, and the lower tube is placed a small piece of steet, which is kept in position by fine glass argings: as the mercury rises this piece of steet is pushed up, and remains suseriated index in the chorter leg.

Messes. Negretis and Zenden also exhibit is barometer with an air-trap plase sistem, to be read off by messas of a sliding scale, adjustable to the surface of the mercray by a fine ivery point. The tube and disters are lifered and the statement of the mercray and the statement of the statement of the statement of the statement of the statement is constructed entirely of plass. A folding harmeter is constructed entirely of plass. A folding harmeter is in the rentry, which, when folded up, earnies with it the

two valves of the tube with white it is connected. YEATOS (No. 332, p. 446) exhibits a barometer, furnished with a brass scale, terminating in an ivory point, and moveable is serew. The elstern is composed of plate-glass and iron.

Mr. Yeasie exhibits also a barometer, farnished with a registering apparant, while consists of a revolving cyline registering, and the construction of a revolving cyline is to thirty-one vertical portions, horizontally into tenths of inches, and unmoder for mail risches to 3 inches. To the revolver a possible a state to the surface of the unversely by means of a planger. Mr. Yeaste is not additionally by means of a planger. Mr. Yeaste host exhibits a third barometer, farnished with an ivery point, adjusted by a of the cistern. In those other horizonters a ready means in farnished of cleaning the surface of the mercury in the cistern care the surface of the mercury.

Sonalvico (No. 681a, p. 469°) exhibits a mountain barometer, two upright barometers, three ornamental wheel barometers, &c.

MALL (No. 6), pp. 415, 416) exhibits a meteorological clock, to which is attached a barometer and theratometer kept withrating by the clock connection, the number of vibrations in a certain time differing according to the variation of temperature in the one case, and of pressure of the air in the other; the number of vibrations is regin and thermometer are known.

TREMLETT (No. 163, p. 429) has exhibited a marine barometer in a arotal frame, with thermometer, enamelled

scales and spriogs to eleck escillation.

ELECT and Sons (No. 32), pp. 443, 444) exhibit baronacters curved in walnut-wood, the design representing the four seasons; circular carried wood baroneters similarly ornamented; Gothic carved barometers, and two

mr.y ornamented: Gottine carved barometers, and two mounted in ebony and gold. It is stated that the mercury in the tubes of all these instruments has been boiled. Bussilt (No. 673a, p. 468*) has exhibited a compen-

Bussill (No. 673a, p. 468*) has exhibited a compenatory cinere baronacter, in which, by a self-acting contrivance, the mercury is always preserved upon the same level within the cisters, unintidenced by alteration of temperature or any change in the column of mercury itself. Baows (No. 676a, p. 468*) exhibits be abrometer in ap-

pearance similar to a water-barometer; it contains two nonoiscible figuids of nearly qual specific gravities; and their point of meeting, which may be placed at any part of the scale, is indicated by one lipoid being coloured. The scale of the instrument, which is arbitrary, as 7½ feet tu an inch of mercury.

feet to an inch of mercury.

Mr. Brown also exhibits two barometers at an exceedingly low price. The readings of a similar barometer

ingly low price. The readings of a similar barouster, were taken for two montals commercing from July 15, simultaneously with those of a standard hormeter, and always found necessary to incline the instrument until the mercury filled the upper portion of the table : it afterwards decended to its proper level, though the rise at all times took place less freely on secount of the smallness than the contract of the smallness and the same proper than the same properties.

meters exhibited.

BENNETT (No. t, p. 406) exhibits barometers of an ordinary construction.

DIXEY (No. 271, p. 438) has exhibited a carved onk barometer, and an ordinary harometer. Baker (No. 616, p. 452) has exhibited two barometers.

BAKER (No. 616, p. 402) and exhibited two barometers, one of which is that invented by Mr. Brown, WATKERS and HILL (No. 629, p. 466*) have exhibited harometers of various ordinary kinds, and Professor

Potter's aerometric balance.

Girvs and KERN (No. 138, p. 422) have exhibited wheel barometers mounted according to various designate. Annaman (No. 140, p. 422) has exhibited a barometer, designed to show, without adjustment, the reading of the barometer, The scale is suspended over a pulley, by

means of a counterpoise, the lower end of the scale being connected to a float in the shorter leg of the syphon. A. H. Ross (No. 157, p. 429) has exhibited a self-compensating barometer. PIZZALA (No. 162, p. 429) has exhibited a wheel barometer, constructed with a rack-work motion. The case

meter, constructed with a rack-work motion. The case is elaborately carved in walant-wood. Grisold (No. 159, p. 429) has exhibited a pediment harometer, fitted up in a carved gilt frame.

amounter, actual para, actual para actual para several harmonters of an original resources on extension several harmonters of an original resources on. They consist of an elastic flattened tube of useful, exhausted completely of air, and bent very nearly in the form of a circle; they are in this state possessed of the property of expanding, a firster separation of the coed being effected when the atmospheric pressure is disminished, a construy or contenting offert taking place who the pressure is not contenting offert taking place who the pressure is made and the contention of the

which traveries a divided dail-plate.

The dislipshie is graduated by placing the instrument with a studied horocrete within the receiver of an associated horocrete within the receiver of an area of the place of t

Conneil Medal was awarded to M. Bourdon.

Galv Cazalat (France, No. 1230, pp. 1236, 1237) has

exhibited a manometer. The tension of steam is mea
piece of coamel inserted between the index and the new-

inced by the number of atmospheres to which in pressure in equivables, consequently, by the musther of incluse in equivables, consequently, by the musther of incluse in equivables, consequently, and the property of the pro

own. A FIME Medal wha havened to m, vasy Lexaset.
Earcason (Linied States, Nu. 146, p. 1442) bas exhibited an alarm burometer. This instrument is intended
vicinity of the helmana, begin to be placed in the
vicinity of the helmana, begin to be provided in the
when the uncreary sinks below a certain reading, a ham
mer is made to strike a going. The helmana by this
uneans receives notice of the probable approach of rough
weather, and time is afforded for the necessary precasi-

weather, and time is afford tions of taking in sails, &c.

The tota is similar to that of the commo homomer, and is much chapter at the upper od; the lower extraulty terminates in a csp, which contains mercury, and in mich chapter at the contains mercury. And of the enhancement of the toke, a slight decrease in the residing of the homomer ensures a considerable dischape truck. This discappes a hanner, which, impelled by a paring arther a pong with considerable finere. The leaves are considerable for the contained and the contained of the contained and the contained and the leaves and may be so that sorder that like given of key required reading of the homomers. The leave is matched the purpose of adjustment.

Thermometers,

SIMMS (No. 741, p. 4759) exhibits two standard thermometers, constructed by the Rev. R. Sheephanks, who, during the last two or three years, has been more or lessagged in improving these instruments. The distintance engaged in improving these instruments, and termined by Mr. Sheephanks, will be used by Mr. Ghisher in all future observations, and he believes the two instruments, or both they may be the distintance of the distint

most correct in the country.

NEXESTER and ZANEMA (No. 1604, p. 429) eshibit a standard thermosteric, which evens to be good; everally a standard thermosteric public the standard thermosteric public by the standard thermosteric public by promotery to be Begnanik hygrometers, one furnished with black glass to equip, instead of shirty edispiend to standardian; some length of the standard the st

These are the only Exhibitors in the British portion who have seat thermometers with their stems graduated, the only safe instruments for delicate experiments. A Prize Medal was awarded for the beautiful work

shown by these artists.

NEWMAN (No. GAP, 9-68%) exhibits a standard thermometer, the bore of which is attated to be a perfect equinder, having been examined by the late Capstain Kater and Professor Daniel, as well as by Coloned Schiner. In seals is dividued into half degrees; that part of the same plane as the excellent of the professor in the professor in the same plane as the excellent power is very costly, in the same plane as the excellent power in homes the errore of rending, so far as parallax is concerned, is avoided. Also, a maximum register theremometer, with a small

cury; a minimum and maximum register thermometer, with black bulbs; a Daviell's bygrouseter; dry and wet bulb thermometers; a Lind's wind-gauge; and raiugauges of different kinds.

gauges of unferror sames.

Pilling (No. 411, p. 451) exhibits a maximum thermometer, with a bubble of air, which, by separating a portion of the mereury, causes it to act as the index; an air barometer for ceal-pits; and a new electrophorus and cuver, to work without making counted by the hand.

WATMINS and Illil. (No. 659, p. 466*) exhibit a dry and wet bubb thermometer, and other thermometers of an

and wet bulb thermometer, ordinary kind.

Harms and Sox (No. 149, pp. 428, 429) have exhibited a self-registering thermometer.

Fillow r and Soxs (No. 320, pp. 443, 444) exhibit various ornameuted thermometers, and some intended for the pocket.

Bennert (No. 1, p. 406) has exhibited many thermometers; they are for the most part furnished with lvory scales; the bulbs of those furnished with box-wood scales are too large.

Dixey (No. 271, p. 438) has exhibited several selfregistering thermometers.

Baker (No. 396, p. 452) has exhibited a thermometer

for agricultural purposes.

FATTA (France, No. 301) exhibits probably the best series of delicate and necurate thermometers in the Exhibition; they are distinguished by being nearly all engraved on thin glass stems, and include exceedingly delicate dry and wet both thermometers, forganul's bygrometer, &c. M. Fattré deserves high praise for the production of these beaufful instruments, which the Jury

consider worthy of a Prize Nedal.

LUBNE (Prassia, No. 83, p. 1053). Good thermometers; divisions on glass, and some on paper.

JEAGER (Austra, No. 134, p. 1014) has exhibited
thermometerin graduated on glass, for immersion in acids.

JERKE (AUSTIS, AO. 154, p. 1014) has examined thermoneter graduated on glass, for immersion in acids. Jenuessessa and Sons (Denmark, No. 17, p. 1550) with two metallic thermoneters, of a circular form, so arranged as to show the temperature at the time of observation, as well as the maximum and minimum temperature since the previous inspection. A Prize Medal was swarded to Messra, Jurgenenes and Sons.

Anemometers

PHILIPS (No. 441, p. 454) exhibits an anemometer, designed for coal-pits and hospitals, consisting of a semicircle of card-board, graduated on its edge, and mounted on an axis passing through the diameter of the circle of which the card is the half.

Dr. HENNARU (Belgium, No. 183, p. 1157) exhibits a small travelling anemoneter, extremely well made, of a simple construction, and furnished with a series of fans, which, by a simple and effective contrivance, may be stopped or set in action almost momentarily. It is intended chiefly to determine the horizontal velocity of the uir in a given time. To this exhibitor Honoarable Mention was awarded.

Rain-Ganges, Physics (No. 411, p. 454) exhibits a rain-gange, open

at the top and four sides, prepared to show not only the fall of rain received on a hormontal surface, but also, by a simple calculation, to ascertain the inclination of the path of the drops and the direction of the rain. The Jury have swarded Hosomarbie Mestitou to Mr. Philips, Watains and Hill (No. 659, p. 466) exhibit Crossley's self-registering rain-granger.

self-registering rain-gauge.

Bases (No. 396, pp. 451, 452) has exhibited a rain-

Pyrometers.

Encasor (United States, No. 146, p. 1443) has exhibited a pyrometer, an instrument for measuring temperatures from the freezing point of router to the melting point of iron, as indicated by the tension of a pernament volume of air or azote, which is measured by the resiling of a column of mercury under a vacuum. The instrument is designed to meet the requirements of the artizon in all works which involve the application of great heat, and

are dependent for success upon an evenly regulated temperature. In the formation of the scale, 32 and 212's have been respectively taken for the points of freezing and boiling water.

The instrument is composed of the following parts:—
A chamber containing mercury, with a flexible bottom, composed of a steel spring, or India-rubber held between steel plates, which may be raised or lowered by means of a serew. Into this chamber a glass tube filled with mercary in planged to within one-attacent of an inch of the

lower. The waveraid citiers a short glast side is intered, because of which has been of which it is early filled by a silver wire, and a base of which it neutry filled by a silver wire, and a worker-deed. A configuration and the silver is the base of which is the silver in the second of the silver in the second of the silver is the silver is the silver is the silver in the silver is the silv

of the medium in the platina hulb.

The graduation of the smaller of these scales reaches only to 700°, but that of the larger is extended to include the melting point of iron. A spirit level for placing the instrument in a vertical position completes the adjust-

It is to be remembered, that the graduation of the scale is independent of any imperfection in the bore of that tube, and is not affected by the expansion of the bore from heat, the volume for measuring which being permanent and not expanding, affords greater accuracy in the readings at high temperatures.

The pyrometer comes into action where the thermometer ceases to be effective, the air or anote in the bulb of the former canhling it to remain unchanged nater extreme variations of semperature, whilst the latter explodes on being thrust into an ordinary flux or vessel of over-hearted lend.

WERM (Austria, No. 137, p. 1014) has exhibited a pyrometer. The instrument is composed of a strong and pyrometer. The instrument is composed of a strong and stretched a moderately strong gains as stretched a moderately strong gains. Stretched a moderately strong gains as with an index in the handle, so arranged that the view (teling always kept in a state of tension by a spring or otherwise), when relaxed by expansion, shifts and marks the amount of extension.

The whole frame being introduced into a furance or oven, the wire acquires instantly the temperature; the massive frame much more slowly. Relative expansion of the wire therefore takes place, and when this has attained its maximum the index is read off.

The instrument exhibited is adapted to ovens, &c., and is of considerable dimensions.

Tide-Games,

Hervitson (No. 12a, p. 489), eshibits a self-esting and effecting and effecting arting the long, every part of which dusplay, see extracting the long of the control of the long of the lo

The instrument is also furnished with a system of wheels, by means of which the depth of water is shown an a circular dial; that placed at the mouth of the Tyne is illuminated at night, and can be seen at a great distance

The instrument is elegant in appearance, and seems to be perfect in its action, and is the only one which shows

time and tide by separate dials. A Prize Medal was awarded to Mr. Hewitson. Nzwana (No. 674, p. 468*) has exhibited a self-regis-tering tide-gauge. This instrument consists of a metal of Bode 70 feebast in mourth and it. cylinder 30 inches in length and 8 inches in diameter, cymoser 39 license in length and 8 inches in diameter, moved by a clock, and performing one revolution in 24 hours. A pencil moved by a float is suspended by an estiless chain, and maintains always the same howancy. The pencil attached to the chain is carried over two sylinders, one of which contains a spiral sping, and is so contrived, that the marking of the change of title is im-mediate. On the face of the clock is shown the height of measure. On the face of the clock is shown the height of the tide at the time of observation. It also registers the highest and lowest for the day. The papers require replacing every furtnight, and the pencils used are

reparency exect money. The control is a given number of links, the ends not soldered tegether, which in its progress downich are not soldered tegether, which is not progress loops over the spikes in the burrel; this method will do not line; but as the links cannot keep all of the same kength, it is probable that some will not catch, but the control is not catch.

Acoustics.

HERRS (No. 615, p. 476) exhibits a pulpit, to the reading-desk of which is attached a receptacle for collecting sound, to which a gutta-perein tuning is connected, in-tended to be carried under the floor, or otherwise, to the pew of the deaf person; the terminal of the tube, which is intended to be applied to the ear, is of ivory,

REIN (No. 629, p. 477) has exhibited several instruments for acoustic purposes; one of these may be worn without being seen, is adapted to the shape of the ear, and requires no spring. The power is great in proportion to its small size, the entire length of tube being 8 inches, Another acoustic contrivance, which may be worn as a

lady's head-dress, without being seen.
Also a new promoter of hearing. The great fault in
instruments of this class has hitherto been the concentra-

tion of the sound in one ear only; so that, whilst the sound was much increased in loudness, it remained, if possible, still more confused and indistinct. To obvinte this inconvenience, Mr. Rein designed this contrivance. which is to be worn on the head, and is adapted to both cars: by means of it the faulty car is called into equal action with the healthy one. When worn by ladies, it

nay be quite concealed by the hair,

An acoustic chair. This is so constructed that its
power hy reflection is doubled to either ear, and may be used at pleasure for one or both cars. In the latter case the power is fourfold. The chair is rendered acoustic by the arms being made hollow, and terminated by a design suitable to the free admission of sound, which is conducted to the ears of its occupant, by two small tabes, projecting from the issuer side of the back of the chair.

An acoustic wase, designed by its construction to collect the sound from all parts of the room. The vase being

placed on a small table, the attachment of the tube is skilfully concealed beneath the table through which it is Inserted; contrary to other contrivances for the same purpose, it is not trumpet-shaped, and in its appearance does not resemble an acoustic instrument.

All acoustic instruments hitherto made, partake more or less of the trumpet form; and all agree in one respect, viz., that the mouth or orifice for the reception of sound, is bounded by a line, generally circular, every point of which is in one plane; and, therefore, it is necessary that the voice of the speaker should be directed as nearly as ossible at right angles to this plane. Some instruments ave been made consisting of a large metallic receptacle for the sound, with a long flexible tube attached to them; for the sound, with a long flexible tube attached to them; hut they are very unsightly objects. The vase above de-scribed differs from these in the following particulars:— lst. That the orifice for the collection of sounds is arranged on a circular plan, so that when the instrument is placed un n tuble in the centre of a room, the deaf person can hear speakers in any direction with distinctness proportionate to his degree of deafness, or the tone of voice used by the speaker.

2nd. That it has not the appearance of being an acoustic instrument. 3rd. That it may be used as a flower vase. It is of

course furnished with a flexible tube for the purpose of conveying the sound from the vase to the ear.

Mr. Rein has exhibited more than one design of the

acoustic vase, several acoustic bells, also an acoustic walking-stick, which may be applied to either car, without being recognized as an acoustic instrument, Several portable telescopes, adapted to various degrees

of deafness An acoustic instrument, or "Social Companion," to

comble any number of persons to converse with one who is deaf, and requiring no change of place.

A conical and flexible whispering tabe, so constructed

that extremely deaf persons can distinctly hear and hold conversation even when spoken to in a low tone of voice A whispering tube, and car-caps or reflectors, which lust may be worn without a spring.

WATKINS and Illed (No. 659, p. 466*) exhibit a

syrene; an instrument used in acoustics for demonstrating the production of a musical sound by a succession of musical impulses. The invention of M. Cagniart De La

Planimeters.

Sang (No. 333, p. 448) has exhibited a planimeter. The peculiarity of the construction consists in the product of the ordinating lines being given by the motion of a disc over the surface of a cone, justead of over a plane, hy which means, the motions representing both the ordinates may be taken directly from the motion of the tracing point. In the Tuscan instrument the motion which represents one of the ordinates is conveyed through a ruck and pinion, and in those of Swiss and German construction, through a hand and pulley. The arrangement of Mr. Sang is designed to obviate the shake necessarily canned by the teeth of the rack, and by the clasticity of the band of the pulley.

The parallelism of the instrument is trusted entirely to the simple rolling of two heavy wheels over the paper, This is rendered more certain in the foreign instruments by the rollers working in guides as on a milway. All, llowever, appear free from any tendency to divergence in

Mr. Sang's instrument possesses a practical advantage in the readiness with which it may be placed at once on a drawing of any size.

The error contained in the results given by instruments of this class generally arises from the shaking or elasticity of the parts which connect the index with the tracer. This error in practice may be easily corrected by mensuring the figure twice; at one time placing it so that the suring the figure vince; at one time passing it so that the shortest hreadth is represented by one of the motions, and at another, so that the longest hreadth is represented by the same motion. The average of the two results will be very nearly the trath. The Jury considered Mr. Saug as well deserving Honourahle Mention.

Gonella (Tuscany, No. 70, p. 1298) has exhibited a planimeter. All, or very nearly all, the planimeters, of which the Exhibition contains several, turn upon the mechanical integration of the differential expression for the area of a curve traced on a plane surface, and are most readily conceived on that old and now almost forgotten view of the differential calculus, which regarded the difyew or, toe differential calculus, which regarded the dif-ferential of a magnitude as a measure of the vehecity of its increase at any instant. Suppose a straight line to be carried with a uniform motion along the bose line (or nahesissa as it is termed), of any carrillment area, remain-ing always paraille to itself and perpendicular to the base line; and that, during this motion, a moveable point in the line so carried is kept always on the circumilerence or boundary line of the area. Then it is clear that the relocity of increase of the area will be proportional to and therefore measured by the length of the ordinate, or point of the movemble line included between the base line and describing point.

Suppose, again, that a circular disc or wheel can be made to records with an angular selective, a laway proportionate to the same ordinate. There will the total angle more than the same ordinate of the same selection of the necessary with the currilinear area, and consequently be always proportionate to and a measure of that area. The area, therefore, may be in effect or off giapon in circumnumber of revolutions and parts of a revolution made by the way of the same parts of a revolution made by this waked, which may be called the integrating wheel, due,

If a circular disc be made to roll (whether by rackwork of prefection) upon a tine parallel to that on which its work of prefection upon a tine parallel to that on which its nufferm. Supposing then a racket bar, parallel to bacissan, and unrapable of motion in the direction of its length, to work into a toothed wheel out the axis of steps is uniform. To convert this uniform angular motion into whose this motion of its center parallel to the allocation. To convert this uniform angular motion is into problem of planningers not operative, is, therefore, the problem of planningers not operative.

If the eireumference of two circles, whether in the some or in different planes, be so connected, either by teeth, as in ordinary wheel-work, or by mutual friction and adhesion, their augular velocities are inversely as their radii; so that if the radius of one of them be constact, its angular velocity will be directly as the radius of the other. Any disposition of the parts of a mechanism then, which shall seenre the condition, that a roller or rolling disc shall be carried round on its centre by contact with a uniformly revolving eircle of a radius, always equal to the length of the variable ordinate, contains the solution of the problem. The uniformly revolving disc may be horizontal (that is parallel to the surface of the area to be measured), and the integrating roller at right angles to its plone, having its axis horizontal and parallel to the ordinate as directed to the centre of the disc. the construction adopted by Gooella and Gaspar Wettli, or it may be perpendientar to the horizon, being no other than the transverse section of a cone whose vertex lies in the abscissa of the curve, and the radius of which section is therefore proportional to the distance from the vertex, or to the ordinate. This is the construction adopted by Sang (No. 338); but it is only justice to Mr. Gonelia to state that this construction is expressly indicated and figured in his original Memoir on the Plans-incter, which carries the date 11th June, 1827, in which there will be found a full account of Mr. Gouella's instrument, and a very elaborate (though unnecessarily complieated) exposition of its theory, and to which we therefore refer for the particulars *

A very great awing in the expenses of econopatation in the reduction of local surveys, to give the areas of diatriets, parishes, estates, and fields, as laid down in maps, has been found to result from the me of these instraments, where indications are smillicient for all practical uses; † A Council Medal was awarded to Mr. Goegel.

Let of Testace, No. 367), has exhibited a phasimeters in which the area of palma, supposed to counts of triangle, is first reduced, by geographical counterfeitings, to any right-stagder transport. On a rectungly of either perhation produced to the produced of the continue to an obsesse contained for such, shall change from hyperfeits to hypelosh by a constant increment. The extremity of one side contained for such all the hyperfeits of the produced common center of all the hyperfeits, and that side with the asymptote, the opposite angle with of necessity fall to one or between two adjected ones of the hyperfeits, and

 Opuscoll Matematici, &c. &c. &c. Di Tito Goonella, Professore di Matematiche Nell I. E. B. Academia Della Belle Arti di Firenze, Fisti.
 † Tracing with a pen dipped in dilate sulphurie acid.
 proper of a professor and priferen historiess by the aid of proper of a professor.

† Tracing with a pen diqued in dilate sulphuric acid on paper of a moderate and uniform thickness by the aid of transmitted light, and weighing the portion cut out by the currenties acid on of the acid on exposure to heat, will enable any one to extemporize a planimeter, following the most intricate details of outline, not giving the total area with a very considerable approximation...J. F. W. its area (or its double) will be therefore expressed by the ordinal number of the hyperbola, or the nounber of the lowest plan or proportional part for the distance between that and the angle, as compared with the interval between the two consecutive ourse.

This instrument, termed an "olarithme," is intended for the use of persons regarded to geodetical operations, and it offers a simple and ready means of necessing the surface of any portion of a plane. The Jury awarded Honourable Mentios.

Warria (Switzerland, No. 84, p. 1072,) exhibits a (Goldschmidt's) plantimeter, for necessiring the area of any plane figure, by the simple operation of drawing a tracing point round its periphery, the area being indicated by the divisions of a cirple, wheh is fixed.

plane figure, by the simple operation of drawing a triering point round its periphery, the area being indicated by the divisions of a circle, which is fixed.

The disc is of glass, covered with paper, and receives the movement of rotation by suitable and simple mechanism. The results obtained by this instrument have been found to be correct within 1-1000th part of the area. The Jury awarded a Prize Weldal.

AUSTRED (Hollin, Prinsia, No. 704, p. 1089) exhibits a planimeter, consisting chiefly of a soull rofler, moving npon a horizontal disc. The instrument is well conceived, and tolerably well carried out. The Jury awarded Houourable Mention.

Dynamometers,

Taxasses (Proce, No. 106, p. 119%) has exhibited a dynamouric, adopted for the measurement of very great symmetry, adopted for the measurement of very great such as the princip to be best, set is teightway, or realest in the direction of the currous tangens of a stream or a first dark of the currous tangen of a stream or being proceed to by the driving power, the other inserval and grid angles into a strong realist are measuring from the circle, and by compression are readered more course, the circle and by compression are readered more course, the circle and by compression are readered more course, the circle and the compression of the circle and before properties and through the medium of a third about the state of the circle and through the medium of a third about the state. A cylinder of farms serves as on index, and robot off a section of the circle and hard which the gandanties in so executed as to indicate the power accessive plotter in the additionance this pratice, and the course of the course of the course only for heavy supplies work. A Council Medial to availed to M. Tartiere,

M. Clair has also exhibited the model of a feedmotive fire-engine; a vertical section is also exhibited upon a large scale.

Dr. Hyron (Austria, No. 130, p. 1014) has exhibited a dynamograph. This is an instrument not unlike Regnier's, with the addition of a piece of elock-work, regalated by a flow, which can be set in motion or stopped at
pleasure; it earries a peneil along the index of the instrument, recording at any moment the position of the index
on a piece of paper stretched beneath it. Honourable
Mention is awarded to this exhibitor.

CAZAUX (Netherlands, No. 89, p. 1147) exhibits a dynoncostater, intended for use as a dynamometer for ploughs, but applicable to the measurement of other strains, and to fail.

furnished with a chronometric controller. It consists of two levers fixed to an iron frame, which mutually act on each other by a joint; to one of these the plough is attached, and to the other a counterpoise which constitutes one of the factors for the measurement of power, as it changes its position with a change of strain, which

changes are marked as the lever moves. The chronometric controller consists of two watches provided with seconds-hands, one of which is unaffected by the pull, and merely indicates ordinary time, whilst the other is acted noon by the varying position of the lever, in such a manner that its rate per minute varies with the varying strain, and is self-registered. By this means all varying resistance is recorded, such as is experienced in the towing of a ship, &c., cases in which the ordinar dynamometer acted upon by means of a spring, is found

Crystallography.

Lezzon (Class I., No. 8, pp. 120, 121,) exhibits a very beautiful collection of crystals; the apparatus for illus-trating the crystallographic speculations poblished by Dr. Leeson, in the third volume of the Memoirs of the Chemical Society; a double-refracting goniometer; and numerous models of crystals. A Prize Medal was awarded to Mr. Lecson

It is difficult to understand why the remark "rect gular" is annexed to a model labelled antimony. guar is annexed to a model latelled antimony. For according to the independent observations of Marx, G. Rose, M. Zippe, and Haidinger, antimony crystallizes from fusion in a form, the faces of which make, with each other, angles differing nearly two and a half degrees from a right angle.

MITCHELL (Class I., No. 9, p. 121) exhibits a collection of crystals: some very beantiful card-board models of crystals, in which the faces of each have a distinctive colour, as in some of the plates of Tennant's Mineralogy, and are marked with symbols according to the notation

adopted by different crystallographers.

Also some very incensorsly contrived skeleton models. showing the ontline of all the simple forms of a crystalline species, referred to the same axis.

Other models, some to illustrate theoretical views, are exhibited by Mr. Mitchell, according to which, the simple cannoted by Mr. Mitched, according to which, the simple forms of crystals of any system may be derived from those of a crystal of the cubic or octahedral system. A Prize Medal was awarded to Mr. Mitchell.

LUBRE (Pressis, No. 83, p. 1053) exhibits an extremely ood collection of models of crystals, selected by i. Rose

G. Rose.
Schröding (Grand Duchy of Hesse, No. 77, p. 1129.)
schibits models of crystals, described in Kopp's "Einleitung in die Krystallographie," on a large scale, which are probably the best-executed models that have yet been under he also exhibits various models of geometric solids, which appear to be as well executed as the crystals. A Prize Medal was awarded by the Jury to Professor Schrider.

BATKA (Austria, No. 135, p. 1014) exhibits some very good models of crystals in glass. BERTAUD (France, No. 1549, p. 1251,) exhibits models

Drawing Instruments.

Variet and Son (No. 257, p. 436) have exhibited a graphic telescope and table; also a small graphic stand,

The telescope is furnished with a variety of powers, and affords every variation of size in the object to be traced, which may be sketched to the true perspective

distance of the picture on which it is to be placed.

The field of view is large, but the picture may be extended by moving the telescope, and shifting the paper, there being a means of applying correction, if necessary. The paper or drawing surface may be placed in any convenient direction, and inclined at any angle, the instrument affording facilities for delineating objects in all sitions, whether overhead, on the floor, or right and left The image can be adjusted with equal precision at what distance sever the eye may be removed from the paper, and may also be reversed, for lithographic purposes.

This instrument has assisted in the production of the great " Panorama of London, as seen from the top of St. Paul's," at the Colosseum, in the Regent's Park, and in that of Corfu, the coloured sketches for which, on a large scale, were made by the late Joseph Cartwright, Esq.

The graphic telescope is designed to afford assis ance to artists, architects, and draftsmen, by presenting to the eye a correct image of the object to be traced, in any

direction and of any size required.

In order to trace telescopic images, great steadiness and portability are required. Both these requisites appear to be combined in the graphic table exhibited by Mr. Varley, The framework is so constructed as to be extremely light and steady; the joinings are made with hinges, from which the pins may be removed, and the instrument packed into a small compass. The table itself is supported upon a braced tripod, and admits of adjustment uton any surface, however irregular; it can also be supted at any angle.

ELLOTT and Sors (No. 320, pp. 443, 444) exhibit a fine magazine case of drawing instruments, inclusive of all the recent improvements; the two trays with which it is furnished, and the interior of the lid contain metal rulers, sectors, triangles, ivory sectors, parallel rules, pocket rules, a graduated joint for taking angles, &c. The metal sectors are well divided, as are also those made of ivory. In the drawers is a complete set of which is in colours. This set of instruments, the case of which is in colours. colours. This set of instruments, the case of which is in itself a fine piece of workmanship, was rewarded with a Prize Medal.

The same exhibitors have another case of instruments, of good workmanship, and highly ornamented by engrav-ing and chasing. They exhibit also various sets of ivory ing and chasing. They exhibit also various sets of ivory sectors, divided from 10 to 100 to the inch, and ivory parallel sectors, capable of being used on both sides, with divided edges both sides. They also exhibit a small in-strument called an opisometer, intended for measuring the length of curve lines. It consists of a small roller, which, having been passed over the lines, is made to perform the same number of revolutions over a scale.

PILLISCHER (No. 269, p. 437) has exhibited an ellipto-graph. The principle upon which this elegant little instrument is made to describe an ellipse, is that of a point instrument is made to describe an empse, it canson a point revolving in a circle about a centre, with an angular velo-city the double of that with which the centre revolves about a fixed centre. The cogs on a movemble bar, and wheels of the instrument are so arranged that the short arm which holds the style performs 100 revolutions while the long arm performs one. By varying the relative drawn. The semi-major axis of the ellipse will be mani festly count to the sum of the two radii or arms, and the minor axis equal to their difference. A Prize Medal was awarded to Mr. Pillischer

Sixus (No, 741, p. 475*) exhibits an isometrical ellipto-graph. Invented by G. B. Airy, Esq., the Astronomer Donson (No. 323, p. 446) has exhibited many well-made

sets of drawing instruments, so far as could be seen through the glass case, which was never opened for the examination of the Jary. TREE and Co. (No. 324, p. 446) have exhibited some

well-made drawing instruments, with many accurately divided scales for different purposes. The Jury swarded Houourable Mention PABBE and SONS (No. 337, p. 448) have exhibited well-made drawing instruments, and several well-divided scales. DIXEY (No. 271, p. 438) has exhibited several mathe-

natical instruments, amongst which is a divided ivory rolling parallel rule. HAGGARN (No. 328, p. 446) exhibits a double pro-

tractor, intended for measuring angles, and determining heights and distances. Gaanax (No. 355, p. 449) exhibits an ivory rule, one foot in length, and an inch and a half in breadth, for the purpose of exhibiting by inspection the circumference of a circle when the diameter is given, and vice versa, and for

showing the side of the square equal in area to that of a circle, whose diameter or circumference is given.

One side of the rule contains three lines extending its

whole length, the upper side of each being divided into 100 parts. The under side of one is divided into 315 parts, 314 of which are equal, the remaining part being equal to 0:16, and the relation existing between the divisions above and below, the lines being that of the diameter to the circumference of the circle.

The under side of the second line is divided into 89 parts, 88 of which are equal, the remaining one equal to v623. On the diameter of a circle being given, on the upper side, the side of the square whose area is equal to that of the eircle of that diameter, is read at the same point on the noder side.

The under side of the third line is divided into 283 parts, of which 282 are equal, and the other is equal to 1005. The relation existing between these lines at the same point, is that of the creumference of a circle on the upper side, to the side of the square (to one place of decimals) equal in area to the area of the circle. The reverse side of the scale is occupied by seales of

equal parts.

It is noderstood that Mr. Graham has arranged other lines, shawing the relation existing between the area of the circle when the diameter is given; and another giving

the area when the circumference is given.

Marrians (No. 1986, p. 4.4) exhibits an antrament for Marrians (No. 1986, p. 4.4) exhibits an antrament for a superior of the property of the

Honse, Thonsersusarri, and Woop (No. 230, pp. 434, 435) exhibit Tebay's universal planing-rule, the northconsisting in the arrangement of the division of the odd and even scales; by continuing the graduation to the edges, the necessity of making use of dividing compasses is obviated.

GATABLE TRANSC. No. 205. p. 1197) rabible imported protestips the importments, which costs principally in a better arrangement of the studying weight of the protesting that the protesting of the studying weight of the amount of the contract of the studying weight of the protesting of the studying that the protesting that the protesting that the protesting that the studying the studying that the studying the studying that the studying the studying that the studying the studying that the studying that the studying that the studying that the studying the studying that the studying that the studying that the studying that the studying the studying that the studying the studying that the studying the studying the studying that the studying the studying that the studying the studying the studying the studying the studying that the studying the study

workmanhip, and an instrument for driving from matter by mechanical means. A telescope with a cross wire in its focus is suspended in a junhal frame, near the eve, and so as to keep the position of the eye nearly fixed. It is so balanced and so lightly hung as to allow the most perfect freedom of mution, and the cross of the wires being carried along every part of the outline of the object.

The object and of the tokenope is suspended over a pulsey on severidal appeart, by an lift supiley on survival appeart, by a result for which is conpulsed to a reverside appearance of the pulse of the pulse of the normal hars to a possible-boller ridding out the law. Thus any movement law few reversid direction is reserved on appear, appearance of the pulse of the pulse of the pulse of the appearance of the pulse of the pulse of the pulse of the amounthment. As specimens of its performance are easily of most deliction excessed, and of the wide pulse of the complexity; and served or confirms, in literatures of the interior of the Palace of Versaille, with its rich and facility and delictory. Such are executed with equilibrium.

By adapting a microscope instead of a telescope to the jimhal frame, the outlines of a microscopic object, as of an insect, wood section, &c., can, in like manner, be traced with perfect fidelity, and on any scale. Hononable Mention was awarded to M. Gavard.

LUTTIG (Prussia, No. 81, p. 1053) exhibits several cases of well-made drawing instruments, some in German silver and some in brass. The Jury awarded Honourable

Mention to M., Littig.

REFIRES (Boxaria, No. 34, p. 1100) exhibits a case of drawing instruments; and Honourable Mention was nwarded by the Jury for his new method of fixing the two parts of a compass together by means of plane surfaces with steadying pins and srews.

Homera-Esser (Switzerland, No. 81, p. 1272) has exhibited drawing instruments, distinguished for the care with which the most minute details have been fluished. A Prize Medal was awarded to this exhibitor.

A Prize Medal was awarded to this exhibitor, Grss (Switzerland, No. 83, p. 1273) has exhibited drawing instruments. The remarks applicable to the preceding exhibitor, apply equally to these, and it may be observed, that the steel used by both exhibitors is of the finest quality and extremely well tempered. A Prize Medal was awarded to this exhibitor.

Medal was awarded to this exhibitor.

Kerm I Switterland, Nos. 88 and 92, p. 1272) exhibits
some well-made drawing instruments, which, in common
with those of the Swiss exhibitors, are made in different
parts, which can be readily separated and cleaned with

The Common Commo

with those of the Swiss exhibitors, are insule in unferest parts, which can be resultly separated and cleuned with ease. The Jary considered Mr. Kern as deserring Husourable Mention. Results of the Swiss (Russis, No. 169, p. 1372) exhibit a full set of twonty-served drawing instruments, comprising elven different articles is inches in length; a set comprising ten pieces of 3 inches in length; a set comprising ten pieces of 3 inches in length, and monnted in silver.

monneed in silver.

The following drawing instruments are exhibited monnted in brass: a full set of twenty-four pieces; a set of eleven pieces 5 inches in length; and a set of ten pieces 3 inches in length.

The following pocket instruments are eshibited:— Polking or silver-mounted compasses; brase compasses in silver shouth! compasses; brase compasses in silver shouth! und several atther compasses mounted in short, come framished with pencil tubes, and mostly folding up. All these instruments are well made, and include the recent improvements; they deserve very illonourable Mention.

Virking (Sweden, No. 14, p. 1550) exhibits two small

cases of drawing instruments, containing each a protracting semi-circle, a pair of large steel pointed compasses, two smaller for steel peas on exchangeable penell points, and a sited railing peo. They are very nearly made.

LATTAM (Nurway, No. 15, p. 1350) is stated in the contract of
NIETZCHEANN and VACCANI (Prussis, No. 706, p. 1089) exhibit many sets of drawing instruments, of an exceedingly low price. The Jary awards Hononruhle Mention for cheapness.

ROCHETTI (Anstria, No. 136, p. 1014) enhibits a case of drawing instruments of sinteen pieces, compasses, &c.,

of brass and steel, of very elegant construction. There is no prometer, ruler, or scale.

Prancom: (No. 318, p. 443) has exhibited registered screw and stiffing helecomynib for draw sing volutes, serold work, and spirits of varions kinds. The outline may be the discoming the standard proper, either with into or possell by the shiding beliecograph. For a description of these delivers and well-constructed instruments see the Illustrated

Catalogue.

A Prize Medal was awarded to Mr. Penrose.

Orreita, Plausturiuma, and Autrosonical Mechius. It is a matter of regret that the time and ingenuity which have been devoted to the soweral machines of that class in the Exhibition, have not been better directed. Those exhibited do not indicate any improvement over the many which have been converged in the control of
nd. The time, ingenuity, and expense, devoted to machines of astronomy, and the erroneous impressions which they give are always displeasing to the cyn of the astronomer. If they be of any use in the lecture-room to children and novices, certainly Facy's vertical orrery is the best adapted for this purpose.

Orreries

Fact (No. 195, p. 431) has exhibited a vertical orrery, showing the relative periodic times of the planets. A cornet's orbit is also introduced which extends from within that of Mercury to some distance beyond Neptune. The Jury voted a Prize Medal to Mr. Facy for the ingenuity displayed by him in the construction of this orrery. Newron and Son (No. 212, p. 434). An orrery, show-ing the motions of the earth and moon, the planets and their satellites. The mechanism by which these several morements are perfurmed is actuated by clock-work. They exhibit a smaller orrery, constructed on the same

principle, but showing only the motion of the earth and BIOOR.

PLANT (No. 215, p. 434) has exhibited an orrery, the san being represented by a luminous body; the seasons, phases of the moon, and other natural occurrences are clearly shown. It may be used to the greatest advantage in a darkened room, when the sun of the orrery will best show the various changes attendant upon the different

motions of the several bodies.

Planetariums.

Nawton and Son (No. 212, p. 434). A planetarium for educational purposes, intended to show the diurnal and annual motion of the earth and moon, also the respective annua motion of their satellites. It is exhibited for cheapness.

Le Frover (Jeney and Guerney, No. 10, p. 941) has
exhibited an orrery; it is designed to show the motion of
the moon around the earth, her daily variation and position at the time of new and full moon, also to exhibit the cause of eclipses, either partial or total. It is intended for the use of schools.

MASSETT (Switzerland, No. 95, pp. 1272, 1273) exhibits a planetarinm of an extremely sample construction, in which the motions of the sun, the earth, and the moon are shown. It is remarkable for its cheapness, and Ho-

nourable Montion was voted by the Jury.

Mollison (No. 585, p. 475) has exhibited a pedestal planisphere. The places of the stars being perforated, when the instrument is held up against a light back. ground, they appear as luminous points. It is 20 inches

ground, they appear as instances points. It is 20 inches in diameter, and designed for educational purposes. Braxir (No. 354, p. 449) has exhibited the model of an instrument called a Periphan, designed for the simple cluddation of solar and lunar phenomena. It is furnished with a terrestrial globe in the centre, and is intended to describe the apparent dinrual motions of the sun and moon, also the daily increase and decrease of the sun's declination, and to determine the time of sunrise, at any place on the globe; the causes of the harvest moon, &c. The model is in diameter 5 inches, which is about a third of the proposed size. It consists of a fixed meridian circle graduated on both sides; on one similarly to the bruss meridian of the common globe, and on the other to show altitudes; a horizontal circle, showing the zodiac signs, &c.; a terrestrial globe, placed in the centre of the sphere, which turns freely on an axis; two small pen globes, to represent the places of the sun and moon, and which slide on circular wires; these wires themselves turn freely in their bearings. This instrument shows turn freely in their cases, and setting at any place exterior to the frigid zones, and various other phenomena of an analogous nature

MATTHEWS (No. 193, p. 431) has exhibited an Astro-MATHEWS (No. 193, p. 431) has exhibited an Astro-rama. This is a concave representation of the heaven-upon n small umbrella, which opens and closes at plea-sure. The material with which it is covered in perforated to show the places of the larger stars. MALLOCK (No. 208, p. 443) has exhibited a mechanical

indicator for teaching geography. This is a contrivance for rendering purely mechanical the acquirement of the first rudiments of geography. A map is mounted upon a lawn.

of this kind, are wasted; they are of no use to the student light framework, a few inches in depth, to permit the studs to work freely. These studs themselves represent cities, towas, &c., on the map, beneath which is placed an index giving the name of each place thus represented. sides giving the name of each place thus represented.
On the same line with the printed same is placed a moveable stud. By keeping down one of the studs on the
surface of the map, a corresponding one in the index instantly rises, the printed name beside it giving tha This is an invention of Mr. Malloch's. The model

which he has exhibited is, he considers, espable of still further improvement. Mr. Malloch also has exhibited a mechanical indicator of eclipses.

Munrous (No. 202, p. 431) has exhibited an eclipse indicator. This is a circular table embodying by the motion of a circle of months on a cyclo-circle, with intervals of 18 years 11 days, the actual results of a previous calculation of the moments of conjunction, both for lunar and solar eclipses from 1647 to 2001. The rules given for setting and reading off the circles being adhered to, the precise moment of the ecliptic conjunction and other partienlars are obtained.

RYLES (No. 190, p. 431) has exhibited an apparatus for showing the chh and flow of the tide. Nawton and Son (No. 212, p. 434). An armillary sphere, mounted on a brass meridian and attached to a brass stand.

ZISKANATE (Austria, No. 132, p. 1014). A chrono-globium and planetarium, a fist board on which are irramed the orbits of Mercury and Venus. The earth and moon are attached to a small rolling carriage, as described in M. Guénal's instrument, by which the rotation of the earth and the phases of the moon are represented. Mars is also made to revolve on his axis by a similar contrivance, viz., by establishing a rolling drag on the orbit.

Dixx (Austria) axhibits a globe of the carth, about five inches in diameter, within a glass sphere, on which are placed the fixed stars. The positions of the sun and moon are marked at any given moment by a simple

RICHARDS (No. 188, p. 431) exhibits a "geographical instructor," a piece of mechanism in which the san (represented by a gilt ball clevated on a wire) is presented vertically, to every point of the earth between the tropics, by a compound movement of rotation on a horizontal axis, the revolving ball being pulled and pushed along it, by a movement to and fro corresponding in extent to the time of the sun's declination at the moment. The law of this movement is given by a train of clock-work, of which one peculiarity is the prolongation of the axis of which one pecuaianty is the protongation of the axis of the globe into a very long pinson, so as to allow the tech of the driving-wheel to act upon it, however far displaced from a mean position. Another, that of the communica-tion of the rotary motion from the primes solite by a book-jointed axis; the to-sand-from motion of the phinon

prolongation of the axis not allowing the cover-work be centrically placed in some point in that direction. DETOCKEE and HOUSE (France, No. 1589, p. 1253) exhibit a uranographic apparatus (erroneously described in the Catalogue as a monographic apparatus); it con-sists of a table about six feet in diameter, in the centre of which is a lamp representing the sun. The earth with the moon attached is carried round on an arm, by a piece of clock-work, the primum mobile of which is not a spring, or any internal power, but the roller on which the mechanism rests, and which revolves as the earth is carried round on the table. This, by a train of wheel-work, communicates to the earth its diurnal motion, preserves the parallelism of its axis, and gives to the moon all the movements imitative of real ones. This mechanism is the invention of M. Guénal.

Diolling.

Newron and Son (No. 212, p. 434) exhibit a spherical snn-dial. The hour is indiented by menns of the shadow of the pole or axis of the sphere being made to full within side of the zodiacal belt, on the outside of which the signs of the zodine are depicted. This is well adapted for a The articles exhibited by Mr. Newton are distinguished by eheapness and good finish generally. LAWBENCE (No. 115, p. 418) exhibits a sun-dial applicable to all north latitudes.

ELLIOTT and Sons (No. 320, pp. 443, 444) exhibit a spherical sun-dial, Dannell (No. 383, p. 451) exhibits an universal sun-

DARNELL (No. 383, p. 451) exhibited a portable instrument for ascertaining correct time by equal altitudes of

the sun.

UHLMAN (Netherlands, No. 83, p. 1147) exhibits an
equatorial sun-dial made of copper, furnished with a
moverable bour, minute-hand, &c., which, by suitable
nechanism and a less, may be made to discharge a piece
of ordance at any time required.

Globes,

Journeyrox, A. K. (No. 188, p. 431), has exhibited a terterital globs, join-less in diameter; it shows the geoogical structure of the earth, indicates the currents of the air, trade winds, monuscus, 6c; Jaso the currents of the cocun, trade routes, and inothermal lines, or lines of equal Davidson, or Elbihardy, his carryed in walmst, and is of claborate and elegant design. A Prize Medal was awarded by the Jury for this globe.

Newton and Sox (No. 212, p. 434) have exhibited a large manuscript celestial globe, 6 feet in diameter. The positions of the stars have been laid down from their positions as calculated for the year 1860.

Several pairs of globes, ranging in size from 12 inches to 25 in diameter, variously mounted in different materials,

rials,

A glass case, containing several small-sized globes, varying from 1 inch to 9 inches in diameter. These are all differently mounted.

A pair of 12-inch globes are exhibited for economy of construction and improvement in the manner of mounting; the pole or axis of each globe remains stationary,

white the horizon is moreable.

Silter globes are exhibited of various sizes, having the meridians and parallels of laditude marked upon them, meridians and parallels of laditude marked upon them, means of filling in the outline map with enumous distinguishing the means of the propose. The globes exhibited by Maera. Newton are placed to the propose. The globes exhibited by Maera Newton are A Price Medal was awarded to them by the Jary, Flatterian No. 200, 19, 431) has exhibited a pair of ter-Flatterian No. 200, 19, 431) has exhibited a pair of ter-

A Prize Medal was awarded to them by the Jury.
Platterist, (No. 200, p. 431) has exhibited a pair of terrestrial globes, and one case showing the various stages of
globe-making. The contents of the case are as follows:—
1st. An iron mondid: by the adoption of iron instead of

wood, the material generally used, all danger of warping is avoided, and much time is consequently saved. 2nd. The axis of the globe. 3rd. The globe in its rough pasteboard form.

4th. A globe coated with composition, resting in an iron semicirele, the revolving in which gives its perfectly spherical form.

5th. The engraved copper plate.
6th. The impression from the copper plates.
7th. The globe pasted and partly coloured.
The globes are well made and finished, and the process

The globes are well made and finished, and the process of globe-making, as exhibited by Mr. Flotcher, is interesting.

Braincoure (No. 677, pp. 468*, 4629*) has exhibited a model of the moon in high relief, the evators, mountains, &c., being modelled from actual observation with a 1-50x reflector, power about 55, and the occasional use of a rereflector, power about 55, and the occasional use of a reonly at the expense of a journey of 35 miles). It inserties commendation, though the scales of high than been pieched to high; and the effect is injured rather than improved being composed of a dark material as artice, thew whole being composed of a dark material as artice, thew whole

Aborno (No. 218, p. 434) has exhibited a globe 25 inches in diameter, with the celestial and terrestrial maps superimposed one upon the other; also a globe of papier-maché,

divided into forty-eight pieces, to be taken to pieces and rebuilt at pleasure; and a skeleton globe, to show how to rebuild the globe in its frame. The power of taking the globe to pieces is convenient for peakage and removal, as well as for the convenient study of any part of it. They are well made.

STORME, No. 204, p. 433) has exhibited an angular terretiral globe, intended for the solution of govgraphical problems. It is adapted for use as a common terrestrial globe, by nanevunig the coge wheel attached to the spindle at the south pole, and substituting the horizon and meridian, the former being servewed in the upright of the stand, the latter being placed upon the globe, the angular motion given to which is designed for the better expla-

nation of the changes of the sensons.

Mr. Stoker also exhibits a spherical geographical elock, to show the difference of time between two given places whose longitudes are known, and is intended to be of

more general use than those ordinarily constructed.

IBNTLAY (No. 213, p. 434) has exhibited a phin globe.

The northern and southern hemispheres are printed on
circular pieces of card-board, each hemisphere moving
under a beaus meridian, which confines it to its place, and
affords the same facility as an ordinary globe for working
problems.

PAXON (No. 191, p. 431) has exhibited a lumrian, with a contrivance for showing the phases of the moon, MARRATT (No. 409, p. 434) exhibits a Russell's globe of the moon, mounted as originally sold, with movement in

brass for exhibiting the librations, &c., in longitude and latitude. Goop (No.146, p. 428) exhibits a new method of illustrating the effect of the earth's distrand motion upon the plane of a pendulum's oscillation. It consists of one end of a radius arm, fixed in the centre of a globe; the other

end being adjustable in a vertical plane, and therefore to any latitude, is made to revolve so that its time of revolution varies as the sine of latitude; the time of the revolution of the globe being its measure.

Entres and Soxi No. 207, p. 430 have exhibited a parist of 1s-inch plobs. They are well flaished.
Ginaner (No. 234, p. 455) has exhibited a parist Ginaner (No. 234, p. 455) has exhibited and inflated with a first. The circuit globe is adapted chiefly for the near of the letters-troom, and may be made of any correction of the contraction of the contraction of the correction of the contraction of the contraction of the correction of the contraction of the contraction of the correction of the contraction of the period of the contraction of th

These globes may be folded into a very small compan. Kivnin B Pransis, No. 194, p. 1058) has calabilited a terristrial globe in rules? A feet in diameter. The execution is excellent; ant only have the clevations been attended to with great care, but also highlands of moderate elevation, and the courses of rivers, have received the same degree of attention. A Prize Medal was voted by the Jury to M. Kummer for this globe.

Gooptran (United States, No. 378, p. 1461) exhibits Inflated globes two feet in diameter, of India-rubber or silk, varnished with the former material. Also Indiarubber maps. Gaosselin (France, No. 249, p. 1188) exhibits geo-

ransas and uranoramas, to be need as lamp-shades; also some very good and distinct celestial globes, in which the figures and constellation boundaries are neatly and precify laid down, so as not to confine the representation of the stars.

ZILERRHATER (Antiria, No. 132, p. 1014) exhibits as small terrestrial globe, enclosed in a glass sphere, on which the celestial sphere and stars, &c., are traced. By means of mechanism the places of the sua and moon among the stars are shown. KELDI, (Austria, No. 131, p. 1014) has exhibited a small

glole of the moon, about 10 inches in diameter; the engraving is of a sepia colour, somewhat faintly tinted, and of a seleno-topographical rather than a pictorial character. Some of the principal names are inserted. It is mounted on a brass pillar, with a horizontal circle showing luranlogitudes, and a vertical one for latitudes; the lunar axis is vertical.

Relief or Model Mapping DENTON (No. 317, p. 443) exhibits specimens of model or relief mapping in its various stages, with all the tools necessary for use

The base of the model exhibited is of slate, a material which muy be procured of sufficient thickness to bear any weight in a horizontal position, may be ground sufficiently thin for framing, and may also be worked to the smoothest ssible surface; thus containing the qualities necessar for the work in question, the use and accuracy of which are dependent on the material upon which the superstruc-

To erect the altitudes represented in the contour map, a simple mechanical process is adopted; slips or ribbons of thin copper, out parallel, of different breadths and of any length, are prepared. Each breadth represents a conany tengto, are prepared. Each tenature re-tour, and is proportioned to a certain elevation: after careful measurement with the altitudes which they are intended to represent, they are each adjusted and secured

in their true position.

The model so prepared is ready for covering with plaster of Paris, a substance well suited to give a finished appearance to the work. After the plaster is dry, the whole about be serutched down until the light edge of each conner ribbon neeps to the surface. The model is thus prepared for the reception of the oil-colours intended to trace upon it the geographical details of the country, Mr. Deoton observes that it is oot desirable to adopt n

scale of less than 198 feet to the inch, and that the vertical scale of height should be carefully proportioned to the horizontal scale of distance. In thus exhibiting as he has done the details of a ebeap, simple, and generally appli-cable method of surface modelling, Mr. Deaton cannot fail to call increased attention to the subject

The Jury have awarded a Prize Medal to Mr. Denton, Schottl. (Switzerland, No. 252, p. 1282) exhibits a model in relief of Mount Sents and the mountainous re-gions around Appenzell, including a surface of about 150 square miles. It is executed with great spirit and distinctness, and is accompanied by a chart on a smaller scale of the same region (scale 1 to 25,000), containing the data for its construction, consisting of a minntely elaborate series of contour or level lines, which covers the whole area, and is carried into every detail. The merit of the execution is enhanced by the plastic material of the model, as well as the apparatus used in its construction,

being of the artist's own invention. This work has been considered by the Jury to merit a Dries Madel

Innerson (No. 459, p. 450) exhibits an exceedingly well-executed relief model of the Isle of Wight, on a scale of three feet to one mile, the elevation being on the same scale. The geographical and geological features of the country are carefully delineated.

A Prize Medal was awarded to Captain Ibbetson. (Medal nwarded also in Class VII.)

Aerial Machines.

GILBERT (No. 234, p. 435) has exhibited the model of a char-volut or carriage drawn by kites. The vehicle is in appearance similar to an open and dooble-bodied phaeton, with this difference, that before the driver is placed an apright spindle, surmousted hy a T handle, the lower part of which is square, and carried under the head of the carriage, and fitted into a small horizontal wheel, round which is placed a band, which communicates with a similar wheel, and is fastened to the pivot of the front axletree. Two kites are designed to act as the propelling power; the upper one is of the ordinary form, and is called the pilot kite; the lower one is so connected with the carriage, that the driver possesses the power of varying its inclination to the wind at pleasure, an oblique direction being communicated to it by two additional lines attached, the one to the right and the other to the left hand extremity of the shoulders of the kite. By these means the plane of the kite can be inclined to the direction of the wind, and the line of traction thus rendered oblique to the direction of the aerial enrrent, so as to enable the charioteer to "haul on a wind," or steer on an angle considerably out of the line of the wind. It has been calculated that two kites, the one 15 oud other 17 feet io length, have power sufficient to draw a carriage containing four or five persons when the air is in quick

This model deserves great commendation, as regards the elegance of its form and the lightness of its con-

It is not impossible that ander some circumstances the application of the propelling power of the kite may be useful, and at times attended with satisfactory results; but it would appear that as upplied to mutical purposes it would be far more efficient than as a means of locomotioo on land, the inconvenience attendant upon which must necessarily be great (the present arrangements not appearing likely in all their applications to earry out the sanguine hopes of their projectors); but as regards its application to vessels, it may often prove serviceable in obtaining the advantage of an upper current of nir moving quickly when all beneath a certain elevation is calm; it is also likely to be of use in signalling from vessel to vessel, and might possibly serve to time of shipwreck to establish a communication with the shore; bot that, with its present mode of manipulation and arrangement, it can take its place among the regularly organized systems of conveyance is without doubt fallacious. Yet it ought to be meutioned that this ingenious and singular contrivance has been so far at least reduced to actual practice by the inventor as to have been exhibited, occasionally, for a great many years, running on the road between Loudon and Bristol; the whole distance (113 miles) laving been performed on one occasion in 1846 by a party of 16 persons, in three such carriages, without accident, and with a speed occasionally as high as eighteen or twenty miles an bour. A member of the Jury recollects receiving from a friend, five and twenty years ago, the account of an excursion performed in such a carriage or carriages

an excursion performed in such a carriage or carriages (as one of a party of nine persons), from Hristol.

LUNKLEY (No. 257, p. 455) has exhibited the model of a rotary balloon, designed to be its own propeller by means of its peculiar shape, viz., cylindrical in the centre, and both ends formed into topering servers. The bulloon floats horizontally, and is intended to rotate by means of a band passed over its centre and worked by machinery in the car. The screw at one end is intended to draw, that at the other, to propel. By shifting the points of suspension, and thus altering the direction of the car, it is designed to guide its course through the air. construction is intended, if possible, to overcome the direct atmospherio resistance encountered by the balloon in its progress, and to cause n more equal distribution of

atmospheric pressure,
GRAHAM (No. 233, p. 435) has exhibited an serial
machine designed to take any direction required; an axle suspended over the ear, nod worked by a strap communication from the cur, carries at either extremity a system of fan sails, with expanding joints, allowing them to assome a more or less conical arrangement. Sails of a similar kind, of the nature of cars, project from either side of the car.

Sand (No. 301, p. 442) has exhibited the model of an aerial machine. It consists of two cylindrical balloons aerial machine. It consists of two cylindrical balloons placed horizontally, with revolving wheels, for propelling two floats, by which to raise or depress the machine at pleasure; and a rudder for the purpose of giving the required direction.

Bell (No. 715, p. 474*) has exhibited the model of a locomotive balloon. The car, which is to the form of a both the car, is constructed with a huoyant apparatus at each ead, so that in the event of its descending upon the sea, the balloon and machinery may be stowed away within it. Mr. Bell has also exhibited an improved valve for a balloon. Also the model of a locomotive parachute,

equipped for service Bnown (No. 713, p. 474*) exhibits a balloon in which the gas expanding as the balloon rises is not suffered to escape, but is husbanded for use by being conveyed into the car, which is made large and hollow to receive it as a sopplemental balloon. The car is also furnished at either extremity with two centrifugal bellows pointing obliquely outwards, by whose reaction, as the wind issues, it appears to be the inventor's design to impel and to

guide the balloon Mason (No. 714, p. 474*) has exhibited the model of a navigable balloon, to be worked and directed by means of sails, helm, and mariner's compass. The model exhibited is npon a scale of a quarter of an inch to a foot. From what may be regarded as its after part, project interally axles, giving a rotary motion to sails of the nature of screw-propellers.

PLUMMER (No. 716, p. 474°) has exhibited the working model of an aerial machine, furnished with wings or sails, put in motion by a clock-spring.

Calculating Machines.

There have been very many attempts to perform num rical calculations by mechanical means, or at least such parts of them as follow simple and rigid laws. Hitherto such instruments have failed to unite correctness in the results, combined with economy of time, and, for the most part, have been limited to the performance of the first two operations of arithmetic.

To make such instruments really useful, they must have the power of executing, by themselves, the successive operations for the solution of the problem imposed in them, when the simple data for this problem have been introduced, without trial, and without guess-work.

The best machine of this kind exhibited is that of Staffel (Russia, 148), which, on examination, seems to

combine accuracy with economy of time, and works easily and directly. The mechanism is 18 inches in length, 9 inches in hreadth, and 4 inches in height, and length, 9 inches in herouth, and 4 inches in height, and consists of three rows of vertical cylinders; the first contains 13, the second 7, and the third 7. Upon each of the cylinders in the first row are 10 notches, corre-sponding with the units 1 to 10. Within each of these cylinders is a small palley, in connection with a lever, set in motion by a silder which, when the cylinder has been turned from either 9 to 0, or 0 to 9, sets in motion toest turnest from either 9 to 0, or 0 to 3, sets is motion the lever, and communicates its action to wheels, which carry over the figures. The palley connected with the cylinder, the furthest from the handle, is in connection with the hammer of a bell. The purpose of this bell is to give warning to the operator, on committing an error, and constitutes a most important addition to the machine, particularly in the operation of division.

particularly in the operation of division. Upon ench of the cylinders in the second row 10 units are placed. These seven cylinders are so fixed upon their axes, that they can bodily be moved right and left, and fixed at any part, so that the cyphers in the two cylinders can be made to correspond. This cylinder is furnished with a spike, which lays hold of and works the third row of cylinders.

The internal communication of each of the parts is brought about by means of a connecting wheel, furnished with nine moveable pegs, which are set in motion by nscans of an eccentric incision in the dial.

The machine is capable of performing addition, sub-traction, multiplication, division, and of extracting the square root.

The operation of addition is performed as follows:-The operation of solution is performed is rotiows:—
By simply placing one line of the numbers upon the second row of cylinders (the index pointing to addition), and turning the handle, till it stops, these numbers are transferred almost instantly to the first row of cylinders, and so on successively, till all the numbers to be added are transferred, and their sum is shown on the top row. In performing subtraction, the first part of the operation in the same as in addition, but on placing the second line of figures on the second row of cylinders, the pointer being placed to subtraction, the handle is turned the opposite way, nr against the motion of the sun, and the difference of the two numbers is shown on the upper

The operation of multiplication is performed by placing the multiplier and the multiplicand on the second and third rows of cylinders, and then, the index pointing to multiplication, the product will be found on the first cylinder.

The operation of division is very similar, excepting that the handle is turned as in subtraction. These several operations were performed accurately,

and with despatch. In the performance of the square root, the following additional mechanism needs explanation. Between every division of the cylinder, in row 2, a small wheel is placed and near it a projecting piece which acts upon a lever; when the projecting piece is near the word "rad" engraved on the cylinder, on turning the handle, the figures increase by 1. This, by other mechanism, is connected with the

other two rows of cylinders. The operation of the square root is performed directly, without any guessing at num-bers; but it is, comparatively, rather a long process. Upon the whole it must be considered that Mr. Staffel has made an instrument possessed of considerable powers, and that great praise is due to him. The double motion of the handle as well as the warning bell are important

Mr. Staffel also exhibits a small mechanical machine for the performance of the addition and subtraction of fractions, whose denominators are 10, 12, and 15. By cularging the machine, this number would be increased, and the power of the instrument extended. The operations were performed with quickness, and with accurate results. A Prize Medal was voted to Mr. Staffel.

THOMAS DE COLMAR (France, No. 390, p. 1196) exhibits the next best calculating machine in the Exhibition, and has combined the two essentials of economy of time and accuracy of results. It is adapted for the performance of the four first rules of arithmetic; and indirectly the square root may be extracted by the knowledge of at + 2ab + b. the results being inferred; but this is not the legitimate

use of the instrument." The instrument is adapted for the multiplication of numbers whose product is expressed by less than 16 figures; and consists of two rows of cylinders, the one containing 16, and the second 8; the former are movemble, the

operation at each step being changed tenfold.

The principle of the instrument is, that multiplication is in reality the continual addition of itself as many times as there are units in the multiplier, and division that of ntinued subtraction of the divisor.

On trying the machine, the number I was almost in-stantaneously taken from 10,000, giving the difference, 9,999, accurately; the performance of this operation is generally a severe test to these machine The number 5,321 was multiplied by 3,256 in less time

than was required to perform the calculation, in the manner following:-The number 5,321 was placed on one series of cylinders, and the number 6 was placed on one of the cylinders of the second row, and on the handle being turned (ip one direction always) the number 31,926 appeared; the apper row was moved through one division, the handle agained turned, and so on, till in a very short time, the number 17,325,176 appeared.

The several operations to which the instrument was

subjected were performed quickly and accurately.

A Prize Medal was voted to M. Thomas De Colmar,

WENTHEIMER (No. 387, p. 451) exhibits several calcu-lating machines, adapted for the performance of addition and subtraction of numbers and moneys, of this and of other countries. Each machine consists of a box, with a metal plote divided into nine indexes, with semicircular notches, under which are placed a succession of holes. Bound the indexes, numbers are engraved, and the semicircular notches are furnished with teeth, and a pointer to insert

between the notches, for the purpose of bringing the notch opposite any particular figure, from right to left. This operation is dangerous, for the notch is liable to slip and ot go home. The instruments are ingenious, but they are much wanting in the essentials of such machines, viz., economy

of time and unerving accuracy. The Jury, however,

* For a description of this ingenious and ascfai machine, see the report of M. Benoit, "Au nom du Comité des Arts Mécaniques, Société d'Encouragement."

SCHILT (Switzerland, No. 59, p. 1270) exhibits a simple calculating unachine, but which can perform the first operation of arithmetic only. Honourable Mention was voted to Mr. Schilt.

ROOKER (No. 340, p. 448) has exhibited a sliding scale of involution, the invention of Dr. Roget. The instrument consists of one fixed and one movemble scale, like a sliding rule. On the slide a line is logometrically divided, the divisions of one half being from 1 to 10, and repeated on the second half in the same order.

The fixed scale is graduated in such manner, that each of its own divisions is set against its respective logarithm on the slider, and, consequently, all the numbers on the slider will be situated immediately under those numbers in the fixed scale, of which they are the logarithms. Thus, 3 on the fixed scale will stand under 100 on the rule, and so on, The instrument is adapted to perform the operations of

involution and evolution. The principle of the instrument is contained in the equation

Log. log. $a^r - \log$, \log , $a = \log$, x.

rom the first member of which a disappears. Two differences of the second logarithms of the power and of the root being equal to the first logarithms of the index, it is evident, that if a scale of second logarithms be engraved on one line, and a first on a line sliding along it, the indexes being read off on the latter, the power will be so on the former."

LALANNE (France, No. 1690) exhibits a calculating rule, constructed upon new principles, consisting of a graphic table formed entirely of right lines, with which all calculations, usually performed by the sliding rule, can be performed to within 1-200th of the true result. The Jary awarded Hononrable Mention to this Exhibitor.

Instruments for the use of the Blind.

HUGHES (No. 401, p. 452) has exhibited a portable typograph or writing macause for the times.

This is a beautiful mechanical contrivance (by no means difficult in use) by which a blind person is enabled thream students in obeying which a single person reminest to print legibly, with ease and rapidity. It is also applicable to printing uniform labels for Museums, &c. (for description see "Illustrated Catalogue"). The following is the manner of using it. The paper intended to be is the manner of using it. The paper in the written upon is placed within a portfolio, one side of which is made of semi-carbooized paper, which, being which is made on the window, serves for ink. Having done durable and inexpensive, serves for ink. Having done this with the first finger of the right hand, any required letter, figure, or point of the index circle is brought to the right side of the lever, the thumb being inserted in the end of which, presses it downwards. This pressure will give the impression of a corresponding type letter acting upon the back of the transfer paper. The next operation is to lift the lever to its numost height, which motion makes the space required for the next letter, and so on to the end of a word. A repetition of the move-ment will also make the space between the words.

Having finished a line of writing, the index circle is pushed luck to the left side of its frame, and the thumbscrew turned for the desired distance between the lines: one whole turn of this screw giving four lines to the

The typograph is about the size of a quarto book, and does not occupy a surface of more than 12 inches square. Its inventor has done good service, having the merit of exhibiting the best machine for the same purpose, it being the most simple in its operations of any in the Exhibition, The Prize Medal was awarded to Mr. Hughes,

TOLLUCT (No. 382, R. 451) exhibits a machine for facilitating the writing of the blind.

Forcaura (France, No. 2820, p. 1187) has exhibited a printing-machine for the blind. It consists of a fan composed of 28 code, terminated at the upper extremity with the letters of the alphabet arranged successively, together with other rods terminated with the various ciphers and symbols required in printing; the lower extremity of these rods is furnished with a corresponding letter, &c., to

* See " Philosophical Transactions" for the year 1815

the one above, but in smaller type. On pressing the larger character at the upper extremity, the smaller letter beneath is proportionably depressed, which causes it to leave its printed impression on a paper previously prepared. By a little contrivance the paper is made to move onwards, to proportion to the successive pressures from above. The exhibitor of this machine, himself blind, has the merit of being its inventor, and he was awarded the Prize Medal.

THOMPSON (United States, No. 26, p. 1434) has exhibited an invention for teaching the blind to draw and This device is simple, and intended to afford a write. means to the blind of sequiring knowledge of various kinds.

The writing tablet is covered with white leather, a material well suited to the purpose intended, as it yields to the pressure of the style without retaining the im-

The style may be made of any hard material capable of receiving and retaining a rounded smooth point. paper should be of a strong and rather firm texture, but at no visit of the Jury was any explanation given, and they are onable to speak further of this invention,

Gall (No. 687a, p. 471*) has exhibited a triangular alphabet for the hlind. This is an improvement on the Parisian, Austrian, and other circular alphabets, and it is probable that adult blind persons may by its means be probate that sourt mand persons may by its means to easily taught to read. A volume containing the Episile to the Ephesians, in the same characters, was exhibited, and Gall's apparatus for the writing of the blind, by means of which they can correspond with each other by post, as described in the "Illustrated Catalogue."

MARCHEN (Austria, No. 139, p. 1049,) exhibits a cir-cular printing machine, by which the blind can print readily with three different kinds of type. On examination by the Jury it elicited much commendation, and a Prize Medal was awarded to M. Marebesi.

Miscellaneous

DUNIN (No. 210, pp. 433, 434) has exhibited a piece of mechanism designed to illustrate the different proportions mechanism designed to maisture no convex of order housen figure. This beautiful piece of mechanism resembles in outward appearance a well-formed human figure, standing erect. It is capable of both considerable expansion and contraction in all its parts. The internal nechanism is completely concealed, the figure externally being composed of a number of thin steps of steel and copper, which overlap each other in proportion to the amount of expansion or contraction exercised. The motion these slips are made to possess is communicated to them by thin metal slides to which they are attached within the figure, the slides being furnished with projecting pins at their extremities. These pins are inserted into curved grooves, cut in circolar steel plates, the curvature of the grooves being so arranged, that when the steel plates are put in revolution by a train of wheels and screws, the slides belonging to the several parts of the figure are expanded or contracted in correct proportion, The external slips of metal are disposed as much as possible in the direction of the fibres of the muscles in the living subject, in which direction the two motions of contraction and expansion are severally performed. Where in nature the fibres of the pectoral muscle converge towards the shoulder, in the figure there is much compound internal mechanism, and very ingenious external arrangement; the contraction of the clast, the back, the shoulder, and the fore-arm, are performed either simultaneously, with great accuracy and just proportion, or each part can be separately adjusted if required. These adjustments, the most compound and difficult to be overcome, Count Dunin, by a new and most ingenious combination of mechanism, has successfully achieved. The dimensions of the figure are subjected to their respective variations by the establishment of a connection between several parts of the internal mechanism and a winding key, by means of eirenlar-headed projections, which being turned to the right or left, gently and gradually effect the contraction or expansion of the adjacent parts of the The motions we have just described, are per figure. formed by the introduction of the winding key into several agertures felt for its reception; one of them in a standard other apertures efficient in the land, no the upon fits the other apertures efficient in the land, no the upon fits the abundance, that area and leps, now for the discontinuous and the contractions of the land are repulsed by an apperture in the area were greated. The fits external metal along, which are very greate. The fits external metal along, which are very greate. The fits external metal along, which come gift or external reproductive and the properture of the land of the contraction of the discontinuous and all and thus the power of vertained in the dismostrature of the first way for expectation in the dismostrature of the first way for a proposal or approximate longith of of the first way for approximate language of the first way to depend on a proposal contraction of the first way for approximate the contraction of the first way for a proposal contraction of the contraction of th

The apparatus isself in not nailike in its general appearance to a fine usin of armount, highlyships in at it does the just proportions of the human form, deficient only in the nat work on instead of the cutter mechanism is of the most compound nature, the whole is easily and work no instead of the most compound nature, the whole is easily mean which is the compoundation of the most compound nature, the whole is easily mean which is the whole is a simple property of the most compoundation, and make the property of the figure has an independent adjustment by which it can be put out of foregorities, and make to repre-

individual. We availed ourselves of na opportunity of carefully We availed ourselves of na opportunity of carefully figure in the work-room of Const Donin, it being impraisable to others any correct idea of this internal contrastion from an external view of the figure as exhibited. This properties and mechanical knowledge Contribution has displayed in its construction. The mechanical combinations of the contribution of con

The invention, which is stated could easily be made available in the artist's studie, is designed to ficilitate the exact fitting of garments, especially where great numbers are to be provided for, as in the cupinent of an army, or the personal attendance of individuals to be dispensed with, as from a new system of measurement the figure may be adjusted to the exact form and size of the person of the contract of the contract of the person. A Control Media was awarded to Count Danin for this

beautiful piece of mechanism.
LLOTD (No. 322, pp. 444-446,) has exhibited a typhodeletor, or storm pointer, an instrument designed to determine, by inspection, the bearing and relative position of a
revolving storm, or harricane.

The instrument is composed of a ring of metal, page which the several point of the compass are engraved; attached to the centre of the critic, instead which is which the several point of the compass are engraved; the wind "point fake prin addition to the pointer, two hands of a transparent from are filewise made to more hands of a transparent from the filewise made to more nontrem, the other is the confidence from the contrement of the confidence of the contrement of the contract of the contrement of the contract of the contract that the contract of the contract values in the contre is a recolving plant, which, resting me as overable to the contract contract contract of the contract is in designed to illustrate the resolution of the winds it in designed to illustrate the resolution of the winds.

It having been ascertained by Colonel Reid that storms have a progressive and revolving motion, and that on op-

posite sides of the equator they revolve in opposite directions, the centre of the storm being nearly a calm, it follows that the ship can be but in one position with regard to its centre, and that, in the event of the ship approaching the storm, or the storm approaching the storm, or the storm approaching the storm, the cape or onter boundary of it must be first encountered.

or outer boundary of it must be first encountered.
For the purpose of authoring to senser a practical illustration of the revolving winds, circles showing the gyrameter of the purpose of the purpose of the sense of the sense of the purpose of the

him by the Jury CHALLIS has exhibited an instrument for calculating the sum of the corrections of the three errors of a transit the sum of the corrections of the three errors of a transit instrument, adapted for the latitude of Cambridge, and for any given S. P. D. The manner of determining these corrections is dependent upon certain geometrical considerations fully detailed in the "Proceedings of the Royal Astronomical Society," vol. z., No. 8. The instru-ment consists of a brass circular plate, moreable about a vertical axis, passing through its centre; on the plate are engraved lines for the purpose of taking account of both positive and negative corrections. At a short distance from the circular plate is a contrivance for guiding the motion of two bars, which carry two fine parallel threads of blackened naspun silk on the surface of the plate. The interval between the threads is made equal to the collimation error by means of a scale engraved on a brass plate, to which one of the bara is attached, and an index is fixed to the brass plate to which the other bar is attached: the two plates are clamped together by a screw; when the two plates are clamped together by a screw, when the threads are set to the required interval, the acrew-head screes for a bandle by which to move them. The circle is graduated, for showing North Polar distances both above and below the pole. The method for performing the calcalations and various details in the construction of the machine are fully described in the paper before referred to

With regard to the degree of scenary of which the machine is susceptible, Profusor Challe botters, that for machine is not problem, Profusor Challe botters, that for stand to form a table of the coefficients of the collimation level and animabile orners, arranged seconding to the North Palos disease, whereit are coefficient for a recording to the north strategy of the contract of

trivance which gives direction to the threads. Should the instrument be required for use in a latitude different from that for which it was constructed, a slight addition is required, but one which the instrument is made to perform itself. Professor Challis observes, that the machine, which requires no little nicety of work, was executed far him by Mr. Simms in a very satisfactory.

A Prize Medal was awarded to Professor Challis.
BLERY (No. 372, p. 450) exhibits a model of Erastothence, as seen through a reflecting telescope of 9 inches
geriuse, 7 feet focal length, and magnifying power 380.
The model is beautifully executed, representing very
enough the benefits of the properties of the price
SPRATT (United States, No. 5, p. 1433) has exhibited lightning rods. These rods, in their cross sections, are similar to the letter X, and are made either of copper or of iron. The points are formed of a compound of platinum, silver, silvex, antimony, bismuth, and tin, mixed in certain proportions. The extreme top being of solid

platinum is calculated to resist atmospheric decomposi-The base is furnished with three angular cast-steel magnets, plated with gold, one being also affixed to the brass connections at every point, for the purpose of facili-tating the silent discharge. Zinc rings are placed between these joints to prevent oxidation.

The fastenings and glass insulators, also exhibited, are designed to afford greater convenience for the attachment of the lightning rods. Owing to this invention being in rocess of registration, the Jury were not able to exam

it at the proper time.

NASMYTH (No. 688, pp. 471*, 472*) exhibits a well-delineated map of the moon on a large scale, which is drawn with great accuracy, the irregularities upon the surface being shown with great force and spirit; also separate and enlarged representations of certain portions separate and enlarged representations of certain portions of the moon as seen through a very powerful telescope; they are all good in detail, and very effective. A Prize Medal was awarded to Mr. Nasmyth.
Fishtza (United States, No. 263, p. 1452) has exhibited a "dial of the seasons," intended to illustrate the sun's

declination at all seasons, together with the coincident effects of light and heat upon animal and vegetable life in

all climates.

The chart is divided into two portions by a line cross-ing the picture horizontally. The upper corner to the extreme left is made to serve as the apex of the triangles, formed by liues drawn from it to the boundary line; these, by their verticality over the tropics and gradually increasing obliquity towards the Polar regions, illustrate very clearly the different amount of sun-light distributed over equal degrees of latitude, and the difference of ter

reture consequent upon this unequal distribution. The chart gives also a comparative view of the equinoctial and solititial angle of sun-light, and is designed to show the comparative rapidity of the sun's declination at the

spring and autumnal periods of the year.

The effect of the messaal distribution of sun-light is shown by a series of coloured illustrations, placed immedistely beneath the boundary line, which, forming the base successively of the various angles, becomes in a measure graduated. The several degrees of latitude between these graduntions contain the principal productions either animal or vegetable, which may be considered strictly indigenous: thus, towards the equator, are shown the palm-tree, the coffee-plant, the tiger, &c.; in the polar regions to the north, the white bear, pine-tree, Laplander, &c.; whilst the temperate latitudes are characterized by the various animal and vegetable productions with which we are most familiar. Immediately beneath these illustrations is another parallel series, representing on the ocean the corresponding ranges of temperature from the tropics to the poles; indicated by the typhoon in its progress, the storm of the temperate latitudes, aurora borealis, the volcano of Mount Heela, &c. The chart, which is carefully executed, and well suited for educational purposes, is 2 feet 9 inches by 1 foot 4 inches. The book accompanying it is of considerable length, but too diffuse for educational purposes. It contains a detailed description of the diagram, and towards the conclusion an interesting table showing the influence of climate upon intellectual development, confining the existence of men of genius to within certain parallels of latitude: it is pleasingly and well written, and, were it within our prescribed limits, fairly entitled to a favourable review.

Levera (Saxony, No. 16, p. 1105) exhibits Weber's electro-dynamometer for measuring the intensity of galvanie corrents.

The instruments employed by Ampere in his electrodynamical researches are not capable of affording very securate results from the friction overcoming, either wholly or in part, the electro-dynamic force to be mea-sured. Under the most favourable circumstances the utmost that these instruments can perform is to enable the feeble electro-dynamic forces to overcome the friction; but in every accurate measurement it should be assumed that the friction is an insignificant fraction of the force to be measured.

In order to exclude friction the electro-dynamometer In order to exclude friction the electro-dynamometer insbesondre wider stands measurgen;" Leipt was contrived by Professor Weber. It consists essentially slso Poggendorff's "Anaslen;" B, 73, 8, 153.

of two coils of wire covered with silk; one of these has of two coils of wire covered with sun; the so were man \$500 feet of copper wire, making 1,200 turus round a sheader ivory spindle, 0.79 inch in length, and t.26 inch in diameter. The ivory spindle on which the coil is wound is attached to a sheader stump of brass, which carwoman is attached to a so-sure stump or trees, when car-ries a circular plane mirror about 1'1 inch in diameter, and also an index about 1'1 inch in length, beneath which is a circle having a graduation of about the same diameter, The two ends of the wire forming the coil are attached to the lower ends of two fine silver wires 197 inches, and 1.27 inch distant from each other, by which the stirrup and coil are suspended, with the axis of the coil horizontal like the biblist magnet, for measuring variations of the horizontal component of the earth's magnetism. The second coil has 980 feet of wire, making 900 coils round a thin hollow brass cylinder 1'73 inch in diameter, and 1-73 inch in length, placed with its nxis horizontal, bisecting, and hisected by the axis of the suspended coil. The two coils are surrounded by a case having an opening, covered with plate-glass, through which the mirror attached to the suspended coil can be viewed. A vertical glass tabe, 1.65 inch in diameter, and about 19.7 inches in length, ascending from the middle of the case, carries at its upper end

insulated attachments for the upper cud of the suspended wires, with adjustments in height and distance from each other, and a motion round the axis of the class tabe. The case is fastened to a circular plate 5 inches in diameter, which has an azimnthal motion on a pedestal 67 inches in diameter, provided with 5 foot series for liorizontal adjustments. The upper end of one of the suspending wires is connected by a conducting wire with one end of that of the fixed coil; the upper end of the other suspending wire is connected respectively with the poles of a voltaic element or battery; the current will hence traverse the whole of both the fixed and suspended coils. At a proper distance is placed a horizontal namer scale of 19.7 inches, the image of which, by reflection, is seen in

1977 Before, the image of winco, by reflections, is seen in the mirror attached to the suspended coil, and viewed through a telescope parcel immediately below the senie, so that the angular displacement of the suspended coil, produced by the mutual action of the currents traversing the two colls, can be measured with great precision. By means of an instrument similar to that exhibited, Weber obtained a most accurate experimental proof of the mutual action of voltaic currents on each other.

The electro-dynamometer serves to measure the intensity of a voltaic current, as does a magnetometer under the influence of a coil through which the voltaic current is transmitted; but the electro-dynamometer differs from the u-squetometer in some very important particulars, the one supplying many of the deficiencies of the other.

In the magnetometer the tangent of the deviation is roportional to the intensity of the current; in the electrodynamometer it is proportional to the square of the inten-

sity of the current A change in the direction of the current causes the magnet to move to the other side of its position of equilibrium; when not acted on by the currents it does not affect the position of the electro-dynamometer.

The electro-dynamometer has been employed by Mr.

Weber to measure the intensity of the oscillations producing sound. By including a magnetometer and an electro-dynamometer in the same circuit, be was embled to determine both the duration and intensity of momentary eurrents, such as those produced by the discharge of a Leyden jar. Results, highly valuable as determining the effects of momentary streams in animal physiology, may be obtained by similar abservations, * The instrument is exhibited by Leyser, to whom much

praise is due, not only for the workmanship, but also for any details which he has introduced in its construction, Excel (Berlin, Prassia, No. 274, p. 1965) exhibits a well-executed wood model of Fresnel's wave surface, in viaxal erystals, and an ellipsoid of three anequal axes marked with the lines of curvature. A Prize Medal was awarded.

^{*} See Weber's " Elektro-dynamische Maasbestimmunger Leipzig, 1850; and

Ward (No. 664, pp. 466*, 467*) exhibits his botsnical cases, which are fully described in the Illustrated Catalogue. A Prize Medal was awarded to him

Dr. La Rer. (Class XVII., No. 76, p. 542) has exhibited various applications of iridescent films for the purposes of decoration, their vivid colours being produced simply by the agency of light upon a thin, transparent film of var-The process adopted to render the film and its reflected colours permanent, together with the method of its application, are as follows:

e objects to be ornsmented, whether insects, shells. hirds, hronzes, paper-hangings, card-cases, &c., are im-mersed in a vessel of water. Upon the surface of the latter, when perfectly tranquil, is dropped a little oil or spirit varaish, which, spreading in all directions, becomes exceedingly attenuated, and reflects the most vivid colours of the spectrum. The varnish being fixed, the object, which is slowly raised in such manner that the film shall which is slowly raised in such mainless tone the firm is nan adhere to its surface, is then placed in a convenient situa-tion, to permit the water draining off. When completely dry the film is found to be firmly stateched, and perfectly iridescent, having lost nothing of its original brilliancy of colouring. This is a beautiful illustration of the produc-tion of colour on a thin transparent surface, by the slight agency of light, such as is transleotly seen in an ordinary soop-bubble. The Jury awarded a Prize Medal to Mr. De la Rue.

VAN SCHENDEL (Belgium, No. 173, p. 1157) exhibits an exceedingly good illustration of the laws of perspective, consisting of a series of objects, of exaggerated forms and dimensions, painted upon a horizontal plane, and two vertical planes. At a certain height above the picture there is a circular hole, cut in a small wooden frame; on looking through which, the objects assume a natural appear-ance, in strict accordance with the rules of perspective, and appear in the most perfect relief. A Prize Medal was awarded to Mr. Van Schendel.

FISHER (United States, No. 263, p. 1452) has exhibited "mathematics simplified," consisting of some beautifullydrawn diagrams, intended to facilitate the study of mathematics. His idea is that of teaching a physical geometry, either preliminary to, or, when no better may be had, instead of the science. His method of nsing the diagrams is by teaching each step by a course of reasoning, and illustrating the laws by well-drawn

Nobody can question the great disadvantage under which students lie who have to apply geometry graphi-cally, if their previous figures have been drawn only by hand; or, what is worse, if budly drawn by ruler and compasses. It is doubtful which of the two is the greater evil-the giving a student ruler and compass as part of his course of geometry, or the making reasoning on badlydrawn figures the only preparation for a draughtsman or architect, &c. This has been often said, but seldom accompanied with any proof of the very satisfactory use which may be made of well-drawn diagrams. Mr. Fisher has the merit of offiring this proof to the Exhibition with some ingenious ideas as to the manner in which the details may be managed. The attention he has paid to one point, vis., the exhibition of areas of given simple ratios under the same and different forms is particularly hereficial. Some of his diagrams are, in this respect, excellent studies for an eyn which is to be trained to correct estimation. His method is particularly applicable for adults possessed of a power of thought, which requires to be enlisted and exercised to make their study agreeable or even profitable.

Mr. Fisber's merit may be described as consisting lu— 1st, the application of the idea of teaching by physical perception, to a wider range of subject than merely making very exact drawings of the propositions to be demonstrated in Euclid; 2nd, in the ingennity of his details; 3rd, the beauty of the drawings. The Jury considered Mr. Fisher deserving Honourable Mention.

PERIOAL (No. 693, p. 472*) has exhibited a demon tion, by the transposition of parts, of the theorem of the right-angled triangle. The square or base of a right-angled triangle being intersected by two straight lines, passing through its centre, parallel and perpendicular to the middle, in order that the globe may be placed over

the hypothenuse, is thereby divided into four parts equal and similar to each other; which, being symmetrically arranged around a square equal to that on the per cular, form therewith a square equal to that on the hypothenuse of the right-angled triangle conversely. sides of the hypothenuse square being bisected, and the points of the bisecting lines being drawn (till they meet) parallel to the base sud to the perpendicular, the hypo thenuse square is thereby divided into four equal quadri laterals, which are together equivalent to the source or laterist, which are together equivalent to the square or the base, encompassing a square equal to that on the per-pendientar. Thus proving that "in a right-sagled tri-naght the square of each side is equivalent to the saw, or to the difference, of the squares of this other twn sides."— Evidst, 1.47.

Exclud. 4. 47. Mr. Perigal has also exhibited a quadratic trisection of the square. The square is divided into nine parts of three different shapes and sixes; so proportioned that, by combaining together one of each of them, they will form three equal squares, each one-third the area of the square formed by the whole nine sections. formed by the whole nine sections. The construction is scarcely susceptible of brief explanation without a

Mr. Perigal likewise exhibits diagrams of the refrogr Mr. Perigal likewise exhibits diagrams of the refrogressive parabols, as derived from the circle, $y = \mathbb{R} \cos \varphi$; $x = \mathbb{R} \cos \varphi$; $x = \mathbb{R} \cos 2\varphi = \mathbb{R} (2\cos^2 \varphi - 1) \cdot \cdot \cdot \cdot 2\varphi^2 = \mathbb{R} (\mathbb{R} + x)$. The origin of co-ordinates at centre of circle, radius \mathbb{R} . The kinematic curve, of which the retrogressive parabola is a limit, was discovered by Mr. Perigal, in 1835, and produced from continuous motion by him in 1840.

Mr. Perigal has also exhibited a lunarian, of novel construction, which he calls a "selenescope;" iotended to clucidate the kinematic effects of the three hypotheses which have been advanced to account for the inhabitants of the earth never having seen more than one-half the surface of the moon, the same hemisphere of our satellite surface of the moon, the same hemisphere or our satetiste being always presented towards the earth. For this purpose, a terrestrial glabe (about 3 inches dismeter) is fixed on a brass stem supported by a brass pedestal. At the bottom of the stem is a fixed wheel of forty-eight techl; and, between that and the podental, a T-shaped brass arm is centred, having at one end a receptacle for a mariner's compass. The other extremity of the arm is grooved to receive four arbors with each a wheel of fortyeight teeth like the fixed wheel first mentioned, into which one of them is made to gear. Another wheel in the middle of the cross part of the T gears into the second, and a fourth at the extremity into the third; while the fifth occupies a position at the opposite end of the cross groove, but does not gear with the other wheels.

All these wheels have the same number of teeth. To the third, fourth, and fifth wheels are attached spindles, each carrying an ivory ball (about one inch diameter), representing the moon, at such elevation that their centres and that of the globe, representing the earth, may be all in the horizontal plane.

Carried by the arm round the fixed wheel, into which it gears, the second wheel is constrained to turn round its axis or arbor in the same direction, driving the third wheel in the contrary direction, by which the fourth wheel is driven in the same direction as that of the volving arm; all with the same angular velocity: while the fifth wheel, not being in gear with the others, revolves with the arm without any additional rotation on its own arbor or axis. A coloured spot upon each of the ivory moons tends to render their relative motions more perceptible and distinct.

By this means one of the moons is caused to rotate on its axis in the same time, and in the same direction in which it revolves; another is caused to rotate on its axis in the same time in the contrary direction to which it revolves; while the third moon revolves about the carth, hat does not rotate round its own axis.

Mr. Perigal also exhibited a gyroscope; an instrument designed to illustrate the effects of revolution and rotstion. On a brass pedestal, an arm, supported at one end by an axis round which it freely revolves, carries at its other extremity a globe (about one inch diameter) representing the earth or thn moon; which is flange-jointed in the axis or centre of motion, and at various distances, as

the experimenter requires.

Granzo No. 100, pp. 410), he exhibited a spherical (Granzo No. 100, pp. 410), he complete the proposation of the property of the p

Mention. "(Indigen, No. 118., p. 187). Converties of vibrating into receive practice. This is due by the interior of a bub-weight on a borismutal arm attached to or threating into receive and the interior of a bub-weight on a borismutal arm attached to propose of the interior of the in

YATES (No. 378, p. 451) exhibits an instroment for squaring the circle. Its principle is, that the diameter of a circle multiplied by 1 25, equals the diagonal of the

square required.

flosuzars (No. 130, p. 422) has exhibited a synchronometer. It consiss of a getta-percha tube, connecting two expansions of the nature of below, of vulcanisation worked by an executive whole in connection with any movement, a partial reasons in created, which being propagated along the tube, sucks in and closes down the other, whose movement parts in action a click acting on the content of the content of the content of the continuation of the content of th

(as a clock) at the other.

COOKE (No. 664a, p. 467*) exhibits closed cases for

Harrass (No. 187, p. 430) exhibits a machine intended to illustrate the effect of certifiqual fores. It consists of a representation of the planet Statura, attached to a piece of string by the edge of its ring, which, whose in a state of repose, is in the same straight line with it, but on a rajid trusting motion being communicated to a rajid trusting motion being communicated to a rajid trusting motion being communicated to a rajid trusting motion being communicated and at right angles to the string, or, in other words, spins round spin in theoret axis.* Dakaysta(No. 382, p. 431) exhibits an apparetus for the detection of either they or robustry constitute, of a

the discretion of either the or rebbery; consisting of a lever, with a centre tamble; and balance weight, while is poised by a small line carried through any portion of a bosses, and factored. On the least pressure the balance weight is ratioed; or if the lipse be out or barral, it will put the property of the property of the property of the put in mattion. It is contained in a small portable box. Naturason (No. 206, p. 430) exhibits a hadeisocope which revolves on pressing the correlary of the eye-pleen downwards, and, therefore, is self-sering whilst the ineventian of the control of the

Kxtour and Soxs (No. 453, pp. 462, 463) exhibit a machine for eleming and polishing disguerreotype plates, portable mercury low; plate-holders; head-rests, with a series of bott and socket joints; glass and porcelain dishes for preparing sensitive paper.

* See Dr. Parr's "Philosophy of Motion" for a distinct lescription of this machine.

TROMON (No. 80, p. 417) exhibits an instrument called an satchromograph, inheaded for the registration of the times of occurrences; for example, to register the time of the arrival and departure of trains in railway stations, &c.,—to note the presence and individuality of guards, and other persons whose absence might incur inconvenience or danger; it is thus of use also in police and public offices, bunking and mercentile bouses, &c.

and points omore, omaxing and mercentule houses, &c., Drra, (No. 370, p. 451) exhibits a circular sinke, divided into as many equal portions as there are days in the month. It is intended to make memoranda of eagagements, &c., that occur on each day; and when properly adjusted at the end of each mouth, and turned day by day, each day's engagements are hought correctly

under notice.

Roran (No. 197, p. 431) contributes Lawson's observing chair, to enable astronomers to observe with large

WATRINS and HELL (No. 659, p. 456*) exhibit Biot's apparatus for the polarization of liquids; a reflecting polariscope; an oxy-hydrogen polariscope; Attwood's

polariscope; an oxy-hydrogen polariscope; Attwood's machine; and a steam-engine indicator, for ascertaining the power of steam-engine. NEWBERNY (No. 460, p. 464) has exhibited a case of medals, the metal precipitated by electro-metallargy, containing—a medal of Alfred the Great; Clement XII,

from a very scarce original: Fins V., from the original in the possession of the exhibitor; and various others. RUNDLL, (No. 438a, p. 461) exhibits impressions of seals, the depth and execution of which are very good, as are the cipbers and arms, particularly when it is con-

are the cippers and some, particularly when it is considered that they have been executed by machinery.

WitLATTS (No. 265, p. 437) has exhibited a registering thread counter, or lines prover, a small instrument designed for the purpose of ascertaining the number of threads in a certain sized pince of lines or silk, by means of an index and a self-registering apparatus. A magnifying less is also attached, for examining the texture of

Fring lens us also attached, for examining the extractor of the naturality to be reviewed, so has architished a gauge for measuring the thickness, and meertaining the weight of meetal and other plates, rods, and how. It up frinciple is the progressive movement of a most accurately ent serve, the progressive movement of a most accurately ent serve, the progressive movement of a most accurately and the theorem of the contract of the contract of the chosenatith port of an inch. The gauge exhibited is no divided that each gave included in the contract of the common per foot of superficial intert brow, whose specific common per foot of superficial intert brow, whose specific 20 lbs. to the square foot is shown. This gauge is conver-

need in me, and Mr. Haward has very wisely adopted the decimal notation in the subdivision. Exone (No. 702, p. 473°) exhibits a photometer for the determination of the illuminating power of gas, as compared with that derived from any other source. The instrument was not tried by the Jury.

CHASTORIATY (No. 304, p. 429) exhibits a hurge model of a machine for recording rover, which is no custrated that the vote shall be recorded without the manner of its disposition being made known, the number of votes given being indicated by the somiting of a bell. The machine spectrum that the state of the contraction of the state of the st

Baza (No. 59c, pp. 431, 449) has rahibited a vacuus gange, furnished with a niding scale; the glass tube being protected by a broaze covering. Also a resum gange, or a single scale of the same particular of the state of the same particular of the same

Banwn (No. 335, pp. 446, 447) has exhibited a patent power-engine, which acts as a water-meter. Its novelty consists in its economy of space; it is 3 feet in height, 2 in length, and 2 in width. He also exhibits a patent water-meter, which is 2 feet in length, 2 in width, and I foot 6 inches in length; stated to keep perfect adjustment ander varying pressure. Also a patent water-meter, stated to work in compressed air, without cock or valve; and two other meters. (See the Illustrated Catalogue.)

LAWRENCE (No. 113, p. 418) exhibits a screw-wrench, espable of being adjusted by a spring, and of being varied in size in a moment. Also a pair of dividers; a hand-drill, intended to supersede the use of the bow-drill, and driven by a erank. A turner's centre-bearing, with friction-rollers to prevent small articles from moving in the lathe, and to enable the lathe to turn easier than in the ordinary way. These articles all seem to be useful,

hut scarcely belong to Class X.

Plant (No. 215, p. 434) has exhibited a self-registering steam-boiler feeding apparatus, intended as a sub-

tering steam-toiler feeding apparaus, intended as a substitute for the common force-pump and regulating-float.

ROCHER (France, No. 991, p. 1226). A tank apparatus, for the distillation of water; adapted to the use of a slop of the line. The workmanship is excellent, but it can, in no respect, be considered a philosophical apparatus.

GREEN (No. 446, p. 462) has exhibited damp-detectors,

fitted up in different kinds of boxes; also several angle-

MERRYWEATHER (No. 151, p. 429) has exhibited a tempest-prognosticator. This consists of a number of bottles placed on an ornamental stand, in each of which it is proposed to place a leech, so as to render available the well-known sensitiveness of this animal to changes of the weather.

Before closing this Report, it may be well to dwell for a short time upon the probable good resulting from the exhibition of the subjects which it embraces. So vast is the field over which it is spread, and limited the time allowed for its preparation, that, in some instances, we have been able only to enumerate, without fully discus-sing, the merits of individual works. No opportunity, for the same reason, is afforded of instituting an inquiry into the comparative importance of the several classes of instruments—an inquiry which would be attended with great labour, from the necessity of gravely weighing and determining the comparative value. etermining the comparative value of results which we have been enabled simply to record.

That the Exhibition will form an era in art and science is to be expected; and that both will benefit greatly from so large a collection of instruments and useful appli-entions from all countries is also certain. That it is not calculated to engender national animosities will be seen hy a review of our Report, which discovers the fact, no less pleasing than anticipated, that every country is characterized by peculiar excellence in some department; and we might venture to predict, that steady and constantly progressive as the advancement of science has been-from the broad basis now offered for the first time, as a groundwork for future improvements-it will receive a fresh impulse and many accessions from new and other-wise unexpected quarters. That the Exhibition has received contributions from individuals of various orades is one of its most pleasing features; as is the fact that a vast field for increase of knowledge, and a means of selfeducation, has for the first time been opened to the artizan. This class of individuals greatly want a knowledge of that which has been done-a deficiency the Exhibition is well calculated to supply, and may thus divert much fruitless labour and ingranity into newer and more useful channels. That there does exist in this class of the community a considerable amount of ability and power of application, is evidenced by the various patents which have been taken out for ideas and inventions, the purchase-money of which has too often been the sole remnueration of the inventors

The Exhibition will make the improvements which have been made in different instruments by various countries known to all; and the means for the acquisition of knowledge, hitherto confined to the few, will, by it, be

placed within the grasp of the many.

Glancing once more at the collection now before us combining as it does a concentration of the labours of eminent men, who have toiled during successive generations for the advancement of science, and whose successful efforts have developed the important principles which have served for the groundwork of modern discoveries, and their beantiful applications to the wants of the present day, we are impressed more strongly than ever with the all-important fact, that much as man has done, both in the physical and scientific world, by a long train of brilliant discoveries, there is more yet left to achieve than has hitherto been accomplished.

As heat, light, electricity, magnetism, chemical affinity, &c., by the recent discoveries of Vulta, Faraday, Ocrated, Seebeck, Wheatstone, &c., have been found to be mutually related, so that best may be said to produce electricity, and vice verse, and so on for all the rest, we may expect that a still more intinate union than that already dis-covered may be found to exist. That things apparently distinct and remote prove to be linked together and inseparable, is instanced by the frequent discovery of intermediate missing links in the continuity of the chain connecting all living bodies, from the most minute, and consecting all living bodies, from the most minnle, and almost inanimate, to man; and which have tended to prove that the powers with which they are severally endowed, and the principles of their formation, have been regulated npon one grand system of gradation, having unity alone for its summit. That the effect of a concen-tration of the sciences of the age must be infinitely greater than that exerted by a single one, is obvious; as also that this concentration and union, once effected, will be productive of vast and universal applications, such as

we dare not even to predict.

The Exhibition, by collecting, within a comparatively small space, almost all the known applications of science throughout the civilized world, is connently qualified for the attainment of this great end, by promoting the advance of science in its various branches, and by infasing a taste for the development of the highest faculties with which man is endowed.

JAMES GLAISHER, REPORTER.

Lewisham, Nov. 1851.

INDEX TO CLASS X.

Nova.—This Report being so extensive, and embeacing a large variety of subjects, it has been deemed by the Author expedient to prepare a special Index to accompany it.

Імтрористном, 243. Subjects included in Class X., 243. ASTRONOMICAL INSTRUMENTS, their construction and workman-Ain 243 etap, 243.

ELECTRO-MAGNETISM, its application to the simultaneous registration of astronomical observations, 243.

NAUTICAL AND SURVEYING INSTRUMENTS, 243. Orries; improvement of optical glass; microscopes; physical optics; lenes and prime, 245.

PROTOGRAPHIC CAMERAS, and their improvement, 243. FIGOTOGRAPHE CAMENA, and their improvement, 243.
FIGOTOGRAPHE, its utility: future importance; present improvement as illustrated by the Exhibition; in connection with art, an applied to the purpose of illustration; its epifection to science; to outermany; to the objection to occur to outer many; to the objectification of matural phenomena; i. to therature, 243.

PHOTOGRAPHS of America, France, England; their charac-teristics, 244.

teristics, 244.
M. Marten's calotypes; Claudel's improvements; Ross and
Thomson's new provess, 244, 245.
Positives on glass; probable causes of rapid advance of
photography, 245.
The last M. Dagmerre, 245.
ELECTRO-MONEY, 245.
ELECTRO-MONEY, 245.

MACRETO-ELECTRICITY, 245 ELECTROTYPE application of Voltaic action, 245.
CHEMISTRY AND CHEMICAL APPARATUS, 246. FIRE ANNIHILATORS, 246.

PLANIMETERS, 246. A14-PUMPS, 246. STANDARD MEASURES OF LENGTH, 246. CALCULATING MACHINES, 246.

[NICKID'S EFFECT OF PATENTS, how exemplified, 246.

CLASSIFICATION OF THE REPORT, 246. PROBABLE OMISSIONS, 246, ASTRONOMICAL INSTRUMENTS, 246.

Probable cause of the omission of large instruments, 246. Excellent workmanship, 246. Avoidance of unnecessary serve connections, 246. Mr. Nimm's improvements, 246. Workmanship of the German instruments, 246. The process of dividing by hand objectionable, 246,

Supersaid by machinery; the obviously of the latter method; graduation of the Westbury circle, 24.

Mr. Bond's electro-magnetic appearance, 24.

Dotaou. Variation transit instrument, 24.

Bond. Tennit instrument; 11a object-glass; conversion

of the axis into a telescope; adjustments; eye-pieces, 247. Simus. Diagonal transit; mode of illumination, 247. Genaun. Field transit instrument; its construction, 247. Dollonu. Double altitude instrument, 247. Sixes. Transit circle; its graduations; supports; illumination, and its advantages, 248.

Ross. Large equatorial; dimensions; support; con-struction, 248. SIMMS. Equatorial; its dimensions, &c., 249.
SIMMS. A small equatorial, without clock motion, 249.
DOLLOND. Portable equatorial, 249.

Bians. Portable equatorial, 249.

Bians. Westbury circle: graduation; microscopes;
axis; object-glass, 249. Smus. Altitude and azimuth instrument; its construetion; adjustment and novelty, 250. CRICKETT. Model of an equatorial stand, 250.

Earge Ann Sons. Universal instrument; particulars of its construction; new application of its clamps; object of the designer; its successful attainment, 250. Professor Miller's remarks on application of elsmps at the centre, &c., 250.

the centre, se., 230.

In equatorial; its telescope and workmanship;

tests to which the telescope was subjected, 251. MERE.

Boxu. Apparatus for recording transit observations by means of the touch ; its prioriples explained, 251. NAUTICAL INSTRUMENTS; their number and re-

spective merits, 252,

NAUTICAL ASTRONOMICAL INSTRUMENTS, 252. Simms. Troughton's reflecting circle, 252, Simms. Troughton's sextant, 252,

SIMMS. 1 FOURTHIES WAS AND ASSAULT STATE OF THE STATE OF tants, 252. MOLTENI AND SIEGLES. Sextants and reflecting circles.

Vaor. A reflecting rirele; improvements by Captain Richards; several sextants, 252. Benon. Sextants and octants, 252,

BEAULIEE. Sextants, 252.
Oravison. Sextants, 252.
Inferial Borsa Works. Two large sextants, 252. Assa. An instrument for great circle sailing, 252.

VARIOUS NAUTICAL INSTRUMENTS, 252.

ARIOUS NAUTICAL INSTRUMENTS, 2021. Enterson. A see-lead; description, 252. Enterson. An instrument for determining distances at sea; description, 253. St. Jounn. Detector compass; squatto velocimeter, 253. St. Jounn. Detector compass; squatto velocimeter, 253.

SURVEYING INSTRUMENTS, 253. Introductory remarks; comparison of respective excellences,

SURVEYING AND LEVELLING INSTRUMENTS. Simus. Transit theodolite; application; dimensions,

Simms. Transit thredolite; application; dimensions, power, &e., 253.
Dollow. Transit theodolite; description; illomination of the lines, 233.
Yaarus. Portable thredolite; theodolite; prismatic compass; optic square; workmanship, 233.
Masnayr. Theodolite; construction to avoid floxure,

PAREIATT. Amendment outside the state of the Barpors, instrument for the determination of distances; rules and conditions for its uso, 254. Baston. Instrument for sketching; object of its design,

954 LIDBELL Sights; lovels; construction, 254.
ADGOCK. Drawing-marbine, 254.
GREEN. Miner's compass, 254.
Cox. Beam draining level; construction and use, 254.

DORNE, Spirit level, 254.
DORNE, THORNTHWAITE, AND WOOD. Spirit level; use

and adaptation: workmanship, 254.
GROKTAERS. An instrument for determining distances,

Da HENNAULT. Miner's compass, 254. LAMBERT. Miner's compass, 254. I.AMBERT. Miner's compass, 254. Becaus. Levelling apparatus, 254.

Bazrracer: Theodolite; mode of graduating; pro-tection of the veruser circle by glass; level; peculiar construction; mining theodolite; descrippeculiar construction; mining tion, 254. Lettre. Levelling pretractor, 255.

KINZELUACH. Surveying cross; description; dissti-meter; Wolliston's gonlometer, 255. IMPERIAL POLYECUSIC INTITUTE OF VIEWA, Level;

construction; improvements; adaptation; ses lovels; pocket lavals; rulers for plane table survey-

ing, 2.5.
SCHEOFTER. Theodolite, 255.
IMPERIAL DORS WORKS. Levelling instruments and stand; workmanship, 255. Astronomical compass; construction; adaptation;

STANDARD MEASURES OF LENGTH, 255,

WHITWORTH AND CO. Standard bar measure; construc-tion; powers; how applied; description of tests; suggestions for improvement, 250. Bathana. Besel's standard measure; construction; mode of making comparisons; delicacy; climination

of arror, 256. Sums. Standard yards; methods of support by Pro-fessor Miller and Rev. R. Sheepshankn; comparison of relative merits; standard scales, 256.

DIVIDING MACHINES, 257.

FIGURE A. Ackland. Dividing mechine; usual method of gra-duation; Mr. Ackland's method divided into three processes; description; example, 257.
PERIPLEX. Line divider; principle and construction,

FROMENT. Divided metre; Fromont's screw; applica-tion of electricity, 257. Conservations are Aura at Matters. Gambey's brass metre; platina metre; description; standard kilogramme; French colon of legal currency; measuring rods and chains; measures of capacity, 257.

BALANCES, 257.

ALANCES, 251. Introduction; varied nature of collection; beauty of work-mankip; Fox's balance; enumeration of the verrous modes of construction not onlybed; Wellaston a method of cleeking oscillation the most simple and efficient;

division of the scale, 257.

Lepwin Otarrano. Balance; beam coated with palladium; balance to carry one kilogramme in each nature; to same to carry one knogramme in each pan; descriptions, 238 rm. Balance; workmanship equal and similar to that of Robinson; mode of adjustment; substitution of links for silk threads, 258.

Balance for small weights; adjustment of the beams by magnetism; method of overcoming fric-

tion, 258.
Managore. Chemical balance; construction of the beam; peculiarities, 258. DE GRAVE, SHORT, AND FANNER. Assay balances; commercial balances; weights; measures of capacity,

Ac., 258. us. Large balence; construction and adjustment; small balance, 258. BACHE. DELECTE. Balance; avoidance of screw adjustments;

adapted for weighing gases; chemical balance; readapted for weighing gases; ehemical bulance; re-marks upon coentraction; assay balance, 259.
COLLOT. Balance; assay balance, 159.
Biransora, Balances for the counter; steelyard; double steelyard; model of a machine for determining pressure; Peso complexe, or weighing-machine; reason for not awarding a Media to M. Bernanger,

203. Sacar. Balance; construction; its peculiarities; suspension of the pans; beauty of workmanship; assay bulances, 250.
ORETLING. Balance; construction and mode of adjust-

ment; attachment of two thermometers; their posttion objectionable; two small balances, 259. REIMANN, mann. Balance; mode of effecting the adjustment of the knife edges; adoption of the circular level,

HOTTHANN AND ERERRARDT. Balances for apothecaries.

2.59. LURIME. Chemical balances: their capabilities, 259. BATKA. Kusche's small balance, 259.

Dollarse. Balance; mode of thecking oscillation ob-

Jectionable, 200.

Browns. Balance; construction, 200.

Browns. Expe balance; form of scale-pans objectionable; small balance; assay balance, 200.

LITTMAN. Balance; usualitution of an additional index,

for a graduated scale considered objectionable, 260. Viatras, Chemiat's balance, 260.

COIN-WEIGHING MACHINES, 200, Difficulties attendant upon the old method of weighing the gold roin; idunstrafaction of the public; difficulty of weigh-ing with nyfficient accuracy; causes as theocered by Mr. Cetter mamerated; overcome by Mr. Cetter is caincurrent. machine; success attendant upon its use, 260.

Description of Mr. Corrow's machine; construction; mode of netting detailed; saving of revenue effected since its use was established in 1844, 260. Sarra. Coin-welghing machine; its principle and con-

struction, 261, DELIVIE. Coin-weighing machine, designed by Beron Seguier; conjectural description of the construction; the machine not being patented, the internal me-chanism was not examined. 261.

enantem was not examined, 201.

Suggestions by Sir John Herschel for the construction of a coin-weighing machine, 262.

Collection of balances in the Exhibition anti-factory; remarks upon the omission of self-weighing muchines for small urrights, 262.

AIR-PUMPS, 262.

Importance of the air-pump; remarks upon construction; observations in forour of those exhibited; Newman, exhi-bitor of the best air-pump, 262. WATKIN. Double-barrelled air-pump; Grove's prin-

ciple, 262. KNOHT AND SONE. Air-pump on Siemen's patent, 262.
Valley AND Son. Air-pump; new construction; small double-barrel air-pump, 262.
Herwood. Rotary table air-pump, 262.

HETWOOD. Rotary table air-pump, 262.
GOULETT. Air-pump, 252.
LAND. Single-barrelled air-pump, 262.
YEATES. Double-setting air-pumps, 262.
Bavas. Double-settion air-pump, 262.
Bavas. Double-barrelled air-pump; form of construetion objectionable, 263. EVIL Double glass-barrelled air-pump, 263. DELEVIL. Double glass-barrelled air-pump, 263. Nusex. Double-acting single-barrelled air-pump, 263.

OPTICAL INSTRUMENTS, 263

PIICAL INSTRUMENTS, 300: Importance of the televicy; a solid substance substituted by Wray for finit plans i optical plans in the Ethibitors; Kimma object planse; Chance's disc of plans; Pougact; Buyerle's Bertrand i Dubour-Solid; ethibitor of physical optics is microscopes; highlocotes, by. 200.

TELESCOPES, 263,

Valley Am Son. Apparatus for Gregorian telescopes; details of its construction; remarks upon the advantages of the Gregorian form of telescope; portable

tages of the Gregorian form of telescope; portable Gregorian telescope; construction, 263. Ross. Telescope; object-plans of English flint glass; tests to which it was subjected, 264. Callonan, Telescopes for decressiaking, 264. Salmon. Telescopes for decressiaking, 264. Berlancoco. Helbecting telescope, 264. Rosellancoco.

BRURARDON. Helbeching telescope, 264.

BOTLE. Reflecting telescope, 2 as-fill substance substituted for fill glass; results of the test to which it was subjected, 264.

WARLES AN HILL. Telescope, 264.

MARRATE. Achromatic takescope, 264.

HARRATE. Achromatic takescope, 264.

HARRATE. Achromatic takescope, 264.

man Arn Sox. Double-image terrecope, 700-100x, Telecope; the olipe-ignas of rock crystal; particulars necessary to attend to in working rock crystnij; Ilugycan formais; telescope supported upon M. Cauchola' stand; telescopes with terrestrial and celestial eye-pieces. M. Blot; 204. nars. Achrematic telescope; introduction of a filtot less between the erown lenn and joint focus; suc-LEDREN.

cessful result of test, 264.

Kinzinacii. Dialytic telescope, 264.

Busca. Achromatic and other telescopes, 265.

MICROSCOPES, 265. Introductory remarks upon the large collection exhibited; importance of the microscope; application to geology; previous to the medical profession and to every class of noticty; instances of its powers of detecting adulteration both in grain and in textile fabries; construction of the first object-plane by Tulley; Dr. Goring's opinion; describle to trace the consess which here as conduced to its disturble to trace the masse which have a readered to the admission clusted the suplication of the uniformal indiper-glass to the compound microscopy: Sollique's micro-soppe; John's in beta Mr. W. Talley; Jr. Going; a necorgid combination of the least the result of Mr. and constructed by Mr. Rau; we show of Mr. Rau relative to the front leas; a war supprison by Mr. Little certrical on by Mr. Rau; which is the first Rau; Smith and Bret; their mercaine servicine; results are proposed to the compound of the con-trolled supprison of the Three Brecomies servicine; results leave greatering the Bretan Southern programs of the Three Brecomies per-turbable supprison of the Three Brecomies; Hi distances wholds supportions of Sir Dural Breaster; Williamon's condenser; application to the microwaye of the apparatus for the polarization of light; low price of the interamente exhibited by Wener, Smith and Boch; combinations and mitted for educational purposes; continu concerning the activation of the angle of apprivacy; remarks upon academistion of high power and extremely extended angle; of aperture; sporture; observations upon the qualities essentially usits to the stand of a microscope, 265.

regulars to the stand of a microscope, 250.

8. Microscopes; angular apertures of the objectglasses; quality of the object-glasses, 266.

ITM AND BECK. Microscope; observations upon the
stand; lever motion of the stage the best yet applied; engular sperture of the object-glasses; well corrected

for spherical aberration; new form of cabinet; two tables with revolving tops for the convenience of several observers. 256. several observers, 256.

Valler and Son. Microscope; stage moved by parallel rods; microscopes for the reception of vials containing animalcules, aquatio plants, &e.; microscope for beginners; remarks upon Varley's lever stage, 256.

Vicen Microscope stard with a life and the property of the parallel property of the par

Kino. Microscope stand, with micrometers and gonlo-meters; description; workmanship; mode of illu-

mination, 266. remann. Achromotic microscope; remarks apon the PRITCHARD form of Instrument, 267, n. Microscope with chain-and-spindle movements,

Pillsenen. Microscope stand; its large size objectionsbio; small microscopes, 267.

Jacsson. Plain and exavated slips of glass; sections of tubes, 80., 267.

Husson. Microscopie objects, 267.

Hurson. Microscopic objects, 291.

Hirr. Injected microscopic objects in illustration of the atility of the microscope, 267.

Potrow. Microscopic objects; drawings in illustration,

267.

Microscopic objects mounted in guita-perche STARK. Cells; slides for opaque objects, 267.

SHABE. High power leases, 267.

SHABBOLT. Sphero-annular condenser for the concentration of light; remarks upon the principle of the

condenset, 267.
FIELD AND SONS; ELLIOTT AND SONS; WATRING AND
HILL; ARRAHAM; GERTIN, exhibitors of micro-

scopes, 267. scopes, 267.
Inferiority of the French object-classes. Netchet's the
best, but inferior to Ross, Smith and Beck; spherical aberration not corrected; a dissecting microscope exhibited by Natchet, 267,

scope exhibited by Natchet, 267.
BERNARA. Microscopes, 267.
CHINALIZIN. Distroscopes, 267.
CHINALIZIN. Distroscopes, 267.
MILLA MICROScope; remarks upon its mechanical construction, and object-plasses, 267.
HALAHY. Microscope; Huggenian cys-pieces, chromatic and spherical aberration not corrected, 267.
Pers. Distroscope, 367.

Remarks upon the uses of the microscope; an important illustration of its utility afforded by Leonard, 267. List of subjects selected by Leonard in illustration of

the powers and utility of the microscope, 267.
Remerks upon their asceution, 268.
Torriso. Cases of microscopic objects; Mr. Topping's
remarks upon the best medium for monating; ob-

servations upon the method adopted by Mr. Topping,

loragony. Microscopic objects, 269, ioneny. Tracings of parallel lines on glass; constitute admirable tests for object-glasses, and tend to confirm Nonent. the undulating theory of light, 268

LEXIV. Dies or minute copies on silver and steel, of

verious devices; remarks upon their minuto size which render them almost invisible to the naked eye; details of the dies exhibited; remarks upon their utility, 268

OBJECT-GLASSES FOR TELESCOPES, 269. es. Acbromatic object-glasses; remarks upon their colour; Mr. Simms method of determining the corrections required for achrometism; specific gravitles of the flint and crown glass manufactured by Chance

and Co., 269 marks upon Mr. Simms' new invention and arrange-ments; e Council Medal awarded to Mr. Simms by

the Jury, 203.

The Jury, 203.

Thath. Object-class, 209.

The Jury, 203.

Athromotic plans, crown and flist plans for which, made by late M. Guinard, with curves after Mr. Str. J. Herscheft's method, to show stars of 11th GODDARD.

magnitude, 269. Branz. Solid eye-pieces; their construction; Sir David Brewster's achromatic sphere; Sir David Brewster's remarks apon achromatic eye-pieces; the incon-rendence of the positive eye-piece now is use; examination of the eye-piece by Mr. Glaisher, 969

OPTICAL GLASS, 270. Examination of the disc of plans exhibited by Mr. Chance; gratiemen present at the examination of; description of tests to which it was subjected; satisfactory results,

270. Mažs. Specimens of a new kind of glass; its compounds; suggestis discs of glass, 270. suggestions to manufacturers; prisms;

Remarks upon the achromatic union of the spectrum, 271, Daguer. Disca of flint and crown glass; M. Daguet's prucess, 271.

Lenses and prisms, 271.

Lenses and prisms, 271.

Barrang. Lenses of various forms; lonses ground on curves of different foci, 271. curves or different foci, 271.

JAME. Priess of crown glass; discs of filmt glass; plane and coursevo reflectors, 271.

BETATATE. Nicholi's prisms; crystals; variously cut prisms, 271.

BURGE. Various prisms, 271.

LIGHTHOUSES, 271. GHTHOUSES, 271.

CRANCE. Design for a lighthouse; improved method of reflection; arrangement of the prisms; system adopted by Fresnel; description of apparatus; colour of the glass, 271.

WILLIAM. Apparatus for a lighthouse, very similar to that of Chance; new adjustment of frietion rollers,

PHYSICAL OPTICS, 272.

Draosco-Sozza. Silberman's hellostat; principle; sac-charometer; moda of using it; Bravais's haloscope for showing halos, parhellons, and meteorological phenomena; instructions for producing the several appearances; various instruments for physical investigation, 272.

SPECTACLES AND OPERA-GLASSES, 272. FERTALIZA AND OPER-AGLASSES, 722.

Beaming upon the mire of the species including in port of the protein school of the protein schoo

BRAHAM. Spectacles, 273. CALLAGRAN, Steel speciacles, 273. CALLABRAS. Corcus processors, 213.
Solomors. Eye-protectors, 273.
Westranows. Spectacles; a pair of sketching, 273.
YEATS. Spectacles, 273.
HERSEL Spectacles for rectifying obliquity of vision,

spectacies for preserving the cycsight (concerva-garden-mes), 273.

Remarks upon M. Henri's improvements, 273.

POULLOY. Specially; metallic woven speciacles Leaven. Cheap speciacies and opera-glasses, 273.

Propert. Opera-classes, 273. Opera-glasses, 273.
 Opera-glasses, 273. Besov. Bescu. Speciacies; opera-glasses, 273. Latisus. Speciacies, 273.

LATINE. Speciacies, 273.

BAHAN. Speciacies, 273.

PLAUSIOL. Speciacies, 273. Pics. Spectacles, 273.

DISSOLVING VIEWS APPARATUS, 273.
ABBAHAM ARD Co. Trinopirio prismatie lantern; description; dioptrie prismatic lantern, 273.
CARPENTER AND WESTLEY. Phantasmagoria lanterna; lenses; subjects for dissolving views, 274.

HORNE, THORNTHWAITE, AND WOOD, Dissolving apparatus for the oxylaydrogen lime light; novelty of its arrangement described, 274,

PHOTOGRAPHIC CAMERAS, 274.

General remarks upon the comera; being shetch of its advance-ment from the dote of its disovery to the present time; spherical observation carefully corrected by Mr. Ross. by M. Himport; construction of the object-glasses exhi-bited. 214.

Cameras, with single and double acpromatic object-glasses, 274.

Henneman and Malone. A camera by Ross; descrip-

tion, 274. Knight And Sons. Cameras; construction and adjustments, 274.

Hoave, Thoavriwaitz, ann Wooo. Camera; double actromatic object-giass; fine specimens of chemicals used in photography, 274. Caarber. Cameras; multiplying camera; description,

AATTS. Portable photographic camera; a flexibic cloth body instead of one of wood, 274. WILLATTS.

Vanier And Sov. Single reflecting cameras for en-larging or reducing copies, and for sketching from nature upon stone, 274. ARRAHAM, AHRAHAM, AND Co. Portable sketching

camera, 275.
LGNIOL, Camera, largest in the Exhibition; great

defalcation of light; larger eameras have been con-structed, 275. SCHIENTZ. Camera; sides of the field very obscure, 275. HARRISON, Cameras; double achromatic object-glasses,

ALBERY. Camora; double achrematic object-glasses, Bocast Dr L'Istr. Camera lues for copying drawings; method of using it, 275.

PHOTOGRAPHIC GLASS, 275.

CHANCE AND Co. Discs of glass for slaguerrectype and talbotype apparatus; its density and refractive power, 275.

Benox. Glasses for dissolving views, 275.

PHOTOGRAPHY, 275. General remarks upon photography; not 3rt ottained the ronk of a science; its pursuit likely to elucidate principles roads of accience, its parenist likely to checidate principles on present molecular photography set in its impact; the study of the prismatic spectrum, per us, recommended; it report bet, as shown in the Exhibition, this study, has been an little followed up; Mr. Claustet alone has done on; the method adopted by Mr. Beas in the construction of his conserva; the present orbibition of photographs will prohaps from a real from which to dotte many improvements; rupid advance of photography; an illustration of this rapidity; formation of doouerreetype establishments in Lowlon; amount of daily receipts on their first estain London; amount of daily receipts on their first set-liabinent; voltage process and its employment by Mr. Collen; injurious effects of the employment of the brash; Mr. Clanded: perfection of the processe; sens the first to perceive the advantage of employing subsidiary adjuncts for backgrounds; pleasing results of Clauded's multi-plying cumera; most on of those greateness who have materially extitative to the advance of photography;

M. Fizeau's new provess of engraving and preserving the departrion image, 275. ures ; M. Bayard's velebrity; Hennemon and Malone

exhibitors of tallotypes; advantages attendant upon Mr. Tulbet's process; M. Arago's opinion concerning the investigation of the photographic processes, 276.

DAGUERBEOTYPE PICTURES, 276

CLAUDET. Non-inverting portraits; distinguishing merits of Mr. Claudet's pictures, 276. Difficulty of hiending colour with photographic works; Claudet a dynactimometer and forimeter; specimens illustrative of the different refrangible rays, 276,

Kilin in. Coloured daguerreotypes; individual merita specified, 276. MATALL Unroloured daguerreotypes; their charac-teristics; subjecta selected for illustration; crayon

daguerreotype, 276.

3raab. Enamelied daguerreotypes, 277.

Lanoche. Daguerreotypes, 277.

Colorranges. Coloured daguerreotypes, 277.

VOIGTLANDER. CONTLANDER. Coloured deguerreotypes, 211.
Sairvirus and Le Beau. Coloured deguerreotypes, 277

PAINE. Photographic pictures to show the progress of the art, 277.

THEE. Coloured deguerrectypes, 277.
CRADIOCE. Photographic copies of orgravings, 277.
American deguerrectypes; their merits and character, 277.
American excellence usualed by level influence, 277. Lawsever. Daguerreotype portraits; special mention of individual works, 277.

Bany. Daguerreotype pertraits; beauty of execution; remarks upon their backgrounds; several works Particularized, 277.

WHIPPLE Dequerrostype of the mone; a new cra is astronomical representation, 277.

MATALE, Nulpets witch composa bis American col-lection; same characteristics as shown in his British collection; particular excellence specified,

277.
Daguerreotype portraits; peculiar excellences,

MEARE BROTHERS. Series of daguerrectype portraits; excellent arrangement of light and shoile, 277.
PRATT, RICHMOND, ARR CO. Daguerrectypes, 277.
WHITTEREST. Daguerrectypes of the Falls of Niegara,

WHITTENST: Impurrencype: CAUT: Daguerrencypes, 277.

Roor. Daguerrencypes, 277.

Roor. Daguerrencypes, 277.

Roor. Daguerrencypes, 277.

Forvars: Ann Powran. Daguerrencype silver of Cincinnation, 277.

Garcell Remarks upon the French dispurrencypes; 177.

Garcell Remarks upon the French dispurrencypes; their excellence, 277.

THEARI. Dagmerreotype view of Lyons, 278.

MALCONELE. Coloured daguerreotypes; their exceliences more nearly allied to art than to science, 278.

SABATIES. Deguerrootype portrait of large size; remarks upon the excellence of its execution, 278.
PLAGNIOL. Daguerrootypes, 278.
Gooss. Coloured daguerreotypes, 278.

Geess. Coloured algoriers types, 278.
Kousza. Dagorierotypes, 278.
Kousza. Dagorierotypes, 278.
Kousza. Dagorierotypes, 278.
Ven Mustous. Dagorierotypes, 278.
Takapurtage, Cadorira, 88. septement, 98.
Becauz. Calorypes of great heauty. 186. Bookhi's abBecauz. Calorypes of great heauty. 186. Bookhi's abBook and Tonosoos. Talberynes abblect of illustraphotograph and process by fatch dedaled; albominous process, 278.
Hun and Ashanton. Take.

III.L. AND ADAMSON. Talbotype groups; striking effects of light and shade, 278.
IERNIWAN AND MALORE. Talbotypes on paper; subjects exhibited; their merits; carellone of the coloured portraits; appelimens of the dynatotype and chrysotype of Sir. J. Herschel; chromotype of Mr. Hunt; various talbotypes, 279. Colle. Sun-pictures on paper, 278.

Owr. Calotype pictures, Inniscape and wood scenory; advantages of Mr. Owen's glass spreader, 278. Collet. Calotype pictures, 279. Rippingalas. Talbotypes; photographs from paper

negatives, 273. BINGHAM.

negath es, 273, swan as a constant of the state of the st

BAYARD. San-pictures, public buildings of Paris; calo-type of Venus and Cupid, 279.

FLACHERON, Sun-pictures; excellences; nocurate repre-sentation of superficial texture, 273. LE GRAY.

Sun-pictures, 279,

Le Guar. Som-printers, 273.

Brown Le Store, Chaptery: ethic articles from negliBranch and Chaptery: ethic articles from negliBranch Blackwitzer. Tallodype fetteres; a new
forest 200, 700 met negroling profit in mode to,
from 200, 700 met negroling profit in mode to,
from 200, 700 met negroling profit in mode to,
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group

of autography, 279,

MAGNETS, 279. Remarks upon the improvement of steel magnets; attention paid by Hearder to the personnent magnetic powers of

pain by Iremore to the personness magnetic powers of out-iron, 220.

Dr. Scoredy's experiments upon the magnetic properties of outsiron's IPr. Scoredy's results, 201.

Mr. Hearder's experiment upon the magnetic properties of

cost-iron, 200.

Lourman. Permanent magnets; results of experiments, 280.

HENLEY. Permanent magnets; results of experiments, SHAW AND Sox, Two magnets, of 9 ib, and 76 lb, weight respectively, 280,

HEARDER. Cast-iron magnet; its construction; obse vations upon the relative powers of the magnetic plates when separated; permanent horse-shoe steel magnet; its weight and power, 2%. Rewesta. Carbonized cast-iron magnet, 280.

MAGNETICAL INSTRUMENTS, 280 ORE. Photographic apparatus for the self-regis-tration of the magnets; description of apparatus; chemical solutions for the preparation of the paper,

ebemical solutions for the preparation of the pro-280.
Wilton. Fox's dipping needles, 281.
Paures ano Sox. Pocket compasses, 281.
Garra. Magnetic gan-dist; pocket compasses, 281.
Yaaris. Prismatic compass, 281.

ELECTRICAL INSTRUMENTS, 281.

General remarks upon the necessity for an inexpensive instru-ment adapted for the observation of atmospheric electricity. Application of steam-power to the production of electricity, 281.

WESTNORELANO. Gutta-percha electrical machine; de-scription, 281.

Remarks upon WATERS AND HILL temarks upon the application of gutta percha, 282.
WAYKINS AND HELL. Electrical machine; construction;
galvanometer; thermo-electrometer, 282. DELECIA. Electrical machine for medical purposes, 282. MEINO. Hydro-electric chain batteries, 282.

Theamo-Electricity. Introductory remarks on results of Lubeck of Russia's discovery, in 1821, of electric currents generated by contact of two different metals in heated

state, 252. ion. Thermo-electric battery; construction, 282. ICFFMANN AND ERRHARDT. An apparatus for showing HOFFMANN AND ERERHARDY. the earth's magnetism, 282.

APPLICATION OF FLECTROMAN NETSISM TO THE MOVEMENT OF MACHINES, 202.
Remarks upon Professor Gerical almostry, and the opposition of a cutter force proleced submarks attending flament, in the macrossi of machines, 202.

John Markett of the macrossi of machines, 202.

John Markett of the professor of the macrossi of machines, and the macrossi of machines, 202.

John Markett of the macrossi of machines, 202.

John Markett of the Markett of magnetic force of the macrossi of the

KRIGIT AND SON. Electro-magnetic engine; simple in

construction; electrical machine; its construction, 283. WATELES AND HILL. Electro-magnetic engine; its prin-ciple and construction, 283.

ALLEY. Electro-magnetic railway-train slarm, 283.

Carseweat. Electro-magnetic engine for the production of motion, 233. FROMENT, Licetro-magnetic engine; Its construction,

233. Barros. Electro-medical apparatus, with double cur-

rent, 283 HAORTH. Electro magnetic engine; plan of improved arrangement; detailed description of its notion,

ELECTRIC TELEGRAPHS, 283,

Jacctus Teleographis, 200. Electric Telegraph Company is are distributed by Electric Telegraph Company; seedle telegraph; angul progress; Lengés proposition of the Company is a related telegraph; Salves; Romales; Gelwal; Folks; vellet; Folks; Salves; Semuscriagi s poids; Curés decompositions; Aroys's and Farndays discoveries; Pairi: Sealon; essentials of electric telegraph; generation of the force; different batteries; Holds proposition, 284.

The earth supplies electric force; means of setting the current in motion; magneto-electric machine; immitation of the force; Rosalda, Weber, Steinheil, Walker, 255.

force; towards, terver, occurren, er ower, 250.
Use of enoutehous; gutta percha; invalation of street and
tunnel wires; those under rivers, or harlours; first
telegraph communication between England and France; different methods for submarine seire, 283. UTILIZATION OF THE FORCE; different methods of making

the force manifest, 286. Galvanometer; Steinheit, Alexander, Schilleng, Dary, Gauss and Weber, Fechner, Mason, Cooke and Wheatstone, Highton, by whom the electro-magnet has been used,

Different signals in Fronce, England, Prussis, and America. 287.

INFRUMENTS EXHIBITED BY THE ELECTRIC TELFORAPH COMPANY; a rhomboild needle, patent [816, 287. WHEATTONE'S magneto-electric induction machine, 287. HATCHER'S magneto-electric induction machine, 287. WHEATSTONE'S rotating induction machine, 267

BARLOW'S printing telegraph, 287, NOTT AND GAMBLE'S telegraph, 288 HATCHER's induced current machine, 283. OOKE's portable telegraph, 288,

BRETT AND LITTLE'S conventional alphabet, 288, WHEATSTONE AND COORE'S patent, 1840, 288, HATCHER's electro-magnet printing telegraph, 258, Barn's chemical printing telegraph, 288, Barrish Electric Telegraph Company, 288,

Historron's different patents, 288. Hanter's magneto-electric telegraph, 288. J. Barr's electric printing telegraph; description; arrangement of letter; pocket communicator; an electric circuit regulator; specimens of submarino

wire, &c., 289. Bain's electro printing telegraph, 2.0

BARN SCIECTED PRIMARY RECEIVED AND ASSESSED AND ASSESSED AND ASSESSED AND ASSESSED ASSESSED AND ASSESSED ASSESSED AND ASSESSED ASSESSED AND ASSESSED ASSESSED ASSESSED ASSESSED ASSESSED ASSESSED ASSESSED ASSESSED ASSESSED ning conductor; graphite battery; movemble s.uds; ringing bandle, 2-0.

ALLAS's needle telegraph, &c., 202. Denino's electric telegraph, &c., 202. actr's patent electric telegraph alarum-bell, 233. LITTLE suggests the use of a sewing needle, 2:3, ALEXANDER's electro-magnetic tele graph, 213, Sыти's comic electric telegraph, 2.3. McNam's submarino wire, 2:3, Withman's gutto-perebn tubes, mouth-pieces, hydranlie

telegraph, &c., 293. SIZMEN'S AND HALSBE'S telegraph, 2:3. Бтонкки's magneto-electric telegraph, 204.

DOMESTIC TELEGRAPHS, 294.
BURDETT, REID, WHISHAW, BROOKS, HOWLAND, 294.

CHEMICAL APPARATUS, 225,

Graced reservis, 235, KNIGHT AND SONS. Chemical cabinet; furnace; different batteries, 205. Glass instruments: system of assigning a fixed volume to atomic weights, decimal weights,

ke., 295. EDWARDS. Glass vessels covered by copper, 235.
IBBETSON. Blowing appearatus, 2)5.
BYATHAM. Various boxes of chemical tests, 2/5. ARER, SACCHAROMETER and Incignoter, 2.5. Correy. Chemical apparatus, 235.

John Herschel's suggestion relative to coating day on plumbago crucibles, with films of platina, &c.,

276.
HORNE, THORNTHWAITE, AND WOOD, Galvanic machine, &c., 296. HEARDER. Galvanie machine, 296. TAYLOR. Prenmatic battery, 296. TAYLOR. Prenmatic battery, Nan. Hydrometer, 296. Lyons. Several batteries, 296. QUENNESSEN. Platina alembie, 296.

CHYARD. Gagoscope and safety-lamp, 216.
BONNT. Assay formace, 226.
DEVERX. Chemical utensils, 277.
LEMOET. Galvanic battery, 227.
KAPLLER AND SON. Black-lend crucibles, 227.

KAPLELIN AND NO. Black-bast eracibles, 227.

SELL. Steam papersha, 207.

Amouto, Chemical apparatus, 207.

KROSEN, Land Bastery, 227.

KROSEN, Chemical apparatus, 227.

Lenuse, Chemical apparatus, 227.

Lenuse, Chemical apparatus, 227.

BANALES, Apparatus for subplus of beer, 207.

BANALES, Apparatus for subplus of beer, 207.

FIRE ANNIHILATORS BY CHEMICAL APPLICA-TION, 297. Machine, 297. PHILLIPS. Machine, 25 Wrang, Machine, 208,

METEOROLOGICAL INSTRUMENTS, 298. General remarks, 2:8. Barometers; thermometers; in-ignious effects of bad instruments, 2:8; essentials of good thermometers and barometers, 239. FASTRE. His thermometers the best in the Exhibition.

SELF-REGISTERING METEOROLOGICAL APPA-

RATUS, 299. Dollovn. Atmospheric recorust, 277.
Banoar. Photographic apparatus, 300.
NEWMAN. Anemometer and rain-gauge, 300.

BAROMETERS, 300. SAROMETERS, 300.

GREYPTES. Banometer with a trap, 500.

NEWBAN. Standard barometer, 340.

ORCHARD. Standard barometer, 340.

VIDET. Ancrold barometer, 340.

NEMBETT AND ZAMBRA. Different barometers, 300.

YEATES. Different barometers, 500. owalvico, Mountain becometer, 300.

HALL Meteorological clock, 300.
THEMLETT. Marine barometer, 301.
ELLIOTT AND SOM. Different barometers, 301.
BURBLL Compensatory cistern barometers, 301. BROWN. Barometer of two immiscible fluids, 301. BROWN. Barometer of two immissions must BENNETS. Barometers, 301. Dixey. Barometers, 301. BAKER, Two barometers, 301. GRAY AND KEEN. Wheel barometers, 301. GRAY AND KEEN. Wheel barometers, 301.

GRAY AND KEEN. Wheel ha Ross. Barometer, 301.
Pizzata. Wheel barometer, 301.
Gnivnini. Barometer, 301.
Gnivnini. Barometer of a new construction, 301. GALY CARALAT. Manometer, 301,

Entesson. Alarm barometer, 301, THERMOMETERS, 201.

Sowns. Standard thermometers, 301. NEGRETTI AND ZANDRA. Standard and other thermometers, 301. Standard and other thermometers, 30L

WATEINS AND HILL, HARRIS AND SON, ELLIOTT AND SONS, BROWETT, DINEY, BAKER; FASTRE, LCHNE, ZERAK, JUDGENSENS, 392.

ANEMOMETERS, 302. PHILIPS AND DE HENNAULT, 302.

RAIN-GAUGES, 202. PHILIPS, WATRING AND HILL, BARRS, 302. PYROMETERS, 302. Engreson, 302. Wine, 302.

TIDE-GAUGES, 302. HEWITSON AND NEWHAR, 302

ACOUSTICS, 303. HEEPS AND REIN, 303. WATERN AND HILL Syrene, 303.

PLANIMETERS, 303. SANG AND GONELLA'S, description of, 303. GOLDSCHMID, AND AUSTELD'S, description of, 304.

DYNAMOMETERS, 304, TATAINES. Adapted for great strains, 304. CLAIR. Adapted to moderate strains, 304. Brau. Self-registering, 304.

CARAUR. Furnished with chronometric controller, 304.

CRYSTALLOGRAPHY, 305.

LEIMEN, MITCHILL. Collection of crystals, 305.

LEIMER, SCHRODER, BATKA, BERTAFD. Models of crystals, 305.

DRAWING INSTRUMENTS, 305. VASLET AND SON. Graphic telescope, 205. ELLIOTT AND SONS. Drawing instruments, 305. PILLINGHER. Elliptic compasses, 305.

SIMMS. Airy's elliptograph, 305.

Donoon, TREE, PARRE AND SONS. Drawing instruments,

315, Perry, Mathematical Instruments, 305,

Haggard. Double pretractor, 305.

Gastan. Ivery rule, showing relations between the side
of a square, quest to the area of a circle, &c., 305.

MATTHIAN. An instrument for dividing lines quickly, 306.
Horne, Thornthwaitz, and Wood. Tebay's rule, 306.

House, I Bolderiuwatte, and mood. 180h; 2 rus., 200. Gayaran. Pontagraphs and diagraphs, 256. Lürrico. Drawing instruments, 256. Lürrico. Drawing instruments, 256. Invasaa Loosea Woors. Drawing instruments, 256. Invasaa Loosea Woors. Drawing instruments, 256. Visition, Rivietta, Lurryana, Nierzenaava 250 Vaccant, Visition, Rivietta, Lurryana, Nierzenaava 250 Vaccant, 100. ROCHETTI. Drawing instruments, 306. PENROSE. Halicographs, 306.

ORRERIES. ERIES, PLANETABIUMS, ASTRONOMICAL MACHINES, 506.

General remarks, 306, FACT. Vartical errery, 306. PACT. VERIODA GETETY, 300.

NEWTON AND SON. OTTETY, 307.

PLANT. OTTETY, 307.

NEWTON AND SON. Planetarium, 307.

NEWFOX AND NOV. Planetarium, 307.
LE FEUVER. OFTEY, 307.
MARKET. Planetarium, 307.
MARKET. Pinetarlum, 307.
BARE. Pariphan, 307.
MATTHEWS. Astronoms, 307.
MATTHEWS. Astronoms, 307.
MALLOCH. Michanical indicator for teaching geography,

907.

NYLENCEL Eclipse indientor, 207.

NYLEN. For showing the ebb and flow of tides, 207.

NYLENCE AND SOS. An armillar sphere, 307.

ZHEREMAIN. Planetarium, 307.

ZHEREMAIN. Planetarium, 307.

NETHEROM. GOOGLE SOS.

NETHEROM. G

DIALLING, 307. NEWTON AND SOX. Spherical sun-dial, 307.

LAWRENCE, ELEGOTT AND SONS, DARNELL, COX, UHLMAN.

Sun-dials, 308.

GLOBES, 308.

LOBEN, 338.
JORNSTON. A terrestrial globe, showing the geological structure of the earth, 338.
NEWTON AND SON. A large manuscript globe, and various other globes, 308. FLETCHER. A pair of terrestrial globes, and process of globe-making, 3/8.

READWOOSE. A model of the moon, 308. ADORNO. A pepier-maché globe, 308. STORER. Angular terrestrial globe, 308.

BENTLEY. A plain globe, 308. PAXON. A lunarian, 308.

MARKATT. Globe of moon, 308.

Good. Globe designed to show the diurnal motion of the

earth, 308, EDKINS AND SON, 18-inch globes, 308.

GILERAT. Tissue-paper globes, 308. Kumer. Globe in high relief, 308. GOODTEAN. India-rubber globes, 308. GROSSELIN. Celestial globes, 308. ZIEBERMAYER. Globe, 308, RIEDL. Globe of the moon, 308

RELIEF OR MODEL MAPPING, 309.

DENTON. Method of model mapping, 309.

SCHOULL. Model of Mount Sentis, 309. Innerson, Model of Isle of Wight, 309.

AERIAL MACHINES, 309.

GILBERT. Carriage drawn by kites, 309. LUNTLEY. Rotary balloon, 309, GRAHAM. An aerial machina; description, 309. Aon. An aerial machine; description, 309, BELL. Locometive balloon, 303. BELL, Brown, Balloon, 300. Mason, Navigable balloon, 310. PLUMMER. Aerial machine with wings, 310.

CALCULATING MACHINES, 310.

Gracul resurks, 310.
Statyrt's Machine. Description; mode of use, 310.
Trayrat's Machine. Machine; its adaptation, 310.
WESTHERMER AND SCHILT. Calculating machines, 310, 311. ROOKER. Dr. Roget's involution scale, 311. LALANNE, A calculating rule, 311.

INSTRUMENTS FOR THE BLIND, 311.

Hunnes. Portable typograph; construction and method of using it, 311. Machine for facilitating the writing of the

blind, 311, cactr. Printing-machine for the blind; designer POUCAULT THOMPSON. Invention for teaching the blind to draw and

THOMPSON. Invention for teaching the buind to draw and write: no explanation given to the Jury, 311.

GALL. Triangular alphahet for the hlind; Gall's apparatus for teaching the blind to write, 311.

Mancassi. Printing-machine for the blind, 311.

MISCELLANEOUS, 311.

Dunin. A place of mechanism to illustrate the dif-ferent proportions of the human figure; mechanical arrangements; dimansions of the figure; excellence of the workmanship ; Intended application ; possible applications, 311.

LLOTD. Typhodeletor, or storm-pointer; description and use, 312. CHALLIS. An instrument for calculating the sums of the

errors of a transit instrument; construction; accuracy; addition required for different latitudes, 312, vsr. Model of a portion of the moon's surface; Erastothenes, 312. BLUNT. Lightning rods; metals used in their composi-

tion, 312 NAMESTEE. Map of the moon; enlarged representations of certain portions of the moon; their accuracy and good execution, 313.

FISHER. Chart to illustrate the sun's declination at all seasons, and the coincident affects of light and heat npon various animal and vegetable productions, 313. LEYSER.

see. Wetter a electro-dynamomater for measuring the intensity of galvanic currents; general remarks apon the electro-dynamometer, 313.

POOL Fressel's ware surface, &c., 313.

WARD. Botanical cases, 314.

DE LA RUE. Iridescent films, 314.

VAN SCHEWRIL. Anamorphosis, or illustrations of the

Yax Nutrantz. Anamorphosis, or illustrations of the laws of perspective, 314.

Fineta. "Mathematics simplified" by means of geo-metrically-drawn figures, 114.

Financa. A dismonstration of the theorem of the right qualrated trivitection of the square; diagrams of the retrogressive parabola; gyroscopa, 314.

Granta. Spherical tripometric for the mechanical production of the region of the retrogressive parabola; gyroscopa, 314.

By Marian Spherical tripometric for the mechanical tripometric problems, 315.

By Marian Spherical of the production of the production of the retrogression of the production
tion, 315. YATES. Instrument for squaring the circle, 315.
Rozzars. Synchrometer, 315.
COOKE. Closed case for plants, 315.
BATEMAN. Machine to illustrate the effects of centri-

fugal force, 315.

DANNELL. Apparatus for the detection of fire or robbery. 315. SAUNDERS. Self-acting kaleldoscope, 315.
KNIGHT AND Sons. Machine for cleaning and polishing

KNGHT AND SOAN. Machine for cleaning and polishing degareracy pelates; protable mercury—hav; place holders; bend-rests; glass and porcelain diable for preparing semilities papers, 313.

DTER. Circular state, divided into as may portione as there are days in the month; it as use, 313.

ROPER. LEWICK 30 the month; its use, 313.

ROPER. LEWICK 30 the month; its use, 314.

ROPER ALSWORD SOMEWHAT ALL SHOT ADDRESS OF THE PORTION AND ALL SHOT ADDRESS OF THE PORTION

NEWBLEAU, Case of medials, 315, NEWBLEAU, Case of medials, 315, RUNDLL. Impressions of scale, 315, WILLAUTS. Registering thread-counter, 315, HAWAED, Gauge for measuring thickness and weight,

HAWARD. 315.
EFOZ. Photometer, 315.
EFOZ. Photometer, 315.
CHAMERILAIN. Balloting machine, 315.
BAREA. Vacuum and steam gauges, 315.

Bases. Vacuum and steam gauges, 313.
Bases. Patent power-engine to act as a water-meter, PLANT. Self-registering steam-boller feeding apparatus, 316.

Roman. Thak popuratus, 316.

Roman. Thak popuratus, 316.

Roman Thak popuratus, 316.

Rasatratratus. Tempost proposalisator, 316.

Rasatratratus. Tempost proposalisator, 316.

Romar dromants space the contenum of the Popuration International Symptotics and Content of the Popuration International Symptotics and Content of the Content o Exhibition, 316.

CLASS XA.

REPORT ON MUSICAL INSTRUMENTS, &c.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the pages in the OFFICIAL DESCRIPTIVE AND BLEFSTRATED CATALOGUE.

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NOTEMBER OF THALBERO, Deputy Chairmon, Austria; Professor at the Royal Academy of Music.

N. NYERSPALE BENNET, 15 Russell Place, Fitzroy Square; Professor at the Royal Academy of Music.

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SR GLORE SNART, SR. Admick Cherney; Dramit and Composer at the Linguist Reynd.
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Associates. Rev. W. Cazaler, Tenterden Street, Hanover Square; Superintendent of the Royal Academy of

JAMES STEWART, 22 Breeknock Crescent, Camden Town; Planoforte Manufacturer. William Telrondy Dublin; Organ Builder.

THE Jury of Class Xa. having concluded the examination of the various articles confided to their inspection, and having mude their awards, have now, in accordance with the desire of the Royal Commission, to offer the result of their labours in an official form, which it is hoped may hereafter serve as a faithful and importial register of the state of musical instruments, and their manufacture, in the year 1851.

When the very large number of articles (righteen hundred and fifty-seven) in this Class, displayed in the Exhibition, is taken into consideration, the utter hope lessness of doing adequate justice to all exhibitors in such a Report as this is at once apparent. Nevertheless, the Jury are desirous to record the unfeigned satisfaction and pleasure which they have derived during their inspection, from becoming acquainted with some of the most heautiful specimens of musical instruments of all kinds ever manufactured; and it will be their consolation to know that the restriction which they are necessarily obliged to make in the length of their Report will be amply compensated by the increased intelligence of the musical public, who have not failed to visit those articles, and to reward them, in their own opinion, according to the merit displayed.

Organs.

In this department the Jury, after due deliberation, determined to award the Council Medal to the following makers:-

M. P. A. Duenoquer, Paris, Mesers, Hell and Son, and Mr. H. Willes, Loudon, for their introduction of a fundamental pneumatic principle into the art of organ-building, by which means the great exertion hitherto required on the part of the performer on a large organ is no longer uccessary, the labour being transferred to the bellows-slower; and thus the largest organs may now be hullt without exacting from the performer more physical strength than he is obliged to use in playing one of the amullest size and compass

The following are the explanations of the various approvements illustrated in the organs which have been insprovements illustrated in the organs which have been exhibited by the three above-mentioned builders, Messrs. HILL, WILLIS, and DUCKOQUET.

The organ by Messrs, Ritt and Sox has two manuals; compass C C to F (54 notes). Pedal organ C to E, 24 octaves.

The great organ contains 10 stops. The swell organ contains 5 steps. The pedal organ contains 1 stop.

In this organ the following improvements have been introduced :-

1st. The "Tuba Mirabilis," a stop of great power and fulness of tone, the invention of Mesers. Hill. It is voiced on a much heavier pressure of wind than ordinary, namely, 11 inches, the ordinary pressure for church organs being from 2) to 3 inches. This stop has a separate bellows and woud-chest, and has never been made

by any other huilder. 2nd. The 'wind-tranks," for conveying the wind from the bellows to the wind-chest, are abolished, and hollow posts and framework substituted, thus effecting a great saving of room, and simplifying the general construction of the mechanism.

3rd. The application of a new valve to the great organ, the invention of Messrs, Hill, who first adapted it to the large pedal pipes in the York and Birmingham organs; it being found that such large pipes could not be supplied with sufficient wind by means of valves of the old construction, without increasing the resisting surface to such an extent as to render it impossible to open them by the pressure of the fingers, or even the feet of the performer. The above-mentioned valve reduces the pressure, or rather resistance, to one-fourth of that presented by one on the old plan, and admits at the same time double the quantity of wind. This valve has now for the first time been adapted to the manuals, to which it insures equality

as well as lightness of touch.

4th. The stops and sliders are shifted by means of the pneumatic apparatus; so that in changing the stops a key has merely to be pressed down, instead of drawing them off and on by means of draw-rods.

our mad on sy means of draw-rous.

These keys act upon a set of valves which admit compressed air into a series of small bellows acting directly upon the sliders.

There is a small bellows at each end of a slider, one for pushing the stop on, and the other for taking it off. Upon one of the keys being pressed down, the valve is opened, and the bellows becoming anddenly inflated by the admission of the compressed air, a mutive power is obtained sufficient to move the slider late its required position.

5th. The composition pedals are exceedingly simple in their construction, the performer having merely to move the keys above mentioned, which being very light are moved with great case. The usual heavy iron-work is entirely done away with, and the action much simplified and condensed.

Mr. H. Willis's argan consists of three rows of keys, from C C to G (56 notes), and two octaves and a fifth of pedals, namely, from C C C to G (32 notes

The pnenmatic lever, as improved by the builder, is oplied to the great and swell organs; the choir touch is lightened by pneumatic contrivance, counteracting the resistance offered by the pressure of the air, and a re-markably effective valve is applied to the 32 and 16 feet wood stops in the pedal organ, called the patent cylin-drical pedal valve, though used for other purposes in the same instrument. The bellows supplying the swell organ are placed in the box itself, and give two pressures of air.
The whole of the draw-stop movement is centred in a

peculiar way-also patent, The various organs have applied to them a novel and

convenient movement for arranging the stops, called The swell-box is constructed of 3-inch pine plank, with double front, upon the Venctian principle; the shutters of which (40 in number) are made of 2-inch pine, with

leathered joints, &c. The instrument will stand in a height of 27 feet, as at present orranged, and is 25 feet wide, by 22 feet 6 inches in depth; but it is expable of extensive alterations at a

iffing expense, should they be necessary.

The following is a synopsis of its contents:-

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Store.
Great organ, C C to G -
                                    90
Swell organ, C C to G -
Pedal organ, C C C to G -
                                    22
                                    14
Choir organ, C C to G -
Conplets -
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Observation 1. - The whole of the stops extend throughout the compass of the various elaviers, except the orchestral oboe, which, from its close resemblance to

that instrument, is only of the same compass. Observation 2.—The plan of placing the bellows in the abstract swell overcomes all the evils resulting from con-finement of air by closing the front, thus the pipes remain in tone. The other advantages are obvious.

The following is a description of M. Ducnoquer's organ.
The instroment is composed of 20 stops; with two
manuals and German pedals. Each manual comprises
five octures, from C C to C, and the pedals two octaves,
from C CC to C.
There are ten stops on the lower, or

great organ manual. Observation 1.—All the reed-stops on this manual are established on a separate wind-chest, and supplied with air at a greater pressure than that of the dispuson stops,

Observation 2,-The reed-stops and the furniture can be withdrawn at pleasure by means of a pedal.

There are eight stops on the upper or awell manual, Observation 1, - All the stops on this manual are inclosed in a swell.

Observation 2,-The upper monual can be coupled with Observation 2.—The upper monusal can be ecopore who the lower in three different woys, namely, in uniton, octavo obove, and octave below. The complets are brought into play by pedals, and in consequence of the npphenation of the poeumatic lever, do not add in the slightest degree to the weight of the touch, whatever may have the number generous of the control of t be the number employed,

Observation.-The pedals set at pleasure on the bass of the great organ by a coupler. The instrument is contained in a hondsome oak case in

the Gothie style. It measures 30 feet high, 12 feet broad. and 6 feet deep.

All the mechanical parts of this organ are constructed

of the best materials, and executed on the most approved principles. In addition to many late and important improvements, will be found peculiar dispositions, which have been adopted with a view of enabling it to compete, both in power and variety, with instruments constructed on a much larger scale.

Connoisseurs will, an doubt, be struck with the portionably greater number of reed-stops introduced into M. Ducaoquer's organ, compared with organs of the ame dimensions built either in England or Germony. The object has been to abtain a fuller orchestral effect: many of these stops, such as the obse, cor-Auginis, and bassoon, being particularly adapted for the execution of solos; while the trumpet, clarion, and double-trumpet stops give unusual energy to the fortistimo passages,

It may, however, be necessary to observe, that the dia-posons, which can slone give to the organ its essential character, have been by no means neglected. Of these there are two of 16 feet, and eight of 8 feet, five of which commence on the CC. It may be added, that among these stops are two of remarkable power and brilliancy, the harmonic flute and bell dispuson; the latter of recent invention, never having yet been introduced in any other

This instrument, hall expressly for the Great Exhibition, for the special purpose of representing the actual state of organ-building in France, is equally suitable either for a church or a large concert-room

A fourth Council Medol was also aworded by the Jury to Messrs. Gray and Davison, London, who have in vented a very ingenious and simple contrivance to com bine the great argan with the swell organ, by means of a pedal, which acts with the utmost case, and by which a very effective sforzando may be produced; thus en-larging the musical field of the performer, and adoing variety to the otherwise monotonous character of the most powerful and magnificent of all musical instruments,

Messrs. Gray and Davison's organ contains their newly-invented stop, the herostophon, first introduced by them in the organ at St. Paul's Church, Wilton Place It has also three manuals, and an independent pedal organ. There are—

and six composition pedals, Mr. J. C. Bisnop, London, and Mr. J. W. Walken, London, have exhibited but few specimens of their organ-bailding. Such makers have not been passed over by the Jury without Hosourable Mention, baving ever been in the foremost muk of organ-builders,

A Prize Medal has been awarded by the Jory to Jonan FRANZ SCHULZE, and Sons, Zollverein, for an organ which possesses two manuals, and an independent pedal organ, There ore-

Messrs. Schulzz's organ has blind prospect-pipes; the construction of the interior is therefore more simple. It requires no roller-boards, and is constructed with squares, which go in an oblique direction to the valves. In front, a vacant place for tuning is left, and the smotler stops may be placed in froot, to the great advantage of the

tone of the organ. 2ndly, It has a more powerful tone than others of lorger dimensions; it has also several soft stops—the whole being constructed after the theory of Professor

TOPFER. 3rdly. It takes up less room thou any other with the same number of stops, it weighs less, and requires less labour than organs of the same proportions.

4thly. It has elaims for its comparative cheapness,

considering that it as more power and depth of tone than is usual in organs of the same size. 5thly. The trumpet 8' is a free reed-stop, it is toned by series, the crutch is fixed, while the plate and the tongue are movable. The tone of this stop is more like that of a clariouet of bassoon, which has been attained

by a novel covering of the body of the pipes. 6thly. The posaune (trombone) 16', is also a free reed-

stop; it has a stronger tone, and speaks quicker than a mon reed-stop 7thly. Messrs. Schulze's organ has also a reserve bel-

lows, which assists materially the rapid speaking of the pipes, and which is of a peculiar importance, inasmuch as it provides a sure remedy for the unskilfulness of an organ-blower. A Prize Medal has also been awarded to-

Mesars. Decca, Florence, for a brantiful specimen of a chamber-organ, respecting which the following is an extract of the opinion of Signor Rossini:-

" Mesors. A. and M. Ducer, of Flarence, have built an organ of a diminutive size, possessing the same tone as one eight times larger. Its chief peculiarity is the

position of the lower notes, which are placed within the beach on which the player is scatted. These lower notes are placed in one single pipe, which gives the lowest C with 16 feet, and the successive tones of the chromatic scale hy means of eleven holes." To obtain the tone of a large organ, the builders, Messrs. Decct, have altered the form and disposition of the pipes, and invented a new species of mechanism. The instrument can be easily removed as it is, or it may be taken to pieces, packed up, and carried anywhere, just like a piano.
"The builders deserve great praise for this new instru-

ment, which not only does honour to their ingenuity, hat must expand the boundaries of art, particularly in the power it gives of uniting all the lower notes in one single pipe, which may thus lead to new mechanical improvements, and open sources of acoustic phenomena."

Honourable Mention has been made of an enharmonic

organ, invented by Lieut. Colonel T. Perroner Thomporgan, invented by Lieut. Colone 1. Princover 1 hourses, M.P., and huilt by T. J. F. Rosson, Loodon.
Mr. G. II. Holdfren has exhibited a small choir organ, the compass of which is from CC to F in alt. The stops are as follows: open dispason, as far as tenor C, 4 feet; stop diapason bass, curlestina, principal,

diaorton, The disseton stop has the effect of doubling every single stop throughout the instrument; the power, therefore, of the instrument is equivalent to one with twice the number of stops. This addition was invented by Mr. Holditch, who has applied it to church and chumber orcans. The contrivance is very simple, and not liable to derangement. The organ possesses a pnenmatic lever or valve, by which means the wind is made steady; also three composition pedals, with double actions to pull in and out the draw-stops. The pallets in the bellows are of peculiar structure, to prevent their casting or turning up from excess of heat or damp, which has been a great inconvenience in the formation of bellows

Pignofortes.

hitherto.

The following remarks upon pianofortes have been contributed by Mr. Thalberg :-

" Having been invited to contribute towards a Report on the pianoforte, I proceed to comply, in as short a space as is consistent with the nature of the subject. "It is necessary, in the first place, to notice the fact that music, though, perhaps, of all the fire arts, the first

in the order of cultivation in every country, has been certainly the very slowest in its development. In all its sister arts we look for the finest productions to the past, and in some cases to very remote periods of European and in bone cases to very remove periods of an opening civilization, while the great productions in music belong, as it were, to the present time, and are usurly all in-cluded in the last seventy or eighty years, certainly in the last century. For ages, even amongst the most cul-tivated and polished people, music was confined nimost wholly to melody; and its execution was bounded by the natural powers of the human voice, slightly and of kindred forms, such as virginals, spinettes, and harp-

considering that it has more power and depth of tone artistically cultivated; and to instruments, most of which were exceedingly imperfect. But the pleasure from music, even then, was derived from a complication of separate effects; from the quality of the tone, from intonation or variation in the degrees of gravity and neutetoushon or variation in the departure from and accur-uess, from modulation, or the departure from and return to the principal key, from rhythm, or divisions into equal groups, from the modes of expression—stacento and legato, forte aud piano, &c., and from the various movements appropriate to different feelings, from the solemn adagio to the merry presto. This complication of the elements of pleasure was increased by the employment of instruments in accompaniesent to soug, at first in nuison with the voice, which gradually led to connter-point, which in its turn immensely increased and varied the effects of music, caused the science to be far more studied, induced numerous experiments in musical acoustics, and gave a new and more elevated character to musical compositions. New instruments were invented, and old ones improved, accompaniments began to be composed to vary and heighten the effect of the melody, by using different figures of intonation, and orchestral effects were produced by appropriating different instru-ments to particular purposes. Then harmony, properly so called, began to be calityated, or the flow of different melodies in harmonic agreement. At length came the great masters, as Handel, Bach, Haydn, Mozart, Beethoven, &c., who gave an cutirely new, intellectual, and real artistic character to music, by employing in their com positions subjects appropriate to the character intended in the particular piece, and treating the different elements of musical pleasure in a methodical and artistic manner.

"These great composers thus elevated music to a level with its sister arts, and made the pleasure to be derived from it, like that from painting, complicated and refined requiring a certain education in the hearer, as in the observer, to be able to understand and appreciate its higher productions, so that we may now include music with the other fine arts, in so far that the uncultivated taste feels only this or that element of pleasure, while the cultivated taste appreciates all the elements employed, and reaps the full enjoyment of the most beautiful pro-

ductions of art. " In this progress of the art composers found all the aid they desired for the composition of melody in the and they desired for the composition of increase in the truth and flexibility of the voice and the violin; but for their orchestral and concerted pieces they could not keep in their studios bands of musicians. To meet this exigency they employed spinettes, clavichords, and harp-sichords, and afterwards pianofortes, which, though feeble instruments of no great compass, answered this purpose so well as to become universally adopted by composers. This use of this class of instruments led to the peculiar capabilities of the pinnoforte being thoroughly studied and appreciated; and the composers repaid their nbligation to the instrument by writing for it many of the very finest productions in music, and by practising the execution of these productions to such an extent as to be able to bring them before the public with the greatest color. The importance which the instrument had thus gained led from time to time to its improvement and enlargement, and this again to still finer com-positions being produced for it, and to the adaptation for the pianoforte of all the best orehestral compositions; so that the advance of the art, and the improvement of the piano, have had a mutual effect upon each other, until it is now beyond all question the first of musical instru-ments, both to the profession and to the cultivated classes

of society.
"More than three centuries back there were in use two kinds of small instruments with key-boards; the Clavitherium, of a sonnre shape, having strings of catgut, which were vibrated by hits of hard leather about a quarter of an inch long projecting from the side, and at the upper end of the jack, which was operated on imme-diately by the inner end of the key; and the Clavecin, of nearly the same form as the present grand plane, having strings, which were vibrated by plectrums of quill or hard leather. These limited iostruments, with others

sichords, continued in use, with very slight improvements, for two bundred years, until the beginning of the last century, when, in 1716, Marius presented to the Academy of Sciences, at Paris, a Claveein, whose strings were vibrated with hammers instead of plectroms. This was a very great step, wholly changing the quality and character of the tone of the instrument, and making it in reality a new and different one; in fact, the embryo Two years after, Christoforo, at Florence, intro duced some further improvements in the instrument, and produced what has generally been considered the first piano. But the new inventions, although immeasurably superior to their predecessors, had great difficulties to contend with, and were a half century in fighting their way into any considerable degree of favour. However, in 1760, Zumpe in England, and Silberman in Germany. had established small manufactories of the piano, and it was snecessfully competing with its more established rivals, as is sufficiently shown by its having been adopted and used by Haydu, who left sixty sonatas composed expressly for it. Gluck also adopted the piano; and we have seen the instrument on which he composed his Armida and other works, made for him by Johannes Pohlman in 1772. It is hnt 44 feet in length, and 2 feet in width, with a small square sounding-board at the end, the wire of the strings being little more than threads, and the hammers consisting of a few plies of leather over the end of a horizontal jack working on a hinge. The instrument, compared with a fine piano of the present day, is atterly insignificant and oseless; and it is difficult to conceive how it could have been used for the purposes it certainly served, till we reflect upon the importance to the composer of having at instant command any description of orchestral effect

to a demokratis after.

In France: In the following year Stelart partiest fall forms that the first piace of the following are Stelart partiest fall forms and, in 1740, firead revolution of the first partiest fall forms and, in 1740, firead revolution of cent a patent in retains to the piace. From this propel piaceform-share rapidly England, and France, showing bow bread-optend because the following partiest parties of the first partiest parties are shown as the first parties of the first partiest parties and patents for raid or international parties of the first parties for raid or international parties in England above of patients for raid or international parties in England above of patients for raid or international parties in England above of patients for raid or international parties in England above of patients for raid or international parties in England above of patients for raid or international parties in England above of patients for raid or international parties in England above of patients for raid or international parties in England above of patients for raid or international parties and patients are also as a patient patients and a patient patients and a patient patients are a patient patients and a patients and a patient patients and a patients a

"In 1745, Gibb took one a patent for what is called but grandspaper action, which is still in not for quarter pairs, grandspaper action, which is still in not for equare pairs, in 1745 and 1715 and 1715 by Scothwelf. In 1849, Schwins Erral, to whose grains he planderer is a month indebted, to whose grains he planderer is a month indebted, extractly adopted. In 1849, Schwins Erral, varying the control of the

makers, have likewise contributed, in various degrees, at different times, to the progress of the instrument.

"During the first years of the matriancia.

"During the first years of this century two systems chiefly prevailed with regard to the grand piano, the older one followed by the Loudon makers, known as the English system, and the newer one in Germany, called the Vienna system. The difference was principally in the action, that of the English being the common grand action, the origin of which is unfortunately unknown; and that of Vienna a new action, invented, it is said, at Augsburg, by an organ-builder. The old grand action and man or vicinia a new action, invented, it is said, at Augsburg, by an organ-builder. The old grand action gave a more powerful blow and produced a fuller and finer tone, while the lightness of toneh of the Vienna action afforded far greater facilities of expression, and enused it, therefore, to be adopted by most of the cun-nent pinnists of the time. This is not at all to be wondered at, when we consider the immonse importance of the action of the piano, in bringing out the elements of expression which are peculiar to the instrument. Between the mind of the player that conceives, sad the string that expresses by its sound the conception, there is a double mechanical action; one belonging to the player in his fingers and wrists, the other to the piano in the parts which but the strings in motion. No two piano parts when put the strings in motion. No two pisno players touch the instrument alike—that is, no two players have the same mechanical action in their fingers, or pro-duce the same tones; and the difference in the style and degrees of excellence of pinnists is more owing to this than to any other cause. It is, therefore, self-evident, that that part of the piano which continues the action of the flogers, and completes the connexion between the mind of the player and the strings of the instru-ment, should have a delieacy and a power answering as near as possible to those of the hand of the player. Every difference in the action of the piano will give a corresponding difference in tone and expression; and hence this part of the instrument has at all times been justly considered of paramount importance, not only by the great professional piaoists but by the highly-cultivated amateur player. Now, however, we have an action, the invention of the late Sebastian Erard, which gives a more powerful blow than the old grand action, and a far more rapid and delicate effect than the old Vienna action—thus combining the advantages of both systems. " To give an idea of the degree of perfection attained

at the present day in the construction of the piano, we will describe one of the grand pianos in the Exhibition.* This instrument is 8½ feet in length, and 4½ feet in its greatest width; its frame is of enormous strength, com-pared with the instruments of former times, being heavily braced with wood below the strings, having a complete system of metallic bracing above the strings, firmly abutted, and consisting of longitudinal bars let into metal at each end, and having the corved side formed of a number of separate pieces glued together in a mould to insure durability and fixedness of form. Its soundingboard extends to the frame on all sides, except the space left for the action. The strings are made entirely of steel, and of wire so thick that the teusion necessary to bring them to the proper pitch produces an aggregate strain equal to at least twelve tous weight, while they are passed through studs drilled into the metal-wrest plank, thus giving the strings an upbearing position, which prevents the slightest displacement of the point of contact by any force of the hammer; and the system of placing the strings on the instrument, determined by accurate acoustic experiments, causes then to be struck by the hammer at that precise nodical point which produces the freest and elearest tome. The compass is ex-tended to seven octaves from A to A. The action of this tended to seven octave from A to A. The action of this piano is described by Dr. Lardner, in a work just pub-lahed on mechanics, as 'a beautiful example of complex leverage in the mechanism which connects the key and hammer. In this instrument the object is to convey, hammer. In this instrument the object is to convey, from the point where the finger acts upon the key to that at which the hammer acts upon the string, all the delicacy of action of the finger; so that the piano may participate, to a certain extect, in that remibility of touch which is

^{*} And yet for that very purpose they continue to be used by many celebrated makers up to the present time.—

^{*} Mr. Erard's, in the British Department.

observable in the harp, and which is the conrequence of observance in one marp, and the string in that instrument without the intervention of any other mechanism.'
The power of this instrument depending on the quantity of matter brought into vibration, the resonance, or the perfection of that vibration, depending on the correct proportions of its parts, and the accuracy of intention depending on the nature of the bridging, the proportions of the strings, and their arrangement with regard to the blow of the lammer, are all most admirable; while the action depending on the peculiar mechanism employed far surpasses everything cise of the kind, for it exables the player to communicate to the strings all that the finest-formed and most skilful hand can express, and becomes, as it were, a part of himself, reflecting every slade of his feelings, from the most powerful to the softest and most delicate sounds. This netion is, indeed, so perfect, particularly in its power of delicate repetition, that if any note is missed in execution upon it, it is the fault of the player and not of the instrument. Many persons have a very meagre notion of the power of expression possessed by the pianoforte. The fact is, however, that it really esesses almost all those elements of expression which possesses almost all those evenues of the belong to my other instrument, and several which are peculiar to itself, from the circumstance of the various person of music adapted to the instrument being brought out by the same hand and same feeling. An immense difference of volume of tone and of effect is produced by the manuer of touching the keys and by the use of the pedals, especially upon an instrument of great power, fine quality of tone, and delicate nechanism in the action. "The manufacture of the pinn as a branch of trade is of very great importance, from the superior character

of very great layer trace, from the repetite of instead of the principal very designation, and the value of the principal very designation, and the value of the principal very designation of the principal very layer to the principal very layer of the principal very layer of the principal very layer of the smaller of the principal very year more designation of the principal very year more other mutual instruments. This is corroborted by the first that more years paintenferture constituted whereas now it fills more than three-paintens of the first thin of the principal very layer performance of the principal very layer very layer of the principal very layer
"The social importance of the pisson is beyond all presents for greater than that of any other instruments of of society, as civilization advances, is with reper to the changes of a society, as civilization advances, is with reper to the changes of at some security. Formerly, and yall such which the contract of the source changes of the contract of the contract of the contract of portion of society, the greater and the contract of the contrac

piano.

"In many parts of Europe this instrument is the greatest solace of the studious and solitary. Even steam and sailing-reserved for passagers and long voyages are now obliged, by the fixed habits of society, to be furnished with pianoforter, thus transferring to the occan itself something of the character of home cajoyments.

"By the use of the piano many who never with the

"By the use of the pusso masy who never visit the opera or concerts become thoroughly acquisited with the choicest dramatic and orchestral compositions: this influence of the pisson is not confined to them, but extends to all classes; and while considerable towas have often so orchestras, families possess the best possible substitute,

making them familiar with the finest compositions. The study of such compositions, and the application necessary for their proper execution, may be, and ought to be, made the means of greatly improving the general educational habits and fastes of pinns othedrats, and that secreting an elevating influence, in addition to that refined and elegant pleasure which it directly dispenses. **

One hundred and seventy-eight instruments of this class have been exhibited, Great Britain contributing sixty-six of that number, according to the following Tuble:—

				E	shifting,	Instruments
Great Britain		-	-	-	38	66
Canada (Cok	nial t	rosse	salor	(a)	1	1
Nova Scotia	à	itto		-	1	1
France	-	-	-	-	21	45
Zellvereln -	-	-		-	18	26
Belgium -	-			-	6	16
United State		-		-	6	10
Austria -	-	-	-	-	6	6
Switzerland		-	-	-	3	3
Deamark -	-	-	-	-	ī	9
Russia	-	-	-	-	1	2

In the above department the three great European mider, Merris, Danzerow C, Catanja, and Eanan, midra, Marsen B, Marsen C, Catanja, and Eanan, find manufacture. And spon the subject of this highly-invariant and valuable instrument it in necessary to account of the properties of the

Mesers. Longman and Co., of Loudon, predecessors of Clementi and Collard, first introduced what is called the "hopper escapement." The invention of the damper, for clicching the vibration of the strings, was due to a nativo of Ireland, and it was for a long time called the "Irish" damper.

About the year 1776, Pecker, 8 German, undertook to apply the planofere mechanism to the harpsteloved. In apply the planofere mechanism to the harpsteloved. In Stolats, at that time worksnee in the employ of Barklandi Tachold, of Gerat Paltenes Street, London. After many reprintents, the gread planoforte mechanism was the properties of the properties of the properties of the many tension estill used by Westra. Broadwood and Mestra. Stodart, and is re-markable for its simplicity, effited direct action, in the properties of the properties of the direct action.

Messrs. Broadwood alone, from 1780 to 1851, have made with this mechanism (slightly modified from time to time) upwards of eighteen thousand full-sized grand planofortes, besides fifteen hundred pianofortes of small

amensous.

The earliest notice of a pianoforte in their books occurs in 1771—of a grand pianoforte in 1781. Clementi was the first to bring the grand pianoforte into notice as an effective concert instrument. He played on one by Broad-

the control intrinsical. He purpers on 68 by Breeder.

The third many of pinned for all kinds under by Meast. Breedered from 10 km server
^{*} End of Mr. Theiberg's remarks upon pinaofortes.
† This award was only confirmed by the Council of Chairmen in Mr. Erard's case.

red and seventy-three. Besides these there are rous persons working at home for the same firm, hundred and seventy-three.

It is clear that for many years the pianoforte was inferior to the harpsichord; for when, in 1765, Burk-hardt Tschudi presented an instrument to the King of Prussia, it was a harpsichord with two rows of ke Prussia, it was a harpsicherd with two rows of keys, This instrument is still at Potsdam. The strings of the harpsichord being very this, the wooden framing of the case sufficed to bear the tension. As soon as the strings of the pianoforte were increased in thickness it because necessary to strengthen the cases, and stell arches, therefore, were introduced between the strings. So carly as 1808, Mesers. Broadwood applied horizontal steel bars over the strings. The number of these bars varied from two to seven.

Messrs. Stodart, in 1820, patented a system of bracing by means of hollow metal tension burs applied over the strongs, combined with a suspension bar over the wrest-plank, In 1824, Mr. Erard patented a somewhat different system of horizontal metal bracing.

In 1827, Messrs. Broadwood patented a third system of metal bracing for the grand pianoforte. It was a combination of the metal bars already adopted by them, with the metal string-plate which had by them been first applied to the square pinnoforte in 1822. The four pinno-fortes which have been exhibited by this firm, may be described, as to externals, as follows:-

described, as to externals, as follows:—

1. A grand pianoforte in the Nore, shony case richly carved and gilt; the top, chony inlaid with natin-wood; above each of the three legs is a medallice, carved and gilt, having busts of Handel, Mozart, and Becthovon, The design by E. M. Barry, Esq. 2. A grand pianoforte in Amboyna-wood case, with carving. 3. A grand pianoforte forte in plain Ambeyna-wood, 4. A grand pianoforte in Italian walnut-wood case.

Of these four seven-ectaves, C to G, grand pianofortes, two have each three straight teusion-hars parallel to an over the strings. Of the other two, one has one parallel bar and one long oblique bar: the other has one parallel bar and two oblique bars. The scale of this latter instru-ment may be considered as a triangle of nnequal sides, This individed by these three bars into four triangles. This in-strument is the most sonorous of the four. In all the four planofortes any bending of the wrest-planks is ob-viated by the application of a metal transverse suspension bar, placed over and nearly in a line with the studs. The peculiar application of this suspension-bar is considered as an essential improvement. The tension-bars are also new, and entirely peculiar to these instruments, being constructed with flanges on each side to prevent twisting. constructed with images on each sade to prevent twisting.

A section of these bars transversely would present the figure of a cross +. The strain of the strings on these instruments is immense, notwithstanding which they stand in tone far better than those constructed with the ordinary bracing. In the four pianofortes exhibited, the following improvements are illustrated, and are claimed by Messrs, Broadwood as being entirely their own :-

1st. A newly-revised harmonic scale of strings. 2nd. A peculiar method of fixing the sounding-board. 3rd, The transverse metal suspension-bar. (It supports the wrest-plank, enabling the maker to dispense with se-veral direct tension-bars, which are just so many impediments to free vibration.)

4th. The construction of the tension-bars. These are

constructed in such a manner as to combine the maximum of strenoth with the minimum of weight. 5th. The fixing these tension-bars in the string-plate by means of wedges, thus insuring equal tension.

6th, The diagonal tension-bars. These abut against

They meet effectually what is commonly termed the string-swag" of the string-plate, and they enable the maker to do with a single direct tension-bar, The whole of the above-named six povelties of inven-

tion are dated by Messrs. Brondwood in the year 1847. It is by the combination of most of the improvements ast mentioned that this firm has attained, in their pianofortes, not only more sonorous tones, but a greater perfection of the quality of tone. Again, there can be no doubt but that simplification of bracing, in the construction of improvements are illustrated :--

pianofortes, will eventually enable the public to obtain first-rate instruments at a comparatively moderate price, And it is proper to record that, up to this time, the aim of most makers has been to introduce as much iron or other metal bracing as safety to the quality of tone would bear, and that Messrs. Broadwood are now the first to retrace such steps, learning from experience that tension-bars are but make-shifts, and that it is probable that the best mode of constructing a pianoforte would be to strengthen the case by other means, superseding the tension-bars alto-

It should also be noticed that the action used by Messrs, Broadwood in their pianofortes is of the most simple and effective kind, and that its very simplicity is a guarantee for its durability,
Mr. P. Erano has exhibited a variety of pianofortes in

the British and French Departments. In these pianoforte considerable improvements have been made with regard to the mechanical part of the action, which has become one of the most perfect existing, -- answering the properties of the most intricate manual dexterity of the performers of modern times. This maker combines with his imor modern times. I also maker communes with as im-proved mechanical action a peculiar structure of the bedy of the pianoforte, by which a highly-successful result is attnined. Various patented improvements in the mechanism, &c.

of pianofortes, are displayed in the instruments exhibited by Mr. Erard, of which the following is a description:—

BRITISH DEPARTMENT,-1. Extra grand pianoforte, in walnut-wood, with carvings gilt; seven octaves, A to A; waland-wood, with carvings gilt, seven octaves, Ao with Ernard's penter repetition netion [1821]; pattent apbearing (1809); complete system of metallic brain bearing (1809); complete system of metallic brain in remarks—2. Extra grand piano, with new patent metal west-plank (1809)—4. A short grand, six and three-quarters octaves, new scale, C to A; in a rose-wood such authority with authors—5. Extra grand walout, oblique, with carvines in the Elizabethan style; seven octsves, A to A; threed with four metallic bars (1850). Action patented (1840).—6. The same, in ebony, inlaid with silver (repetition action); also braced with four metallic bars (1850). - 7. Satin-wood; six and three-quarters; oblique. Patent of 1840,-8. A new patent frame, with new screws, tuning apparatus for apright pianofortes; the same having been specified in the patent for horizontal pinnofortes

FRENCH DIFFREMENT,—1. Extra grand pianeforte, in tulip-weed care, inluid with silver lands, tortoiseshell, and brass, elaborately engraved, supported by six caryatides, in the most rich and elegant style; seven octaves, A to A. Patents of 1869, 1821, 1825, and 1850.— 2. Extra grand pianoforte in rosewood, with or-molu ornaments; seven octaves, A to A .- 3. Short, or semi-grand, with repetition action (1809); six and three-quarters octaves, C to A .- 4. Grand square pianoforte, of a new form, with repetition action (1821), metal bracing (1825), upward bearing (1809), on the principle of Franc's grand; six and three-quarters octaves, C to A. - 5. Grand oblique of seven octaves, braced with four metallic bars. Patents ol 1840 and 1850.-6. Oblique rosewood, with or-mola mouldings; six and three-quarters octaves, C to A. Pateut of 1840,

Messre. Colland and Colland have exhibited several pianofortes, of which the following is a description:—

1. A grand pianoforte, in a case of British mottled cak, seven octaves, A to A .- 2, A grand planoforte in resewood with carved and gilt ornaments, in the style of Louis XV case, with curved cabriole truss supporters; seven cotaves, A to A.-5. A square semi-grand pianoforte, in walnut-wood; six and three-quarters octaves.-4. A grand esbinet pianoforte, in a case of British oak, of novel design; six and three-quarters octaves .- 5. Two microdesign; six and turce-quarters occur, in pine and resc-chardons, or semi-cottage pinnofortes, in pine and rescwood eners; six and three-quarters octaves. Exhibited as speciment of superior instruments of their class, at very low prices,

In the above-named instruments the following patented

1. In the mode of stringing pinnofortes, by passing the wire round a single pin, in all classes of pinnofortes, thus superseding the use of the note or eye, before in preeral use. Patent of 1827. This mode of stringing has become almost universal since the expiration of the patent. 2. Applying a check to tha under-hammer, to prevent the rebound of the hammer against the string. Patent of

3. A new construction of the action in horizontal grand and square pianofortes, the escapement being placed upon the key, and coming into coulact with a lever or erank, and thus regulating the rise and fall of the hammer.

Patent of 1835,

4. The introduction of a new class of square pianoforte, entitled "the square semi-grand pianoforte; in which a closer approximation to the precularities of the horizontal grand passofirte was attained. Patent of 1836.
5. The introduction of the traversing exagement fixed upon the hammer-rail, thereby admitting of a firmer blow and greater resistance, as also the introduction of a repeating the properties of the

and graver resonants, as and the introduction to relate the international control of the repetition movement to square and to vertical, on upright planeforter. Platest of 1s43, 7. A new design for the shape of a square planeforter, entitled "the Symmetrical Grand Square," by which greater beauty of form was secured, the key-board being placed in the centre of the instrument. Rejatered in

Several other makers of the pianoforte have contributed to the success of the musical department of the Exhibition, to whom the Jury have awarded the Prize Medal: their names will appear in the Award List.

U.....

Mr. P. Enand has exhibited cleven harps in the British Department, and two in the French Department.

In the manufacture of harps acceral highly-successful and important improvements have been made by this house, particularly in the invention of the double-artiso harp; and thare cannot be a doubt that, from the perfection of their mechanism and the excellent quality of their tone, their harps are unsurpassed by any other maker. In awarding the Council Medal to Mr. P. Erard, with

reference to his pianofortes, the Jury took into consideration the great merits of his harps, and have, therefore, included them in that award.

In this class of instruments Honourable Mention has been made of Messrs. B. Jones, for an improved triplestrung Welsh harp, United Kingdom; and Domeny (France).

A beautiful and very ingenious specimen of the horp guitar (called a "guittarra harpa") has also been exhibited, and for which the Jury have awarded a Prize Medal to the inventor. J. Gallagos (Scain).

Bow Instruments.

In this department the Jury have awarded the Council Medal to Moss. J. B. VULLAUME, of Paris, for the excellence of his violins and other how instruments, and for

his invention of the Octo-Basse.

M. Volliame is estitled to pre-emisent rush among these student matter with a law user of lots one-motion manufacturer who have user of lots one-motion manufacturer who have used to be submitted to the control of the lot of lot of the lot of

Jury have awarded Prize Medals:— United Kingdom.—Mesers, A. BETTS, S. A. FORSTER,

PURDY, and PENDY.

United States. - G. GENENDER. France. - Behnardel, seu.

Honourable mention has likewise been made of Messry.

J. K. Hears, United Kingdom; P. Higgins, Canada;
J. Tonna, Malta; G. and A. Klemms, Zollverein,

Brass Instruments.

The following remarks have been contributed by a uror:—
"Among the musical instruments exhibited in the Ex-

"Among the musical instruments exhibited in the Exhibition, the number of brass instruments, 'instruments de cuivre,' is considerable.

"England, France, and the German States are the countries which have contributed largely and nearly exclusively; whilst America, Hamburgh, Canada, Deumark, and even Russia, swelling the list of instruments with fixed tones, such as panosfortes and organs—or instruments of wood, such as flates and clariouers, &c.,—do not appear as manufacturers of brass instruments.

As in all other instruments of music insuchine special design justices with a state of the insulation of our terms that of our design justices are within at a state of the st

"That instructors of this class night, in the capt, age of the world, have been many prefet than other several property and the property of the large to an excustical perpose, the use and power of the large to an excustical perpose, the use and power of the large to an exchange the property was not required the construction of the lates, name having endowed them with a power or the lates, name having endowed them with a power or ever lakely to equal, the thought is machine composed of viscal instruments or plan, such as organs, the property of the proper half of applicant arrequire, it, machinetics of one, readering the organ and its inlustrate, in spite of the corresponds of the subsection of machine to the property of property of the property of prop

collection of violateraments, in election collection of violateraments, in election any other, and capable of producing most effect on the main of the hearty, as a lilation which may be referred to the major of the service, is as lilation which may be referred to the service of the service

organ, to take its place in the cathedral.

"The injury to the effect of the organ, by change of situation, may be appreciated by hearing those already in the Crystal Palsoe; and yet two of them are very fine specimens, one by Messrs. Gara and Davison, the other by William.
"Listen to their tonce; where is the grandeur attributed

"state in later over 1, where is up replaced a transmiss to provide the provided and the provided and the provided and the provided and power of modulation of too combined with sonorousness —11 has settler. These conditions are not provided and the provided and power of modulation of too combined with sonorousness —11 has settler. These settlers are not provided and
born, Movra by the *human lamps,* and capable of piving expression to music; and to induce even the multitude to listen to the organ (who, perbags, respect it from its entry association with our religious services, and the effect of the property of the p

"The modern makers of wind-instruments having the sin-blast 'as a counting body, and the mechanism for setting upon it perfect, have turned their attention to the improvement of the wind-course as the 'regulating medium,' particularly in valved instruments: they have redeavoured to aveid the angles caused in the tube by and quality of the 'sounding mass' bas also occupied their ratenties.

" As the examples are few of sound produced by undulation of air without resonance (perhaps one is thunder, which may be called a purely serial sound, but which sets in metion a greater bulk of air than all the machines for producing sound in the world put together), and acknowledging that the resonant mass is a distinguishable feature in musical instruments; so, taking the wellknown instrument, the pianoforte, as an example, and regarding the use of the sounding-board as 'resenant mass' in that instrument, we shall be able to judge, by analogy, how justly the attention of wind-instrument makers has been turned to the resonant mass, case, or makers has been turned to the resonant source, value, or sounding-board, of their instruments. The effect of a string set into vibration by the sounding body in the 'framework' of a pianoferte is not appreciable, although its vibrations are within the prescribed limits; but when set vibrating in connection with the sounding-board, or 'resonant mass,' it brings the whole into resonance, completely controlled by the 'regulating medium, string), and the result is a voluntinous expansion of the tone. The greater the resonant power of the soundingboard, the greater is the expansion of the tone. So with wind instruments, the greater the resonant power of the material of which the instrument is made, the more powerful is its volume of tone; but no indistinctuess is produced on these instruments, by carrying this expansion of sound to its greatest attainable point, from the character of the regulating medium, and the comparative slowness with which notes are required to be produced. But, in the pianoforte, if this expansion of sound is carried too

for, much indistinctness in the result.

"The use of metal as the 'resonant mass' of all wind instruments, beides those issually known as hrast instruments, be locationing very general; thus we have the flute, par excellence, of Mr. Boohm: the claritonet, par serellence, of Mr. Bask; and the bassoon, par excellence, of Mr. Bask; and the bassoon, par excellence, of Mr. Sas, the control of Mr. Sas, made of metal.)

"Brass is the material which is most generally preferred for wind instruments, though to the fancy of an American exhibitor we are indebted for a flute made of 'galvanized India-rubber.'
"On hearing and examining this class of musical in-

"releasing said extinsting this case or insistent inordinate of the construction with those possessing the improvement of construction with those possessing the improvement effected of late years, both in their acountied proportions and in their mechanism, the superiority of tone and facility of performing on these (namy of them unwieldy) instruments is very utriking. This fiellity is acquired by instruments is very utriking. This fiellity is acquired to increase the construction of the construction of the contraction of the construction of the conments, snabling the performer of moderate ability to produce on his instrument every note of the 'gamust' or 'stacle' with the greatest registry; if not as pure in term and virtuatery as the harmonic notes, yet with such justices of interest of the product of the virtual of the product of the virtual of the product of the virtual of the Second Life Gards.

"Meas. Periner, a native of France, seems to deserve the credit, amongst the intrument-maker, of having about twelve years ago, first materially improved the construction or viavel instruments; and the English and French exhibitors have been very secessful in carrying these improvements will further: thus the equitrilization values invested by Mr. Osten, a surgeon of Lichthield, above the improvements which has effected in the above the improvement which has effected in the above the improvement which has effected in the namerous among the wind-courte by the section to the piace.

of the passion.

"The instruments exhibited by Mr. Kormiza, of Mericia Sirvet, Covent Garden, made on the plan in-vented by Mr. Shaw, of Nottingham, called the 'patent beautiful and the states, are of a decidedly superior character: and the states, are of a decidedly superior character: and the states, are of a decidedly superior character: and the states of the s

conrse in valved instruments is highly successful.

"The instruments of Mr. Pask, 141 Straud, are all of the first order; they have great sonerousness, power, and facility of execution.

"Those by the French exhibitors, viz., by Mesrs, Art. Cotarous, Bossos, Ato. Cotarous, and Gattmer, and those by Mattituos, of Belgium, possess in every respect the qualities which in these instruments are required, some having greater falsees of tene than others, but all are constructed on the best-known necessities, the principles, of very superior manufacture and finished

"The instruments exhibited by M. Sax, of Paris, show great advancement, for not only do many of them, nother French-horns, trumpers, and trombone posses additional power, adaptones, and imposite essens obtained in a that it is not the quality of the metal brought into whether that it is not the quality of the metal brought into whether when the parish of the metal brought into whether quality of the tone produces, and that succeedal results among of them, vix., the so-called "Sax-bones" posses a quality and richness of tree unheard until the introduction of the second of the produce of the contraction of the second of the produce of the "Te-instruments exhibited by the German manufact."

"The instruments exhibited by the German manufacturers, though not so perfect as those of the French and English manufacturers, have some excellent qualities; and the euphonic horn, invented by Herr Sommer, is an instrument of great power, as well as awetiness of tone.

"Two ingenious contrivances for changing the keys of brass instruments without the use of crooks, are exhibited by M. Gatzmor, of Piris, and Mr. J. Catcorr, of London, the former making use of a serew, the other a radius-tube, for lengthening or shortening the windcourse of the instrument.

"Judging from the number of makers, it may be

supposed that the demand for this class of instruments are considerable. There are inpurated of this epichelion of a considerable of the are inpurated to this epichelion of the considerable of the constraints of the constraints of battle by M. Sax, assents to sortly fifty. It is well while command is new classified over these instruments, while consequent on the better form of the enterwise, and their present comparative chapman. But it is in the conceptor in the better form of the instrument, and their present comparative chapman. But it is in an eligibility of their brane internations are equal to particular their present comparative chapman. But it is an eligibility of their brane internations are equal to patch, but they must be longel at a price aften flay price, their their batter of the Present Consent of their price of their their batter of the Present of their con-

[•] That the Crystal Palace was very unfavourable to the effect of aven the largest organs axialisted, does not admit of a doubt; but I cannot agree with the contributer's remarks on organs in general, nor do I believe that it was "found necessary" to employ either a "San or esphesial organs in the Exhibition. Due to listen to my one of the organs in the Exhibition of the baseon exhibited by Mr. San & The Investigation of the baseon exhibited by Mr. San &

norm '10 "House his munition to lines" to any one or me organs in the Exhibition.—Reporter, † The invention of the baseou exhibited by Mr. Sax is claimed by Mr. Cornelius Ward, of London, to whom a patent for it has been granted in France.—Reporter.

WIND INSTRUMENTS. - WOOD AND METAL.

For Orchestras and Military Bonds. In this department the Jury awarded the Council Medal to-

M. Addlerie Sax (Paris), for his invention of several new classes of wind-instruments, in wood and metal; and to T. Berna (Munich), for his important scientific improvements of the flate, and the successful application of his principles to other wind instruments.

his principles to other wind instruments.

The following remarks have been contributed by a Juror:

"Among the inventors of musical instruments, the

highest disclorers in the rith mention of M. ARCHITE SAN, which recoinded with regard in the variety, receivers, or the utility of his inventions. His creation of her entire of the en

"M. Yaz has also evasted the class of Saxophones, brass instruments with a simple reed, similar to the elarionet. The effect of these new instruments poissesses a charm equal to the originality of their tone, and they carry the highest degree of perfection 'A nour expressive de

Perchester."
"It must be conceded, that his boss and double-bass clarioness, in wood and metal, are inventions of inestinable value. Besides there, the has selded a semitone that lower register of the ordinary clarioness, and by a new key, has rendered it possible for the performer to

the the upper notes it ones with the greatest tase.

"M, Sax hashes contrived foll lips per policity could be seen to be

"Lastly, M. Sax has adapted to the hugle-horns of infautry bands a set of portable tubes, which, on heing adjusted to simple hugles, transforms them into eyillader bugles of various keys; thereby chaoging the monotonous character of the simple hugle, by giving it the means of producing all the intervals of the musical scale.

M. Bourt's incretions may be described in follows:
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— Furity, has he would the constraint proportions of
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rest numbers and measurement, by which mess finite,
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It is proper to notice, that among the bruss instruments exhibited by Mr. Kohler, was an improved Chromatic Trumpet, invented by Mr. T. Harrza, sen., and which has been acknowledged by competent judges to be the best instrument of its kind.

• It has been already stated that the invention of the bassoon exhibited by M. Sax, is claimed by Mr. Cornellus Ward, of London.—Reporter.

It doubt also be mentioned, that serveral improvements are illustrated in Mr. J. CLYENGY Flutte, childred J. Mr. II. POTTAR, in which the facilities of other modern fluttes, and the enlimary system of facilities of extense modern, and their defective parts avoided. In this instrument the tone and most arredered equal by the same means are redered equal by the same means and additioned in the holes. It has likewise chilms to consideration for comparative elsepasses, the mechanism being so simple, that its price does not exceed that of the old eight-keyed flutte.

The Jury have awarded the Prize Medal to various makers of wind instruments whose names will appear in the Award List.

Harmoniums, &c.

In the class of musical instruments, including Melodiums, Seraphiaes, Panorgues, Afolians, &c., Messra, Wheatertook and Ca., of London, have exhibited a very ingenious and effective one, called the Portable Harmonium, of which the following is a description.

It has a compass of five octaves, commencing from the lowest C on the violoncello, the key-board being on the same extent and scale as the larger harmoniums. It can be instantaceously folded up, so as to occupy less than half its height, and half its length.

This hartrament is quite original in nearly all its mechanical parts. It is peculiarly constructed for producing expression, and may either be used by itself for monument of the producing expression, and may either be used by itself for monum, or for taking vision, fluid, or violocatello select or parts—its capabilities of expression giving it great softwateges in ministrupt terms carriers. It may be catallage the perference to give a hand to each instrument, and by this means to produce a rariery of effects. The Jury have awarded the Prize Medal to Mesers. The Jury have awarded the Prize Medal to Mesers.

Honourable Mention has been made of MM. Alexandra and Son, France, for two "Hormonisms is Percession," A. Müller, France, for twn portable Melodiums; and J. Deutschmann, Austria, for n Sera-

In this class may also be placed a rowl kind of musical bartament, called the Harmonia-childred by the instrument and instrument, called the Harmonia-childred by the vertex, M. De YLLERON. This little instrument is about the properties of the properties of the Harmonia control of the control of the catter, and the control of the contr

Instruments of Percussion. In this deportment, comprising Drums, Cymbals, &c.,

the Jury More noticed a writing of improvements of considerable importance, in the mechanism for tuning drams, for orehestras sud military bands. For these improvements Prize Media have been granted to Mesers. C. Want (recluded in the award to him for a baseous, United Kingdom; A. Ksovar, Coliverein, And Illotuted Kingdom; A. Ksovar, Coliverein, And Illotuted Ningdom; A. Ksovar, Coliverein, And Illotuded Ningdom; A. Ksovar, Coliverein, And Illotuded Ningdom; A. Ksovar, Coliverein, And Illotation of four very large and fine Gongs, exhibited by Tux Illocotranage Earl Four, Coura-Coura-

Automatic Instruments.

In this class, comprising Mechanical Organs, &c., Mr. Bayerson, of London, has exhibited a Barrel-Organ, for which the Jury have awarded a Prize Medal.

Other ingenious instruments of a similar description have been exhibited; and Honourable Mention has been made of Mr. C. Dawson (for a harrel-organ, called an Astophon, the tunes of which are preduced by means of perforated sheets of mill-bened), Measrs. Grax and Davison (for a barrel-organ), Messrs. Waimlas and

STRUERY, LORDON (for a self-seting organ, manufactured wood and felt for musical instruments, &c. The Jury by F. Wehratt, Black Forcat, Busken), United Kingdom, have made Honomrable Meution of Meisra, J. Door made to the control of
Americaneses articus ne consectua una automat tentrementa.

In this class are included tuning-forks, tuning-lummers, pitch-pipes, wire-strings, violia, viola, and violoderilo bors, roins for bors, nuntied diagrams for various
groups, exists for bors, nuntied diagrams for various
groupses, ministers models, neutronous, specimess of deads—then, hay and guitar strings, Venice.

Miscellaneous Articles in connection with Municul Instru- strings for violins, vinioncellos, and harps), F. Dopp

AWARDS IN CLASS XA.

COUNCIL MEDAL.

NATION.	Namber and Page in Catalogue.		Name of Exercitors		ORDECTS REWARDED,		
	No.	Page.					
Munich	23	1099	Boehm, T	-	Important scientific improvements of the flute, and the successful application of his principles to other wind instruments.		
France and Algiers -	173	1181	Dueroquet, P. A	_	Apolication of the pneumatic lever to a church organ,		
United Kingdom -	496	467	Erard, P		Peculiar mechanical actions applied to planofortes and		
and Franco	497	1281	Liniu, I		harps.		
United Kingdom -	805	471	Gray and Davisen-	-	Invantion in organ building, of a new method of con- necting the great organ with the awell organ, by means of a pedal and of a new stop called the kerau- lophon.		
-	556	471	Hill and Cn	-	Invention of a stop of great power, and for their mode of shifting the stops by means of keys.		
France	1725	1259	8ax, A	-	invention of several classes of wind instruments in wood and metal.		
_	735	1215	Vuitiaume, J. B	-	New modes of anaking violins, in such a manner that they are matured and perfected immediately on the completion of the manufacture, thos avoiding the necessity of keeping them for considerable periods to develop their excellencies.		
United Kingdom -	209	433	Willis, H	-	Application to organs of an improved exhausting valve to the pneumatic lever, the application of pneumatic levers in a compound form, and the invention of a movement in connection therewith for facilitating the		

						levers in a compound form, and the invention of a movement in connection therewith for facilitating the drawing of stops either singly or in connection.
				PRIZE M	EI	DAL
United Kingdom	-	487	467	Addison, R	_	" Royal Albert" transposing planoforte.
France	-	425	1108	Bernardel, sen	-	Violins.
-	- 1	424	1199	Besson, G	-	Various metal musical instruments.
United Kingdom	-	519	468	Betts, A	-1	Two violins.
Saxony	-1	25	1106	Breitkopf and Härtel	-	Grand pianoforte,
United Kingdom	-	518	468	Broadwood, John & So	DA	Successful improvements in planoforte-making.
	- 1	735	475°	Bryceson, II	-	Clurch harrel-erman.
France	-	442	1199	Buffet, A	-	Oboes, clarionets, flotes, and a " corno-lugicse."
United Kingdom	-	547	471	Calicott, J	-	invention of a French horn, without loose crooks,
United States -	-	456	1464	Chickering, J	1	Square pinnoforte, and the Jury think highly of his grand pinnoforte.
United Kingdom	-	163	430	Collard and Collard	1	Pianos, and for their successful application of several improvements in pianoforte-making.
France	-	1172	1233	Debain, A	-	Mechanical planeforte.
Tuscany	-1	71	1295	Ducci, A. and M	-1	Organ with a " Baristate" stop
United States -	-	481	1465	Eisenbrant, C. II	-1	Clarionets and flutes.
United Kingdom	-	509	468	Forster, S. A	-1	Violoncello, violin, and viola.
France	-1	1234	1236	Franche, C	-	New repetition action in a pianoforte.
Spain	-	272	1346	Gallegos, J	-	" Gulttarra Harva."
Prussia	-	848	10%	Gebauler, C. J	-1	Piacoforte.
United States -	-	412	1463	Gemunder, G	1	"Joseph Gnarnerius" violin (chiefly), and for three other violins, and a viola.
France	-	454	1200	Gedfrov, C. sen	-4	Flutes.
Nasses	-	- 8	1132	Heckel, J. A	-	Bassoon of a new and improved construction,
United Kingdom	-	615	476		4	Hearing apparatus, made of gutta percha,
Wartemberg -		21	11115	llelwert, J	-1	Bassoon with 19 keys, of an improved construction,
United Kingdom	-	500	467			Horizontal grand pianoforte, with new patent action.
		486	466	Hund, F., and Son -	-	Cottage pianoforte, in the form of a lyre, termed the "Lyra" pianoforte.

PRIZE MEDAL-continued.

NATION.		Numbers In Catal	nd Page logue.	NAME OF EXAMPLES.	Oniscte Rewarder.
		No.	Page.		
Belgium	-	176	1157	Jastrzebski, F	Upright pianoforte.
France	-	1274	1238	Jaolin, J	Panorgue, and for his improvements in free reeds.
United Kingdom	-	484 467	464	Jenkins, W., and Sons -	Expanding plane for yachts, &c.
Bavaria	_	100	1103	Knocke, A	Semi-grand plano, and ao oblique plecolo plano. Mechanical improvements in kettle drums.
United Kingdom		540	470	Köhler, J	Slide trombone, and for the application of his patent
Cunton Israelania					
		100	-	Lambert and Co	Cottage planoforte,
		673	468	Macfarlane, G	Improved cornet-a-piston.
Belginm	-	175	1157		Clarionets, and a trombone and ophicicida.
United States -	Ξ	1665	1437	Meyer, C	Two pianofortes.
United States -	-	374	1460	Nunns, R., and Clark -	Four cottage pianofortes. 7-octave square pianoforte, and a new tuning of Æolian
Canton States -	-	0.4	1400		reeds.
United Kingdom	_	520	468	Oates, J. P Pape, J. H Pask, John	Improvements as applied to cornets,
	-	943	1225	Pape, J. H	Certain improvements in pianofortes,
United Kingdom	-	504	468	Pask, John	Clarionets and brass instruments,
		537	470	Purdy and Fendt	Double bass (chierty), and for four violins, and two
		1687	1257	D. II	violencelles.
France United Kingdom	Ξ	586	470	Roller and Bianchet - Rudail, Rest, and Co	Three planefortes. Cartes' Boelim patent flote.
Wurtemberg -	Ξ	23	1115		Square pianoforte, in mahogany,
	=	707	1080	Schulze, J. F. and Sons Sonthwell, W Stodart, W. and Sons -	Organ.
United Kingdom	_	469	464	Southwell, W	Grand planoforte.
-		470	464	Stodart, W. and Sons -	Square pianoforte.
France	-	1510	1248		Others and a " corno-Inglese."
United Kingdom	-	527	469	Ward, C	Newly-constructed bassoon, and o pair of kettle drums,
Properties.		526 499	469 467	Wheatstone and Co	Novel invention of a portable harmonium.
	- 1	499	467	Wornum, R	Improved piccolo pianoforte.
	ogani	-		THE RESERVE OF THE PERSON NAMED IN	
				HONOURABLE M	ENTION.
France	_ 1	1719	1258	Alexandre and Son -	Two melodiums.
		404	1197	Aucher and Son	Two upright pionofortes.
Belgium	-	174	1157	Berden, F. and Co	Three cabinet pianofortes.
United Kingdom	-	553	471	Bishop, J. C	Cabinet organ, containing composition pedals, &c. Clarionet on Bochm's principle.
France	-	1555	1251	Breton, Card, W	Clarienet on Bochm's principle.
United Kingdom New South Wales	-	546	470 989	Card, W	Flutes.
Iven point a men	-		909	Circle, J	Set of bappipes, made by George Sherrer, Sydney, New South Wales.
France	-	1163	1233	Courtols, Aptoine	Bombardon and cornets.
United Kingdom	- 44	554	471	Dawson, C	Organ, called an "Autophon;" the tones being pro-
	- 1				duced by means of perforated sheets of mill-board.
France	-	475	1200	Delyr, N., and Co	Two upright planefortes.
Austria	-	1410	1015	Deutselmann, J	Seraphine.
Wurtemberg - United Kingdom		20 505	1115	Dicudonné and Bladěl -	Grand pianoforte, with double action.
United Kingdom	-	543	470	Dodd, E Dodd, J	Violin, violoncello, double bass, and harp strings. Violin, viola, and violoncello bess; and for silver
	- 1	540	4,0	2000, 5	strings for the violin, violenceile, and harp.
Wurtemberg -	-	21	1115	Doerner, F	Square planeforte.
France	-	477	1200	Domeny,	Harps.
United Kingdom	-	-	913		Four gongs.
P		844	1220	The Hon.	D-1-1-1
France United States -		435	1463	Gastrot and Co	Bomberdoos. Pinnoforte with Æolian atjachment.
United Kingdom	-	503	467	Greaves, E	Chromatic funing-fork,
- man Kragdom	-	468	464	Greaves, E. Greiner, G. F	Tuning superatus (in addition to 50/ in money).
-		510	468	Heaps, J. K	Tuning apparatus (in addition to 50% in money). Violoncello.
France	-	1268	1237		Four planofortes.
United States -		438	1463	Hews, G	Square planeforte.
Canada	-	185	968		The quality and cheapness of a violin.
Denmark	-	30	1357	Higgins, P Hornung, C. C	The quality and cheapness of a violin. Square pianoforta.
Denmark Switzerland -	-	30 87	1357 1272	Higgins, P Hornung, C. C Hüni and Hübert	The quality and cheapness of a violin. Square pianoforts. Grand pianoforte.
Denmark Switzerland -	=	87 151	1357 1279 1015	Higgins, P Hornung, C. C Hüni and Hübert Indri, A	The quality and cheapness of a violin. Square pianoforts. Grand pianoforts. Violin, violoncello, double bass, harp, and guitar strings.
Denmark Switzerland - Austria United Kingdom	=	90 87 151 533	1357 1279 1015 479	Higgins, P Hornung, C. C Hüni and Hübert Indri, A Jones, B	The quality and cheapness of a violin. Square pianoforts. Grand pianoforts. Violin, violoncello, double bass, harp, and guitar strings. Improved grand trible-string Welsh harp.
Denmark Switzerland - Austria United Kingdom France -	=	50 87 151 533 1633	1357 1279 1015 479 1235	Hirgins, P Hornang, C. C Hüni and Hübert - Indri, A Jones, B Kleinjasper,	The quality and cheapness of a violin. Square pianoforts. Grand pianoforte, Violin, violoncello, double bass, harp, and guitar strings. Improved grand triple-string Welsh harp. Cottage pianoforts.
Denmark Switzerland - Austria United Kingdom France Saxony Frecce	1111111	87 151 533 1633 18 506	1357 1279 1015 479	Higgins, P Horung, C. C Hüni and Hübert Indri, A Jones, B Kleinjasper,	The quality and cheapness of a violin. Square pianoforts. Grand pianoforte. Violin, violoncello, double bass, harp, and guitar strings. Improved grand triple-string Welsis isarp. Cottage pianoforts. Violin ornamented with mother-o'-peart. Lombardon.
Denmark Switzerland - Austria United Kingdom France Saxony Freore	11111111	87 151 533 1633 18 506 173	1357 1279 1015 479 1235 1105 1205	Higgins, P Hornung, C. C Hüni and Hübert Indri, A Jones, B	The quality and cheapness of a violin. Square pianoforts. Grand pianoforte. Violin, violoncella, double bass, harp, and guitar strings. Improved grand tripbe-string Welsin intrp. Cottage pianoford with mother-o'-pearl. Lombardon. Eombardon. Semberand bianoforte.
Denmark Switzerland - Austria United Kingdom France Saxony Freore	1111111	50 87 151 633 1633 18 506 172 1711	1357 1279 1015 470 1235 1105 1205	Higgins, P. — Horung, C. C. — Huni and Hübert — Indri, A. — Jones, B. — — Kleinjasper, — — Klemm, G. and A. Labbaye, — — — Lichtenthal, M. — Marrin, — —	The quality and cheapness of a violin. Square pianofesto. Square pianofesto. Valida, risionerila, double hase, harp, and guitar strings. Valida, risionerila, double hase, harp, and guitar strings. Valida pianoferits. Violin ornamented with mother-o'-pearl. Lombarion. Lombarion. Rev extreating option.
Denmark Switzerland - Austria United Kingdom France Saxony Freore	11111111	90 87 151 533 1633 18 506 172 1711 633	1357 1279 1015 470 1235 1105 1205 1258 1258	Higgins, F. — Hornung, C. C. — Hori and Hübert — Indri, A. — — Jones, B. — — Kleinjasper, — — Kleinjasper, — — Liehteothal, M. — Marlin, — — Mercler, S. —	The quality and cheapness of a violin. Square planning data of the control of th
Denmark Switzerland Austria United Kingdom France Saxony Frece Franca	11111111	90 87 151 533 1633 18 506 173 1711 633 1955	1357 1279 1015 479 1235 1105 1205 1258 1208 1231	Higgins, F	The quality and chespoes of a violio. Square painorfers, choose hasa, harp, and galler strings. Grand painoforts, choose hasa, harp, and galler strings. Improved grand to trobe-tring Welsin intrp. Catego pianoforts, Violin orinamented with mother-or-postl. Lombarion, Semi-grand planoforte, New viewning organ. Two portains in neifoliums,
Demoark Switzerland Austria United Kingdom France Saxony Frecce Russia France Bavaria	1111111111	90 87 151 533 1633 18 506 172 1711 633 1365 35	1357 1279 1015 479 1235 1105 1205 1258 1208 1231 1100	Higgins, F. — — Horung, C. C. — Hüni and Hübert — Indri, A. — — Jones, B. — — Kleinjapper, — — Kleinjapper, — — Liebtenthal, M. — Marlin, — Mercler, S. — Muller, A. — — Pfaff, M. — — — Pfaff, M. — — — — — — — — — — — — — — — — — —	The quality and chespoes of a violio. Square pianofers, grained pianofers, grained pianofers, and guitar strings. Violin, violined by, double hasa, harp, and guitar strings. Violin violined pianoforts, violin surmamented with mother-of-pearl. Semi-grand pianoforts, Semi-grand pianoforts, Reverberating organ. Two criticars pianoforts, Two criticars pianoforts, Benderick of the pianoforts of the pianoforts of the position of the pianoforts of the pia
Denmark Switzerland Austria United Kingdom France Saxony Frece Franca	11111111	90 87 151 533 1633 18 506 173 1711 633 1955	1357 1279 1015 479 1235 1105 1205 1258 1208 1231	Higgins, F	The quality and chespoes of a violio. Square painorfers, choose hasa, harp, and galler strings. Grand painoforts, choose hasa, harp, and galler strings. Improved grand to trobe-tring Welsin intrp. Catego pianoforts, Violin orinamented with mother-or-postl. Lombarion, Semi-grand planoforte, New viewning organ. Two portains in neifoliums,

HONOURABLE MENTION-continued

Number and Page in Catalogue.		NAME OF EXPERTOR,	ORALCTO REWARDED.		
	_	No.	Page.		
United Kingdom	-	559	472	Robson, T. J. F	Enharmonic organ, invented by T. Perronet Thompson Esq., M.P.
Hamburgh -	-	14	1137	Rühms, H	Upright planoforte,
	-)	13	1137	Schröder, C. H	Grand pianoforte.
Prance	-1	1483	1248	Simon, Henry, and Co	Violin and violoncello bows.
Prussia	-1	833	1097	Sommer, F	Sommerophone.
France	-1	1699	1257	Soufleto,	Three cottage pianofortes.
Austria	-	154	1015	Stehle, J	Double bassoon.
United Kingdom	-1	494	467	Towns and Packer -	Semi-grand transposing planoforte.
Malta	-	1	944	Tonna, J	Double bass, made of bird's-eye-maple,
France	-	398	1197	Tulou	
Austria	-	155	1015	Unimana, J	P. E. and A clarionets, obce, and corno-bassetto.
Belgium	-	181	1157	Vogelsangs, J. P	
United Kingdom	-1	561	473	Walker, J. W	Orgao, adapted for a ball or music-room,
Prussie	-	879A	1097	Wehrle and Steuert -	Self-acting organ, manufactured by F. Wehrle, Bleck Forest, Baden.
	- 1	80	- 1	Westermann and Co	Grand pianoforte, made of rosewood.
United States -	-	533	1467	Wood, J. S	Invention of e "pieno violin," in addition to 50% in money.

MONEY AWARDS.

	MONET AWARDS.						
United Kingdom	-	468	464	Greiner, G. F.	-	-	New and useful method of bringing into unison the strings of each choir of the planoforte, elso for his luvention of a new and mechanical contrivance for
United States -	-	593	1467	Wood, J. 8	-	-	planos, combining the advantages of Erard's machine, with greater simplicity of construction and dura- bility, 500. The expenses incurred in constructing his plano violia, 500.

London, November 1851

H. R. BISHOP, REPORTER.

CLASS XB.

REPORT ON HOROLOGICAL INSTRUMENTS.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.]

E. B. DENISON, M.A., Chairman and Reporter, 42 Queen Anne Street. (Juror Class X.) Baron Armand Siguelen, Deputy Chairman, France. (Juror Class X.) Professor Daviel Colladon. Switzerland. (Juror Class X.) E. J. LAWRENCE, M.A., 44 Chancery Lane.

THE matine ehronometer may be considered the most (No. 342, p. 1070); the last of whom has exhibited a important of all machines for measuring time; and it is chronometer in which the necessity for a fusee is superalso the one in which an invariable rate of going is of the most consequence, masmuch as longitude at sen is determined by means of chronometers, and they have frequently to go for a longer time without the means of being corrected by astronomical observations, than astronomical clocks, which are generally accompanied by fixed transit instruments.

It will probably appear strange that we have not awarded any Council Medal for chronometers, of which there are a considerable number in the Exhibition, especially in the English part, some of them by makers of the highest reputation. It is, however, this very cir-cumstance which has rendered it impossible to make any such award; not only because we are directed by the Royal Commissioners to avoid the attempt to distinguish one article from others of the same kind, merely on secount of superiority of execution, but because, among several of the best makers, there really is no one who could properly he so distinguished above all the rest.

The principles of the construction of ehronometers have now been settled for some years without any material variation, except in one point, which will be mentioned presently, and there is hardly any visible difference between one good chronometer and another; it was hence ohvionsly out of our power to make such actual trial of them as can only be conducted in an observatory, and must be continued for a considerable time in order to

ascertain their relative merits. We therefore came to the conclusion that the only satisfactory plan on which we can distinguish any among the large number of chronometers in the Exhibition (at least in the English part of it), is to adopt the results of the trials at the Royal Observatory, during the last few years, of elironometers by the same makers as have now seet any to the Exhibition. But it must be understood that the same reports of the Greenwich trials which justify us in awarding prizes to several chronometer makers who are exhibitors, show that others who are not exhibitors would have been equally entitled to Medals if they had sent any chronometers here. The exhibitors who have been awarded Prize Medals from having obwho nave been awarded Frize Stedails from having ob-tained high places in the trials at the Royal Observatory in the last few years are—Messrs, Dzs.r (No. 55, p. 413). C. FRODERIM (No. 57, pp. 414, 415), PARKINSON and FRODERIM (No. 35, p. 411), HUTTON (No. 7, p. 407), and LOSZEN (No. 12, p. 408); and we should have been glad to have the opportunity of similarly acknowledging the merits of Messrs. Poole, E. J. Masser, and Errer, as the makers of chronometers, which, together with those of Loseby and Dent, have exclusively occupied the first

seded by a remonitor escapement of a more is super-servation than usual, the impulse being given to the balance, not by any teeth of a scape-wheel, but by a small spring which is wound up sufficiently for the pur-

The single point in which there is any material difference in the construction of the best chronometers, is the mode of effecting what is called the secondary or auxiliary compensation of the balauce, or that which is required in addition to the ordinary compensation, to prevent the chronometer from gaining at mean tem-peratures if it is adjusted for two extreme ones, such as 20° and 164°, or losing at the extremes of heat and cold if the compensation is adjusted only for

temperatures within moderate limits, as from 40° to 80° temperatures within modernic limits, as from 40° to 80°. The carliest inventions for this purpose, as well as the discovery of the necessity for a secondary compensation, aquear to have been made by Mr. Elfe and Mr. Deat about the same time, and independently of each other; and their nothods are still in use, and evidently very second the same time. cessful. But we agree with the opinion expressed by the Astronomer Royal in a report made by him to the Admiralty, that the most inequious contrivance for this purpose, and probably the best adapted to the wants of chronometers—at least of those which are likely to be exposed to extreme temperatures - is Mr. Loekby's (p. 408), in which small curved thermometer tubes are set upon the ends of the ordinary compensation bars, so that the increury advances along the tubes towards the centre the increary auvances along her tures towards the centre of the balance, and at an increasing rate the nearer it approaches the centre. The effect of this, as of most of the other contrivances for the same purpose, is evidently to diminish the moment of inertia of the balance still more than it is diminished by the bending inwards of the ordinary compensation bars, on the ends of which the mercurial tubes are fixed,

The three makers who have been mentioned in addition to those who have received Medals not being exhibitors, we can give no account of their methods of compensation, Mr. DENT'S (p. 413) consists in placing the balance weights on small additional compensation bars set on the ends of the common ones, in such a position that the weights advance and recede in a radial direction more rapidly the nearer they are to the centre, for any given number of degrees of heat. There is also a chronometer exhibited by Messrs. Barraup and Lunn (No. 34, p. 411), with a contrivance which is substantially the same in principle, and perhaps equally likely to answer, though not so simple in form; besides others which do not appear to us to require particular notice.

of Looky and Look, now extractively occupient to series, port for un to require particular dotter.

Among the ferrigar chromometer which we have had judge in the ferrigar chromometer which we have had judge the control of the competence of the highest reputation in the respective only requires about one-certage, exhibited by Mr. Doss, the surface of the highest reputation and their respective of the control of the compensation of a Mr. Usana Zionescuss, of Altona (No. 17, p. 150%, and here farminghed with a copy of the Observatory report of the Lorent Recentary of Nordchild (C. L., Zolferente). In our of a decounter with this landers end upting,

and the small amount of compensating materials which it requires; and the variation of rate during the five months it was tried was very small. It is necessary to add, however, that Mr. Dent told us that some difficulties in making these glass springs have hitherto prevented their being generally used, aven by himself; and we mention these facts in the hope that he and other persons may be thereby induced to exert their ingenuity in overcoming these difficulties, so as to bring into use a material for springs which requires so little compensation, and consequently no secondary compensation, and which is also free from liability to rust, a point of manifest importance in instruments to be used at seu.

Astronomical Clocks.

Among these clocks, which are also sometimes called egulators, there is little that requires special notice. There are several of the usual construction, with Graham's escapement and mercurial pendulum, by the emiment makers who have already been noticed, as well as hy some others, both English and foreign. But astronomical clocks which will go accurately within two or three seconds a week may now be had of all good clockmakers; and it would be absurd to give a prize to any one for sending an instrument here, which a hundred other persons could have sent if they pleased; except in a few cases, such as that of chronometers above mentioned, where the exhibition of an article, not in itself distinguishable from others of the same kind, has enabled

ns to make a proper acknowledgment of the well-esta-blished reputation of the maker, *

Besides these astronomical clocks of the usual con-struction, there are several with new escapements, chiefly on the remontoire principle, but none that appear to us likely to supersede the old dead escapement. We have nevertheless given Prize Medals to Mr. Gowland. of London (No. 27, p. 410), and M. GANNERY, of Paris (No. 516, p. 1203) for gravity escapements, which are substantially the same; the impulse being given in both of them, not by arms turning on pivots, but by small weights, which in M. Gannery's clock are bung by threads to the pallet arms, but in Mr. Guwland's are still more independent, being small inverted cups resting on the pallet arms, and alternately taken up by spikes projecting apwards from another pair of arms attached to the pendulum: on the other hand, in M. Gannery's escapement there is less tendency to trip; and it ought to be known to the inventors of remontoire escapements, that independently of the risk of actual tripping (or letting two or three teeth slip past at once), any tendency to drive the pallets too far, if the force of the clock happens to increase, is fatal to the accurate performance of such an escapement

It should be added, that Mr. Gowland claims as an advantage of his escapement (and M. Gannery may do the asme, and so may M. Wagner for one of his turret-clocks, which will be noticed afterwards) that the pendulum is independent of the friction of unlocking, because that is done by the little remontoire weight, which is stopped for a moment as it descends on to the pallet arm by reason of the inertia of the pallets and their arms. was also the case in the late Captain Kater's escapement, which is described in the Transactions of the Royal Society, but is too complicated for use. And indeed the contrivers of all such escapements should remember, that

* It is a bare act of justice to the other exhibitors to mention, that in this desire to acknowledge the reputation of makers whose works have been tested by a much better of makers whose works have been teated by a much better criterion than we had the means of applying, we were nearly mitted into giving a Medial to an exhibitor of astro-nomical elocks and watches, on the ground of his being really, as he very compleuously designated himself; "Maker to the Royal Observatory." We fortunately succrained from the best authority that the only ground on which this presens obsistinguished himself from all the other exhibitors was, his having once performed certain services for the Observatory establishment, by no means of a high order, and even those performed in such a way that they have been discontinued, and are particularly unlikely to be no new escapement has any chance of coming into use unless it is as cheap and easy to make as Graham's, and is really so independent of the force of the train that a common house-clock movement will do as well for it as a well-finished train with high-numbered pinions; an experiment which the makers of remontoire escapements

seldom venture upon.

We have also given a Prize Medal to M. Dunors, of Lock (No. 9, p. 1266), the only Swiss maker who has exhibited a pendulum clock, for a regulator, with a gridiron pendulum in which the compensation is adjustable, and an escapement, which is a sort of imitation of the chronometer escapement. A construction of much the same kind was suggested by Mr. Airy, in the Cambridge Philosophical Transactions, in the year 1827; and we do not mean, by giving this Medal, to express any opinion on the probability of such an escapement super-

seding the ordinary one. Besides these escapements, which are all intended exclusively for astropomical clocks, there is one lately patented by Mr. C. MacDowall (No. 68, p. 417), which is intended as a substitute, not only for Graham's escape-ment, but for the common recoil escapement; and we are informed, as a proof of its cheapness, that a tender has been made to supply clocks to a public office, either with this escapement, or the usual recoil escapement, at with this escapement, or the usual reconstruction, the same price. Instead of a scape-wheel there is only a small disc, with a single ruby pin set in it, very near the arbor: the disc turns half round at every beat of the pendulum; and the pallets are both together on an arm, pendulum; and the paliets are both together on an arm, which may be the cratch of the pendulum, or may be in the pendulum-rod tixelf; and they are so formed, that the impulse is given chiefly hy direct action across the line of centres, and not obliquely, as in all the anchor exapments, and therefore with less friction. It is also a dead escapement, and by the simple addition to it of two long teeth or arms for the locking part (on the principle of the duplex escapement in watches), the friction on the dead part of the pallets may be reduced almost to nothing, in clocks intended for very securate performance. Mr. Macdowall is now making a clock with a remontoirn escapement, on the same principle, which may evidently be as well applied to such an ecopement as to impulse He has also successfully applied it to a escapements. lever-watch.

The greater velocity of the disc than of a scape-wheel renders another wheel in the train necessary; but as the elock, notwithstanding, goes with even a less maintain-ing force than usual, the friction of this extra wheel is evidently compensated by the diminished friction of the escapement, in consequence of the impulse being given

directly instead of obliquely,

We are quite aware that an escapement, in general appearance similar to this, was made some years ago, both in England and France; and specimens of it were produced to us from each country. But in both those speci-mens there was a roller instead of the fixed pin in the disc; and, what is perhaps of more consequence, they both had a much larger angle of escape than Macdowall's clock, and consequently, required a larger vibration of the pendulum: and we are not surprised that escapements so made had never come into general use, which was ad-mitted with respect to the French one; or had been abundoned, as those who produced the English one as-sured us that it had been long ago. Mr. Macdowall's escapement avoids the stuke and the uncertainty of a roller, and does not require a larger arc of vibration than a common clock; and, on the whole, we think that it combines, in a high degree, the several qualities which we are directed to regard in our distribution of prizes, viz., simplicity, chenparss, durability, and at least pro-bable accuracy of performance, and therefore we have given Mr. Macrowall. (No. 68, p. 417), a Prize Medal for what he calls his "single-pin escapement."

Torret, Clorke

After astronomical clocks, those which are intended for public buildings are of the greatest importance. In-deed, in some public clocks a degree of accuracy may now be properly required, as it can be obtained, exceeding that of most astronomical clocks. Considering the number of persons who make turnet-clocks in this country, the smallness of the number of them in the Exhibition as rather surprising; and those which deserve any favourable notice are still fewer. It is remarkable, too, that the us to deserve such notice, are two clocks with eastiron wheels; and they are both of them such as ought to convince anybody, that the prejudice against east-iron clock-wheels is altogether unfounded, now that they can be made so well that the teeth do not even require touch ing with a file after they come ant of the mould. of these clocks also have a remontoire apparatus in the going train, the effect of which is, that the escapement is driven, not by the great clock weight, but by a small weight, or a spring, wound up at intervals by the train, which is discharged like a striking part, or in some other way, at every minute or half minute, by the revolution of the scape-wheel. Most of the turret-clocks in M. Waq-NEA's collection : No. 736, p. 1215), which will be noticed presently, are also un the remoutoire principle. And there can be no doubt that, since it can be applied at a moderate expense, all turret-clocks of high character, at least if they have large external dials, ought to be so made, because it renders the escapement independent of all variatious in the force of the train, which are sometimes very considerable, and also allows a sufficient weight to be applied to the clock to drive the hands in all weathers, without making the pendulum swing too far; and moreover, as the hands of a clock of this kind do not move an almost invisible quantity at every beat of the pendulum, but by a very sensible jump at every letting off of the remontoire, the time can be taken from the minute-hand, at a considerable distance, as accurately as from the seconds-hand of a regulator; and for the same reason the striking part is also discharged mure exactly

at the right time. As regards the going part, the principal advantage of cast-iron wheels over brass or gun-metal is their much greater cheapness. But in the striking part they have greater chimpions, and in the straing less any more the further advantage of greater strength, which, in large clocks, is the chief thing to be attended to, and the ing in which they are most frequently deficient. In with a very light hammer; but the clock has only a small hemispherical bell nttached to it, and we have no proof that this very ingenious contrivance, in which neither fly nor hammer-spring is required, would answer for a large bell, such as that on which Mr. DENT's clock strikes, or even a much smaller bell of the usual form. In the latter elock the hammer is raised by broad cams cust on the great wheel of the striking part, and of such a shape, and with the lever so arranged, that there is the smallest possible waste of power: in fact, very little more than non-fourth of the force of the great striking weight is lost in friction, the resistance of the air to the fly, and in the necessary interval between the fall of the hammer and the beginning of its next rise, -s proportion which is much less than usual,

mBeh Mr. Beauers's No. 130; p. 422 and Mr. Devri-(No. 5, p. 44; 41) clucks have compensated perdulums. The former has a test and hence composation, which, Mr. Bolevier say, is made in accordance with inwhich, Mr. Bolevier say, is made in accordance with inmetals; though it differs from the result of all the ordinary tables of expansion, the length of the brance of the contract of the contract of the conolinary tables of the contract of the conordinary tables of the conordinary tables of the contraction of the contraction of the contraction of the conbinary tables of the conbinary tables of the contraction of the con-traction of the con-the con-traction of the con-tr

tested for severa years.

Mr. Roberts's excupation is a new one of his new conMr. Roberts's excupation of preview in linguished on a
roller at every hiteraste best. The remonstrire is on the
endless chain plan, which is described in Reid's book on
clock-making, except that the mode of letting off is
different. The form of the clock-frame is pramaidal,
with the pendulum hung from the top; and it is consequently very steady, provided the floor its stands on be

set though the plan of fluing turret-clecks on bassan let into the wall for the parpose, is, in most instance, stendier than any fixing to a floor can be. All the standard particles are all the particles of the particles of the standards because of the casting and the form of the wheels, the the poolenes of the casting and the form of the wheels, the theory of the casting and the form of the wheels, the standards of the particles of the particles of the theory of the particles of the particles of the particles to the manifecturing of these elects be in able to cell drew at a much lower price than small. On the whole, the manifecturing of these elects be in able to cell drew at a much lower price than small. On the whole, the manifecturing of these elects be in able to cell drew at a much lower price than the contract of the such as the particles of the companies of the mode of strating, or some other perfurition of this clock, we consider it will de-

serving of a Prize Medal The escapement in Mr. Dent's clock is the ordinary pin-wheel dead escapement, but the wheel is smaller than asual, being only four inches in diameter, and it contains forty pins. It is driven by a spiral spring, which is merely part of a large watch-spring, and is wound up a quarter of a turn after every quarter of a turn of the scape-wheel. The pinion, or small-wheel to which one end of the spring is fixed, does not ride on the arbor of the scape-wheel, in which case there would be consider able friction between them, but on a stud fixed into the clock-frame; so that the scape-wheel is driven by the spring without any friction whatever, except that of its spring without any friction whatever, except that of its own pivots, and the very small friction which is due to the upward pressure of the code of the remonitoric fly on the arbor of the scape-wheel. The consequence is, that there cannot possibly be any variation in the force on the pendulum, except that which may arize in the escapement itself, if the pallets are not properly oiled, -as in all other anchor or pin-wheel escapements. It may be worth while to state that the variation of force in the spring due to changes of temperature, if it were ten times as great as it is, would produce no sensible effect apon the pendulum. And as this pendulum is eight feet long, and weighs above two cwt., such a clock may be reasonably expected to go as well as any astronomical clock; and, in fact, it has gone since the opening of the Exhibition, at least as well as a highly-finished astronomical clock, which was placed by the side of it, and every week com-pared with the time brought from Greenwich.

The maintaining power for keeping it, going white wishing is of an econtraction; at the common syntage, wishing is of an econtraction; at the common syntage with the several maintain to writing. The maintainer has the superior of the highest three several maintainers with the several maintainers weight experience and syntage and common that it is impossible to experience with the substantial power for the contract white the strategy countries with the substantial power of the common three with the substantial power of the going part, and of both the erithing ports, are set of the going part, and of both the erithing ports, are set of the going part, and of maintainers, which survives the substantial power of the going part, and of both the erithing ports, are set of the going part, and of maintainers, which survives the survives of the production. If the both we will respect to survive production of the power forms of the survives of the production of the power forms of the survives of the production of the power forms of the production of the both presents of relief the power forms of the power forms of the survives of the production of the power forms of the survives of the production of the power forms of the survives of the power forms of the production of the power forms of the survives of the production of the power forms of the power forms of the survives of the power forms of the survives of the power forms of the powe

A Conneil Medal has been awarded to Mr. Dexy (P. 413) for this clock, on the recommendation of all the members of this Jury, except the Chairman, who declined to express an opinion spone it, no account of having himself fermished the design. But as it contains hardly anything which had not been either previously assed by Mr. thing which had not been either previously assed by Mr. to the adoption of any other maker, he is entitled to full credit for first as well as for his enterprise in attempting to

Since the close of the Exhibition, we have been informed that the accumulated error of the large clock, from the 8th August to the 15th Cetober, was - 2 · 8 accounds; or, in other words, the pendulum lest not quite two bear in the four millions of vibrations it performed during that

introduca a new description of clock, possessing both greater accuracy and greater strength than usual, and one which can be made for less money than equally large turret-clocks, of the common construction and of good

Me have already referred to M. Wannen's (of Paris) (p. 1215), collection of turret-clocks which displays great firtility of invention; and we have awarded him a Council Medal for the collection, but especially for his clock with a continuous motion, intended for the purpose of driving equatorial telescopes, so as to keep them poat any given star, and for all other purposes for which a continuous, instead of an intermittent motion is required. The mode by which this is effected is particularly inge-nious as well as simple. In this, as in several others of M. Wagner's clocks, there is a gravity remontoire appa ratus, on the bevelled-wheel principle, an the arbor of the wheel below the scape-wheel. For the construction of these remontoires we must refer to books, as it would be difficult to give an intelligible description of them without drawings; but assuming that to be understood, the arm which carries the remoutoire weight is in this clock prolunged to a convenient distance, so as to carry a kind of bell hang to it by a couple of wires, and within the bell a fly is driven by a train of wheels connected with the great wheel of the clock. This fly is so adjusted, that the velocity with which it allows the train to move is count to the overnoe velocity which it would have if connected with the pendulum, or to the relocity of a train with a revolving instead of a vibrating pendulum of the same period. If the force on the clock be too great, the remontoire arm becomes raised above its average height, and the bell rising with it lets in more of the external air upon the fly, which reduces its velocity, and vice versi. In this way, the hand, or telescope, attached to that part of the train which has the continuous motion, is always

made to keep pace with the average velocity of the scapiwheel with its vibrating pendalman. M. Wagner has exhibited a mavement of this kind. M. Wagner has exhibited a mavement of this kind. M. Wagner has exhibited a mavement of the kind. M. Wagner has exhibited a mavement of the perfect of gravity, as in Attwood masshine. The barrel revolves in a second, and by the side of it a weight descends rely in a grower, with an inked branch attached to it; and as the barrel revolves, the falling branch traces a curveture of the control of the size of the size of the control of the size o

revalve.

Two of M. Wagner's thrret-clocks have this same breeled-wheel remontoire in the train, only with a provision for letting it off at every half-minute, instead of a continuous motion; and one if them has a remostoire excepment also, but by an messas incapable of tripping; if

the force is increased.

There is under elock in the same collection which deserves particular notice on account of there being a remostoric in it, without any additional wheel in the train.

This is managed by setting the second wheel in a swingresponding to the second wheel in a swingter of the second wheel. In this clock, also, the pallet are set in the produlum without any cratch, the scape-

wheel being put outside the frame.

Another of M. Wympre's elecks has an exceptement with
a direct recoil, as in Harrison's once fiamous but long noy
almondoned exapement; and in this clock, also, the pallete
are set on the pendulum without a crutely. It is certainly
a superior ceutivance to Harrison's, although, as in his,
the recoil is necessarily very great and sudicin.

All the smaller clocks in this collection have cart-iron

All the smaller clocks in this collection have excitions striking parts, being the two large meas are of laras, probably for the sake of appearance; and they all atrike the control of the control of the collection of the collection of them have two bour-hammers, striking alternately, and none of them appear to have larreds of inflicient length, in properties to the number of artifixing alternately, and without the rope going twice over the barred. They have also compensately ephalmans, all on the lever principles, and compensately ephalman, all on the lever principles, fixed to the har at the top of the clock-frame, on a to draw up the produktion pring through a still in the clock.

The lever compensation seems to be the only one used in France, except occasionally the gridinon pendulum, with nice bars of tenes and steel. In English elocks, hardly any compensation in now saice, except the mercurial cylinder in the best actronomical elocks, and the rine tube

compensation in clocks where the mercurial pendulum would be too expensive. We have given a Prize Medal to M. Govrana (p. 1204),

a naker mf some celebrity is France, for a small wellcecuted turnet-clock, with a train remeastrier of a different construction from any af M. Wagner's, the remonstorwheels being employed in changing velocity, or as part of the clock train, and not merely in changing direction, which is the case in the berelduct wheel remonstors. which is the case in the berelduct wheel remonstors. M. Craxix (p. 1200) and by M. Battax Cowers (p. 1977, which we meanton an account of their extraor-

1197), which we dinary cheapness.

Electrical docks may be conducted as connected with travel-color, perspirity in the Elabhibition, in which the travel-color, perspirity in the Elabhibition, in which the travel color of the Electricity as the matter of connections with our large cloth driver by a weight in the small way, but using destrictly as his matter power. It is that the electricity as his matter power. It is large that the electricity as his matter power. It is large where the practical difficulty is coverous, of the electricity of the electricity of the electricity is not doubt that some kind of remnistric section with the as to doubt that some kind of remnistric section with the is no doubt that some kind of remnistric section with the is not doubt that some kind of remnistric section with the is not doubt that some kind of remnistric section with the color of the electricity of the electricity of the electricity (2.2) in these electric matter possible work of the electricity of the electrici

final to the inchemism of any oten production. There is no instruction in the Exhibition of a large remainder, and the consection, either glatunite or images and consection, either glatunite or images legislating the method, by a strong permission images, such as in Remainder, by a strong permission images, such as in Remainder, by a strong permission images, such as in Remainder, by a strong permission images, such as in Remainder, and the such control of the production of rather-to-such, or gallets, worked by the alternations of rather-to-such, or gallets, worked by the alternation of the temporary magaciety, but is in the two described and an extension of rather-to-such or gallets, worked by the alternation of the temporary magaciety, but is in the two described data

House Clocks.

In what are called by the Freude civil clocks, or clocks for domestic mar, there is not much room for difference, except in the merely ornamental parts, which we have various chapes, in the English part of the Fathhilots, as well as the foreign, and most of them sufficiently good for their parpose. Dail it is impossible to claimagein any well as the foreign, and most of them sufficiently good for their parpose. Dail it is impossible to claimagein any the text as well justify us in giving Mechas for them, because such Mediac could only mislead the public into the belief flatt there are not many other makers from the light of the parts
while to exhibit any.
Among the French exhibitors, however, we have given a Prize Medal to Measts. Derocene and Bornes (p. 125), who exhibit a very handome collection of well-produlinas and meconamon exceptements, and with what is called equation sevels, or a hand to take wall as a mean time. They also exhibit some of their pinions sparanticly, which are very well made. Allogether, their sparanticly which are very well made. Allogether, their

We have also given a Prize Medal for small clocks tn M. Baocor (p. 1199), the originator of an elegant and popular form of a nearly dead escapement in ornamental clocks, in which the pallets consist of semi-cylinders of jewels, at right angles to the plane of the scape-wheel. These clocks are generally made with the escapement in front of the dial, so as to be visible, and also to allow the scape-wheel to be taken out without disturbing the rest of the clock-

In addition to these Medals, which we have awarded chiefly on account of the good execution or arrangement of the movements, we have given one to Mesars, REVDER and COLIN (No. 984, p. 1226), who exhibit a number of house clocks of various kinds, all remarkable for the lowness of their price, and sufficiently well executed for the ordinary uses of such clocks. And in speaking of cheap house clocks, of course the American clocks ought not to be unnoticed, though we have thought it unn sary to attempt to distinguish any of them by a Prize Medal, as they are all substantially alike; and they are now so universally known for their cheapness - a qua which generally receives its own reward—that the addi-tional distinction of a Medal on that account would be more than usually apperfluous. There is, however, one quality for which they are entitled to greater credit than quality for which they are crititled to greater credit than is generally known, and that is the small weights or nowing force which they require, showing that there is much less power wasted by friction and the inertia of the train than in most other clicks. The small amount of inertia is caused by the lightness of the wheels; and the small friction (which certainly cannot be attributed either to the high finish or high numbers of the pinious) is accounted for by the use of lautern pinious, which (when driven by the wheels) have much less friction than leaved pinions of such low numbers, and are also less liable to be clogged with dirt, and are less affected by the wheel-teeth being insecurately cut, as they generally are in clocks of much greater pretension than these.

rally are in clocks of much greater prefension than these. To this class of domestic clocks helong the various forms of striking and chiming clocks, and alarums, and also tell-take or watchmen's clocks, and alarums, and long time without winding, and perpetual almanse clocks, whatever be the number of phenomena which the clocks, whatever be the number of phenomena which clocks, whatever be the number of phenomena which they profess to show. There is now so little difficulty in making these things, and so little use in most of them when made, that we do not think it necessary to distinguish any of them by a Medal, although in some in-stances they display ingenious contrivances for effecting their different objects. The Jury, however, agreed to mention some small alarum clocks by M. Pirsury, of Paris, (No. 958, p. 1225), on account of their cheapness. and because alarms really are, for certain purposes, useful articles of household farniture.

The only horological instruments which remain to be

noticed are watches, in which term are included carriage clocks, since these are, in fact, only large watches, set in cases like those of small clocks, and with the balance placed at right angles to the rest of the wheels, so that its axis may stand vertically, because it vibrates with less friction in that position-a fact of which some of the exhibitors do not seem to be aware.

Watches, like house clocks, are so much an article of general manufacture, and there is so little difference in the quality of those of several of the best makers, that it is difficult to establish any principle on which prizes can be given for them, except with reference to the general reputation of the exhibitors of articles which appear in

themselves to be good.

The three principal places in England where watches are made, are London, Liverpool, and Coventry. Among the London makers, several who have received Medals for chronometers or other articles, would have been entitled to receive them for their exhibition watches ale There is a very beautiful collection of carriage clocks and watches, of various kinds, by Mr. DENT; some of em exhibiting, besides the compensated balance, which them exhibiting, besides the compensated balance, which all first-rate walches now possess, a contrivance (different from most others for the same purpose) for winding ny and setting the hands without a key, by turning the knob in the handle of pending; and others having what is called a split seconds—hand, that is to say, two seconds—is called a split seconds—hand, that is to say, two seconds—

hands, which travel together and appear as one, till you move a pin in the case, whereupon one of the has separates from the other, and stops until you move the pin again, when the hand starts forward and rejoins the proper seconds-hand, after any length of stoppage; and this is done without the use of an independent train to drive the extra seconds-hand. There are various condrive the extra seconds-used. There are trivances, of different kinds, for the same purpose, among trivances, of different kinds, for the same purpose, among trivances, of different kinds, for the same purpose, among trivances, and the same purpose, and exhibits a night-watch, or a watch for blind persons, technically called a toc-watch, with an external hand, which moves round with the hour-hand, and the position of which can be felt with tolerable accuracy, with refer-ence to twelve studs set round the rim of the case, for the twelve hours, reckoning of course from the handle. There is also a watch similar to this among the Swiss ones; but Mr. Deut's has a special provision to prevent the position of the hand from being altered by the set of feeling it. He is to be considered as entitled to a Prize Medal for his collection of watches, independently of the Council Medal awarded to him for the large clock

In like manner the Prize Medals awarded to Mr. C. FRODSHAM (No. 51, pp. 414, 415), and Messrs. Pan-aisson and II. Frodsham (No. 35, p. 411), for chro-nometers, are to be understood as awarded also in respect

of their exhibition of watches

The former of these exhibitors states that his watches are made on a certain caliper (as the watchmakers call the working plan of a watch), in which the sizes of the wheels are determined according to a set of rules, partly arbitrary and partly founded on experience, according to the size of the barrel, or, in other words, according to the power of the mainspring. All makers of watches on a large scale must have some such system of their own but Mr. Frodsham proposes that a general system shall be adopted, in which the sizes of the various pieces of a watch shall not be expressed by the usual conventional numbers, known only to those who have to use them, but in decimals of an inch, and according to certain tables of proportion with reference to the size of the barrel, as above mentioned. It would probably be convenient if some such system were adopted, either according to Mr. Frodsham's rules (so far as they are arbitrary), or any others which might be generally agreed on.

Such a system as this is still more completely carried

out by Mr. Rozente's watch-plate drilling machine (No. 130, p. 422), a most ingenious and apparently successful invention, by which any given ealiper or propor-tion of the parts of a watch of any size can be at once transferred, by a mere mechanical process, to any other watches of any other sizes; piercing all the holes required for the pivots of the wheels, and other purposes, with unfailing accuracy. And in connection with this machine there is a sector for proportioning the sizes of wheels for any required number of teeth, also by a mechanical operation without the necessity of calculation. The Prize Medal before mentioned as given to Mr. ROBERTS (p. 422) for his cast-iron clock is therefore to be con-sidered as awarded equally in respect of his watch-plate drilling machine.

It should be mentioned also that he exhibits some It should be mentioned also that he exhibits some watches with a remonstoire ecospement, and one, which he calls a rerorder watch, with two seconds-hands, of which one can be stopped to denote the exact time of any observation, as is done in various other watches in the Exhibition. Indeed, the number of them is so great that we have not been able to give a Prize Medal to any washes called. we have not been able to give a rrise meetal to any maker folley on account of such a contrivrance, except to M. Riggessoc (No. 1885, p. 1257), a well-known watch-maker of Paris, for his watches with a second-hand, which, on tooching a pin nt the time of observation, makes a black apor on the dial; and this can be repeated

masses a macs spot on the dial; and this can be repeated at very close intervals, so as to record the exact epochs of a number of observed phanonsens succeeding each other very closely, without the necessity of taking the eye off the object to be watched for in order to look at the dial. What are called the movements of watches and small clocks are made by machinery, on a very large scale, by MM. Japy Brothers, of Paris (No. 275), to whom we

have awarded a Council Medal; although the objects themselves, as they appear in the Exhibition, are by no means striking, inasmuch as these watch movements are in fact only the two plates and some of the larger wheels of the train, and the clock movements are the internal parts of the clock without the escapement. The most, indeed the only, remarkable quality in these movements, is their extraordinary cheapness. They are, bowever, at least as good as any others of the same kind made in the usual way by hand; and Messrs, Jarv, we are told, sell no less than half a million of them to watch and clockmakers in the course of a year. The great cheapness of these articles being obtained by means of a peculiar pro-cess of manufacture, it was considered that Messrs. Jupy might properly receive a Council Medal for their watch movements, as a specimen of the produce of such improved mode of manufacturing.

Messrs. ROTHERHAM, of Coventry (No. 124, p. 419), exhibit a large collection of watches in all stages of manufacture, for which we have awarded a Prize Medal We have also given one to Mr. Rosaget, of Liverpool (No. 123, p. 419), an eminent maker, who exhibits a handsome collection of watches and small clocks, some of which are so constructed as to show the action of the various forms of watch escapements in general use; and to M. Redien, of Paris (No. 1425, p. 1244), for a chesp kind of watch alarum, of which a great number are sold both in France and in this country.

It may be mentioned here that M. KRALIE, of Pesth (No. 169, p. 1016), exhibits a set of models, in which thirteen different escapements can be fitted to one clock movement, by merely unscrewing the part containing the escapement. This is apparently intended for illustrating fectures on watchmaking, or for experiments on the

offects of different escapements,
Mr. Jackson exhibits what he calls (with some disregard of etymology) a seliclare watch (No. 32, p. 411), whereby he means a watch with a solid key. However, his invention of the thing fortunately deserves more eredit than his name for it. Most people are aware that the pipes of watch-keys wear out; and, in so doing, they wear off the corners of the winding square on which they act. The shorter this winding square is, the sooner of course this will happen; and in thin watches of the common construction the winding square cannot but be short. With the view of avoiding this, Mesars. AUDANT and KLASTRUERGEN'S watches (No. 52a, p. 412b, and several foreign ones in the Exhibition, which have no fusce, have the arbor of the burrel bollow and squared for a solid key to fit into it the whole depth of the barrel. But this will not do for watches with a fusee, because the fusce arbor has to turn while the watch is going, though the barrel-arbor of a watch without a fusce only turns while it is being wound up; and a hollow fusee arbor would be much too thick. Mr. Jackson, therefore, winds up his fusee by a small auxiliary wheel, analogous to what is called a jack-wheel in turret-clocks; and the arbor of this small wheel is made hollow and squared to receive the solid key. As the little wheel has nothing to do, and no pressure on it when the watch is going, the friction of its thick arbor is inconsiderable, even supposing it not to be thrown out of gear, as it might be. This also allows the fusee arbor to be smaller, and there-fore to turu with less friction than usual. We have consequently given Mr. Jackson (p. 411) a Prize Medal for this invention,

We have also given a Prize Medal to M. MONTANDO of Paris (No. 601, p. 1207), for his mainsprings, of which he is a maker of high reputation; and it is unnecessary to say that the goodness of the mainspring is of great importance to the accurate performance of watches, especially of foreign ones, in which there is generally no fusee, and, so the spring must be empathe of acting with nearly uniform force for four or five turns of the barrel. We agreed to mention the names of two other French

watchmakers: M. La Roy (No. 1186, p. 1234), for a col-lection of well-finished clocks and watches: and M. Lau-MAIN (No. 292, p. 1190) who exhibits some well-made pocket chronometers, with the escapement part made to take off separately: as well as the name of Mr. Boaron

(No. 94, p. 418), an English exhibitor of some very chesp watches in German silver cases.

cheap wateres in terman surver cases.

The Swiss exhibition of borology consists entirely (with the single exception of a clock before mentioned) of wateress and water-work; and, as is well known, a large proportion of the wateress of the world, especially the small and cheaper ones, are made in Switzerland. But in this instance, as in some others, it is not to be inferred that we intend the superiority of the works of one nation over another, in any particular department, to be measured by the number of medals which have been awarded to each, as they were given on no such consi-

derstion. We have given Prize Medals for watches to the fol-We have given Prize Medals for watches to the following Swins exhibitors:—Messrs, Aluerhaus (Swinzeland, No. 22, p. 1267), GRANDIJAN (No. 8, p. 1260), GROGELADER (No. 24, p. 1268), LECOLITER (No. 26, p. 1268), LECOLITER (No. 26, p. 1273), PATEX and PHILIPPE (No. 99, p. 1273), and Rieron (Nu. 101, p. 1273), except that for the last a grant of money has been substituted. luted

M. AUDEMARS (No. 22, p. 1267) exhibits a watch with a contrivauce for winding up the train which is required a contribute to vinding in the train which is contained for driving what is called an "independent secondshand," as well as the ordinary train, by the handle or pendant, so that when either train is fully wound up, the winder acts on it no longer, but proceeds with the other train alone. He has likewise a watch with several dials, one of them indicating one-fifth of a second, and with provisions for stopping the different hands independently. It may be mentioned here that Messrs. Cousins and WHITTSIDE, of London (No. 86, p. 417), also exhibit a large watch with a stop seconds-hand, indicating one-sixth of a second. M, Andessers' collection contains various other watches, with different kinds of escape-ments and other peculiarities, which cannot be particularly described here.

M. GRANIJEAN (p. 1266) exhibits some pocket chronometers, i, e., watches with the chronometer escapement; and one of them has a balance-spring of a spherical form instead of a flat or a cylindrical one,

M. GROSCLAUDE (p. 1268) has sent some watches with "independent seconds-hand," and only a single main-

ring. M. Lecoultrae's (p. 1283) watches are remarkable for the good execution of the wheels and pinions. He is stated to make all his watches with the corresponding wheels of the same size, so that when any wheel is daranged, it can at once be replaced by a new one without any other trouble than that of putting it in. And he, like some other makers, has a method of winding up and setting the hands without a key, and with a provision to avoid the risk of a slight derangement of the hands in the act of patting their adjusting work in gear, to which some other methods are said to be liable.

M. MERCIER (p. 1277) exhibits among other well-made articles, a watch with a new recoibing escapement with a double scape-wheel, which is ingenious and simple; but we do not profess to give any opinion on the probability of its success.

MM. PATER and PHILIPPE (p. 1273) exhibit a large and valuable collection of watches and pocket chrone Their articles are generally of moderate price, befinished. They have n repeater with two barrels, both winding in the handle, and a watch for the hlind. They are the makers of the very small watch only '55 of au inch in diameter, which attracted much notice as the smallest in the Exhibition

We have recommended M. RETOR (p. 1273) for a re-ward in money instead of a Prize Medal, as we understand that he is a person of very small means, who has had some difficulty in getting up the articles which he has sent to the Exhibition, and that he is also engaged in making experiments in watchmaking, which are of course at present unremunerative. He has exhibited a

pocket chronometer with an ingenious escapement.

We conclude the notice of the Medals to the Swiss exhibitors of watches with the award of a Council Medal to M. Lurz, of Geneva (No. 94, p. 1272), for his watch

balance-springs. On the holance-spring, more than any other single piece of a watch, its isochronism depends; and these springs present a marked difference in some of their qualities from those of any other exhibitor (even of some who specially directed our attention to the alleged superiority of their springs), inasauch as they bere the tests both of heating and stretching out neorly straight without at all altering their permanent form, which was

not the case with any other springs which we tried.

Besides these, we agreed to make Honourable Men-Devices these, we agreed no make presentance error among we even or one super-mass a non-necessary to the following Swiss excluding or of the send watchers:—ELFRORTH (No. 78, pp. 1271, 1272), the nuker:

The following is a summary of the awards in this of the send watch in the cal of a pectic-test; flow (1000).

(No. 31, p. 1268), Courvoisier (No. 34, p. 1268), Messicos (No. 15, p. 1264), and Messer, Baron and Unitarias (No. 74, p. 1271); also of M. Favie Brandt (No. 23, p. 1267), on account of his ingenious instrument for tracing out (not cutting) the teeth of watch-wheels in

the spicycloidal form. And lastly, we have awarded a Prize Medal to M. Ilrsort, of Sardinia (No. 33, p. 1303), for his watches and watch movements, and for a machine for rapidly polishing the teeth of the scape-wheel of a horizontal or

COUNCIL MEDALS.

Nation,	Number in Catalogue.	Name of Exhibitor.	OMPTS REWARDED.
Switzerland -	- 55 - 273 - 94 - 736	Dent, E. J Japy Brothers	Great clock and collection of other articles, three clock and watch movements, made by machiner, liair springs. Continuous motion reasontoire, and collection of turre- clocks.

			PRIZE MEDALS.
Switzerland -	-	92	Andemory, L Watches and watch movements.
Sardinia	-1	33	Beneit, A Watches and tootis-polishing machina.
France	-1	441	Brocot, A Ilalf-dead jewelled escapement,
-	- 1	1589	Detouche and Houdin - Collection of clocks.
Switzerland -	-	9	Dubois, F. William Astronomical clock.
United Kingdom	-	57	Frosisham, C Chronometers and watches,
France	-	516	Gannery, V Astronomical clock.
-	- 1	525	Gourdin, J Small tutret-clock.
United Kingdom	-	27	Gowland, J Astronomical clock.
Switzerland -	-	8	Grandjean, II Pocket chroomseters.
	- 1	24	Grosclaude, C. H Pocket chrocometers.
United Kingdom		7	Hatton, J Chronometers.
-	- 1	32	Jackson, W. II., and S Watches, solid key.
Denmark	-	17	Jürgemen and Sons Chrommeter.
Switzerland -	-	25	Lecoultre, A Watches, movements, and pinions.
United Kingdom	-	12	Loseby, E. T Chronometer compensation balance.
	- 11	66	MacDowall, Charles Clock escapement.
Switzerland -	-1	96	Mercier, S Watches.
France	-	601	Mootandon Brothers Watch malnsprings.
United Kingdom		35	Parkinson and Frodsham - Chronometers and watches,
Switzerland -		99	Potek, Philippe, and Co Chrocometers, watches, &c.
France	-1	1425	Redier, A Cheap watch alarums.
Switzerland -	-	101	Retor, F. (money prize, 50t.) Pocket chronometer with new escapement.
France	-1	964	Reydor Brothers, and Colin Chesp house clocks.
Prussia (1 Zolly.)	-	342	Richard, Louis Chronometer.
France	-	1685	Rieusser, N Watch with hand printing seconds.
United Kingdom	-1	i30	Roberts, R Turret-clock, and watch-plate drilling machine.
	- 1	123	Roskell, J Collection of models and watches, and small clocks,

HONOUBABLE MENTION.

Collection of watches,

Chrocometers.

United Kingdom	-1	52A	Aubert and Klaftenberger	-1	Watches.
Prance	-1	407	Bailly-Comte and Son -	-1	Cheap turret-clocks.
Switzerland -	-1	74	Baron and Uhlmann -	-1	Chronometers and watches.
United Kingdom	-1	34			Compressation balance, and watches.
Switzerland -	-1	81			Watches.
United Kingdom	-1	94	Bolton, T	-1	Cheap watches.
France	-1	450	Chavin (Elder Brother)	-1	Cheap turret-clocks.
Switzerland -	-1	34	Courvoisier, F	-1	Chronometers and watches.
United Kingdom	-1	86		-1	Stop-watch.
Switzerland -	-1	78	Elffroth, D. H	-1	Watch lo penell-case.
-	- 1	23	Favre Braodt	-1	Watches and tooth-trucing machine.
	- 1	23		- 1	Chromometer, with pointing seconds-hand for marking minute portions of time.
France	-1	292	Laumaio, C	-1	Pocket chronometers.
	- 1	1186		-1	Carriage clocks and watches.
Switzerland -	-	15	Mermoor, Brothers -	-1	Chronometers and watches.
France	-i	350	Pierret	-1	Cheap clock alarums,
United Klogdom	-1	128	Shepherd, C	-1	Electric clock escapement.

United Klogdom October, 1851.

France

E. B. DENISON, REPORTER.

CLASS Xc.

REPORT ON SURGICAL INSTRUMENTS.

The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.

Jury.

J. H. GREER, F.R.S., Chairman and Reporter, Hadley, Middlesex. Dr. Thomas Channouses, United States.
JAMES PILLE, 67 St. James's Street; Surgical Instrument Maker.

Dr. ROUX, France. Dr. LALLEMAND, Fran W. LAWRENCE, F.R.S., Whitehall Place; Surgeon to Bartholomew's Hospital.

THE Jury have the honour of submitting to Her Maesty's Commissioners the following Report, under the impression that the task has been confided to them of furuishing an intelligible account, as far as may be derived from an inspection of the contributions to the Great Exhibition, of the present state and condition of the art of nufacturing surgical instruments.

The relation between the instrument employed and the scientific objects of the surgeon, is, however, so intimate and essential, that in order to arrive at a just conception of the scope of the instrument-maker's business and art. of the scope of the instrument-maker's business and art, it will be necessary to make some brief observations on the purposes of surgical instruments, and on the condi-tions of what may be properly called improvement in connection with the art and science of surgery. The instruments of the surgeon may be regarded as

aids to those organs by which, on the one hand, man receives the notices of outward objects, and on the other, to those by which he re-acts upon the external world-namely, his senses, and as the representative and vicegerent of the motive powers, his hands. By this armature, then, of the seases and hands, and in proportion as it is efficient, is he codowed with the means of assisting and relieving those who require his services. There is, however, this peculiarity in the surgeon's instruments, that they are scarcely otherwise employed than in operations mn living and sensible parts. To supply such aids as the surgeon requires is the husiness of the instrument-maker; often only as the mechanical artificer, but not unfrequently contributing, by his inventive ingenuity, to carry out more commistely the surgeon's designs. The art of the more completely the surgeon's designs. The art of the instrument-maker has, indeed, a twofold character. He has, in the first place, to arm the operator for the various exigencies which his office implies—for example, with knives, saws, and the like, for removing parts which have been spoiled by violence or disease; with tourniquets, and other means, for arresting bleeding; with needles, for elosing wounds; and with the various means for ascertaining the presence and for the extraction of foreign bodies: and, in the second place, he has to supply the needs of the matilated sufferer, and to furnish compensation for defects, as far as such can be mechanically provided, in the shape of crutches, supports, and bandages, and of artificial eyes, palatos, and even limbs. He must be then an able mechanist, and such, be it said of the credit of instrument-makers, he will generally be found. But with, and almost in proportion to, his mechanical ingenuity arises the danger that it will induce him to adopt in his works unnecessary mechanical refinement and pernicious complexity; for, if the principle above enunciated be correct, it may be admitted that the nearer any instrument, consistently with its use, approaches to the organic simplicity of the hand and fingers, unembar-

that, as it necessarily stands in intimate relation to the advance of surgical science, it cannot but exhibit a tendency to the same simplicity that characterises improved operative surgery-perhaps by discarding as useless a whole group of instruments, always by the gradual intro-duction of methods which require lewer and less complex instruments; or if the aid of new instruments be required. it can scarcely happen but that those answer their purpor best which are in accordance with the principles already

laid down. Let the surgical student look into any old book of surgery, with its quaint cuts and illustrations, - such a work as Heister's, for instance, which is intended especially to afford information on the apparatus and instruments of this science, and he cannot but be at once struck with the cumbrous, coarse, and complex character of the instruments, when compared with those now in nsc, which are intended to accomplish the same objects. A remarkable illustration offers itself in the formidable array of tools which were employed in the operation of trepanning But further inquiry will also show that, in consequence of the improvement of the healing art, many instruments may become altogether nseless. What surgeon would think of having recourse to the terrible cauterizing irons, formerly in use for the purpose of scaring the pulpitating stump after amputation, and of preventing the otherwise inevitable death of the patient by bleeding? This har-barous method, which rendered the operation dangerous, and the healing of the wound tedious, was, as known, happily rendered unnecessary by the celebrated Ambrone Pare, who adopted the simple expedient of tying the blording end of the divided artery.

In the above instance, the cauterizing irons, as far at least as dependence on their use in arresting hemorrhage was concerned, were banished for ever from the equipment of the sargeon. But if amputation, in this case, was robbed of the greater part of its terrors and dangers, so great a step in the amelioration of operative surgery might not unnaturally beget a hope that, by the advance of surgical science, in consequence of a better knowledge and elearer insight into the laws of the animal economy, and elearer insight into the laws of the animal economy, the operation of amputation itself might be dispensed with, or limited to the fewest possible emergencies. Would that it were so, at least in all the diseases under which it is still unstroidably adopted in that in one instance, at all events, the genius of John Hunter has enabled surgeous to discard it, and to supersede its employment by a process at once simple, effectual, and almost void of suffering. In the disease called ancurism, produced by the yielding at some point, of the coats of an arterial trunk, until it bursts externally, and the patient dies of loss of blood, Hunter tought surgeons, instead of depriving the patient of a limb, as had been most commonly heretofore done, to raced by mechanical details and complex dalgations, the nearly will be its approach to perfection.

If we now turn to the progress of improvement in the construction of surgical instruments, it will be found on which contributed to the increase of the disease, and they contributed to the increase of the disease. this mild plan of treatment may be superseded, in many cases, by the simpler method of a merely graduated com-

344

pression on the exterior of the limb It might seem, then, that the skill of the instrument-maker is destined to be less and less required in the progress of the healing art; but if his ingeauty may or un-balked of its fruit, sometimes it would appear to be evoked by the very improvements which are the pledge of the advance of surgery. A remarkable instance in point is the comparatively recent operation of lithority, the prin-cipal merit of which will be cheerfully accorded to the ress of the healing art; but if his ingenuity may be thus French surgeons. The only method of effectually relieving a sufferer from the torture and health-destroying consquence of stone in the bladder had been by cutting into the part, and by extracting the stone through the wound, which, in such cases, extends deeply, and involves parts which it would be dangerous, or even fatal, to injure. But by the novel process entitled lithotrity, instruments, ingeniously contrived for the purpose, are in-troduced into the bladder, and, in the hands of a skilful operator, are made to break, crush, and pulverize the stone, without the necessity of any incisious, and without those dangers to the patient which attended the operation of lithotomy. Here the aid of the mechanist was called in to contribute to the success of one of the greatest triumphs of modern operative surgery; and though the various modifications of the apparatus may have been suggested by surgeons, it may be safely said that the insuggested by surgeons, it may be sairly and that the in-struments would not have reached the perfection they have attained, as shown in the present Exhibition, without the skill and ingenuity of the instrument-maker, should be remembered also, in connection with this subject, that Sir Astley Cooper devised a plan of extracting stones from the bladder whole and entire, when of small size, and that it was successfully carried out by means of an instrument constructed by the late Mr. Weiss, who will ever be regarded more as an artist than as a mere arti feer, in the line in which he earned his deservedly high

reputation. If, then, the improvements in the apparatus and instruments of surgeons, during the last half-century, be con-sidered in the spirit here vindicated, they will be found to depend on simplification, and if on novel appliances, yet on inventions, which have afforded new means of relief to the sufferer, or have tended to introduce the gentler and less forhidable methods of operation, which are ever the characteristic of the enlargement of surgical knowledge. Among these, besides the cupital instances addreed of modes of instrumentation of proved efficacy for relieving the sufferings of stone in the bladder, there may be mentioned—the stethoscope, invented by the celebrated Larance, for aiding the car in examining the morbid sounds of the chest, and which is not without its use to the sargeon; the stomach-pump, the valuable auxiliary in the treatment of poisons; Weiss's dilutor of the female urethra, for the purpose of facilitating the extraction of foreign bodies from the bladder; the water bed of Dr. Arnott, calculated, in all cases, to afford equal pressure in lying, and to prevent or remove the suffering and danger of bed-sores; various apparatus for facilitating and improving the treatment of fractures, especially the bed invented by Mr. Harrold for fractures of the spine, and the useful appliance of the gummed roller; the in-struments for the cure of ancurism, by the graduated compression of the artery leading to the suc; the mecha-nical contrivances in aid of orthopardic processes; and the different forms to which caoutehoue has been made available in air and water-cushions, and in a variety of andages and similar surgical appliances,

With these premonitions the Jury now proceed to give a brief synopsis of the contents of the present Exhibition.

Instruments deserving notice,

In looking over the assortment of instruments, which display not only all the ordinary contrivances required by the surgeon, but many novelties and ingenions adaptations and combinations, we may notice—in the instruments for operations on the syst—specula, knives, needles, scissors, hooks, which are admirably calculated for the deliency of the requirite manipulations. In those for operations or

the ear, some novelties for the exploration of the meatus auditorius and Eustnehian tube, and for the removal of polypi and foreign bodies from the external passage; an instrument for perforating the membrana tympani; and we instrained for personants the memorana typiquam; and we may add to these a warely of accountie centrivances for aids to imperfect hearing, many of which are so contrived as to imperfect hearing, many of which are so contrived as to the disguised as articles of furniture or personal attire. In those for operations on the more, weath, and pharyar, some modifications of the forceps for the extraction of polypi syringes for injecting the nares and antrum; a variety of tonsillar guillotines; staphyloraphic instruments, and new aids to dental surgery, especially Gilbert's chair, with a fulcrum, and instruments adapted to the forms of the several kinds of teeth, for their more easy extraction, In those for operations on the air-passages and thorus, a novel trachectome, and a valvular canula. We may We may include with these various forms of inhalers for the ad ministration of medicinal vapours, stethoscopes of novel construction, and instruments for measuring the capacity of the chest, amongst which will be found Dr. Hutchin spirometer, Coxeter's portable spirometer, and Quain's stethometer. In those for operations, or other surgical ministrations, on the abdominal scalls or olimentary canal, we may mention some improvements in the gullet forcers and in esophageal tubes; modifications of the stomachpump, which are calculated to facilitate its use: enema fountains; specula of different kinds for the examination of the rectum, or subservient to operations on the part; and a large assortment of trusses and herniary bandages, including most of those in use, and others of navel construction, especially such as those by which the wearer can vary at pleasure the force of the spring and the direction of the pad.

[CLASS XC.

In these for operations as the proteonings spates a, the make, as the all the roots modelization of the indum, the final all the roots modelization of the interm of the make and the spates are the system arrowing, the spates of the spates of the system arrowing, the including contrivence for the use of the system arrowing, including contrivence for the spates of the proteoning of the systems of the spates from the bladder and methods which a form of from the bladder and method without conting to the from the bladder and method without conting and, butly, which is the spates of the spates of the spates of the spates of the spates continued in the spates of the sp

In those for operations on the grait-variancy system in the fromle, we have a large assortment of specula, dilators, syringes, forceps for removing polypi, instruments for applying lightures, pessaries, and artificial supports of various kinds; an instrument for the cure of vesico-vaginal fituids; and different instruments for obstetrical purposes. In those for operations on the extremities, we find, in

comercion with come varieties in the batter and, saw used for amputations, several noticeples modifications in the form and adaptation of tourniquets; for the adjusment and evaluation of freatures, unaccore continuaciation structure in the way of fracture-best, inclined with a movember of the several continuation of the with a movember deligit to sensible the policies to six up in bed, an apparatus for a firsterned circuit, together with poils and banalogies in different nativalus—for the reduction of dislocations several contrivuous, in one of the contribution of the contr

small extremity.

It those for operations on the osseous system, the estections of the osseous system, the circular as well as the circular saw of MACHELL, and, in addition to various instruments for the resection of bone, one will be

found for dividing and extracting lengthened sequestra. We noticed also a trephine-crown, which is made eapable

of expanding and contracting. In those for operations on the coscular system, we find some variations of the scarificators for cupping, improved leech-tubes, and artificial leeches;-for the control of hemorrhage, new forms of tourniquet; -instruments for transfusion; -- for angurism, various instruments for holding needles and applying ligatures, and instruments subservient to the new method of cure hy graduated compression;—and for varices, elastic stockings and

bandages. Besides all these praiseworthy attempts to improve and extend the ministrations of the surgeon, we observe that great attention has been paid to orthopardic processes for the removal of deformities produced by weakness, misgruwth, or habitual position, in the form of spinal supports, corsets, chairs, and a system of machines exhihited by Mr. Caplin for combining gymnastic exercises

with orthopædic objects.

In the mechanical compensation of lost parts great success has been obtained, as will be seen in examining the and legs. Among the arms, the apparatus and tools con-trived by Major Lettle to meet the loss of the right hand, is well worthy of inspection; and among the con-trivances for supplying the loss of the lower limb, the admirable mechanism of Mr. B. F. PALMER's artificial leg (United States, No. 39, p. 1435) deserves particular

In addition to the above list, the Jury may be per-mitted to draw attention to CHAPMAN's invalid couch (No. 601c, p. 476), Dr. VEITCH's invention, "denominated the medico-chirurgical amhalance" (No. 6, p. 407); and

Gowing's instruments of veterinary surgery (p. 475°) The Jury cannot, indeed, presend to have noticed in this report every article worthy of the surgeou's attention, or to have mentioued all the names of exhibitors whose merits deserve a permanent record. This remark applies, perhaps, in the greatest degree, to the exhibitors of col-lections of instruments, several of which, such as those lections of instruments, several of which, such as those Of Chananiaes (No. 145, p. 1233), COASTRAK (No. 422, p. 4697). ÉTANS (No. 274, p. 38), Finothosi (No. 638, p. 477, 478), LERA (No. 233, p. 1240). Finite and WHICKER (No. 641, p. 4657). SUPPON (No. 642, p. 4657) and Waise (No. 634, p. 4657). SUPPON (No. 642, p. 4657) and Waise (No. 631a, p. 478), form a complete and instructive epitome of the instrument-maker's art. In cond-inding this account of the angiest limit ruments. contained in the Exhibition, the Jury have to acknowsige the valuable assistance they have derived from Mr. PHILP; and to regret that, in consequence of his office as Juror, the house of Phill and Whickes (No. 641, p. 465*) have renounced all competition in the award of prizes. The Jnry deem it, however, no more than just to remark that the home of Saviony, of which

Messra. Philip and Whicken are the representatives, embraces the history of the manufactory of surgical instruments in this country for a period of scarcely less than two centuries; and that the late Mr. Savigny, as is shown by his well-kunwn work on the subject, was in his day almost the sole improver of instruments, which up to that time had been of a very rude construction. They desire to add that Mr. Philp has been practically engaged during the last fifty years in the manufacture of the justly-prized instruments, for which Savigny's firm has been celebrated, and that on the present occasion Messrs. PRILE and WHICKES, in the complete and excellent collection of instruments which they exhibit, have efficiently sustained the high reputation of their long-established

Thus in the Great Exhibition will be found the complete armonry and equipment of a surgeon, comprising a choice assortment of all the instrumental aids, in their most perfect form and finish, with which the ingennity of the artist or artificer can furnish the operator or the | of the objects they exhibit.

patient, for the relief of the manifold ills of suffering humanity,—as far, at least, as their remedy depends upon mechanical skill and contrivance. To attempt any critical examination of this admirable collection would be, however, in the opinion of the Jury, as hopeless as it would be invidious. The Jury appointed to report on surgical instruments could not, consistently with the abjects and limits of this Report, cuter upon the disenssion of subjects which involve references to a large portion of the surgical records and literature of the last half-century; and they have no wish to make their leport the vehicle of advertisement, or to reader it the occasion of contraversy. They do not arrogate to them-selves any judicial authority to decide on the claims of inventors, or on the comparative merits of improvers They have endeavoured conscientiously, as far as their means of judgment have extended, to award prizes in those cases in which the objects exhibited display inventive talent, useful ingenuity, or superior mechanical skill; and if in some instances they may have left talent unrewarded, either from the imperfection of their indement, or from the impossibility of acknowledging every degree of merit, they desire to record most unequivocally their sense of the general excellence manifested both in the contrivance and execution of the surgical instruments exhibited.

To the same Jury has been intrusted the duty of examining and reporting on the models of anatomy. Of these some beautiful examples have been exhibited by Auzoux (No. 13, p. 1170), Simpson (No. 641, p. 465* Town: (No. 625, p. 477), and Gordon (No. 639, p. 465°). The opinion which the Jury cutertains of their merits they have expressed, by awarding to each of these con-tributors the Prize Medal. And willst saying that such models are admirably calculated to aid the teacher in his demonstrations, the Jury, without detracting from their merit, may be permitted to observe that, especially in respect of human anatomy, they can never supply the place of actual dissection. They cannot, however, omit this opportunity of recording their apprubation of the value of the labours of M. Auzoux, who, in respect of the durability of the material he employs, and of the scientific exactness of the structures he displays in the auntomy of man, and in that of various well-chosen examples of animals, both vertebrate and invertebrate, has earned the gratitude of teachers of austomy and zoology. And they desire especially to express admiration of the series of models in wax, which display the anatomy of the torpedo, not only as highly-interesting specimens of Florentine art, but as patterns of scientific accuracy and artistic beaut

inally, in accordance with the philanthropic designs of His Royal Highness the Prince Albert, and of those who have promoted, under the Hoyal sanction, this great national undertaking, the Jury beg to express their sincere wish that the department of the Great Exhibition, on which they report, may contribute to produce that interchange of knowledge and of annity which this assemblage from all parts of the world is calculated to foster, and which it is alike the interest and the duty of all natious, as integral parts of the human family, to cheriah and to cultivate.

In making the following awards, the Jury intrusted with

this delicate and difficult duty, desire to say, that is con-formity with the directions of the Royal Commissioners. and without the means of marking degrees of merit, they have been under the necessity of avoiding a regard to comparative excellence. Also, that as they do not intend it to be understood, that others than those included in the prize list might not have properly received some testimonial of merit, so they trust, that the Exhibitors distinguished by the recommendation of the Jury will severally accept the prize awarded to them, not as a measure of their merit, but as a tribute to the excellence

PRIZE MEDALS.

NATION.	Number in Catalogue.	Name of Exception.	Orderts Rewarded,
United Kingdom	- 617	Arnott, J., M.D	A novel mode of applying cold as a therapeutical agent
France	- 13	Ausoni, Dr. L	The excellence of his anatomical models, admirably calculated to promole and aid the study of anatomy human and comparative.
United Kingdom	- 631A	Avery, John	An illuminating apparatus, designed to explore long and narrow canals, especially the male urethra.
	676	Bigg, H., and Son	Surgical instruments, excellent both in materials and workmanship.
France Tuscuny	- 79	Barat Brothers Calami, Professor L	improvements in the construction of herniary bandages A series of models in wax, representing the austomy of the torpedo in the most exact and beautiful manner,
United Kingdom	- 570	Caplin, L	Various kieds of apparatus, orthopedic and symmatics, Various kieds of apparatus, orthopedic and symmatic especally those the value of which consists in re- moving the weight of the trunk, and at the same time increasing muscular strength by exercise.
-	570a	Caplin, Madame	Cornets, ingeniously adapted for giving support to the trunk without confinement of the thorax.
France	- 1145	Charrière, J. F	Instruments of various kinds, exhibiting novelty, in- ventive and adaptive ingenuity, and great perfection of mechanical execution.
United Kingdom	- 682	Coarter, J	Surgical Instruments, excellent both in materials and workmanship.
	643A	Evans and Co	Surgical instruments, excellent both in materials and workmanship.
	274A	Evans, W	An artificial log, the peculiar excellence of which con- sists to giving a firm bearing on the stirrup in riding.
-	631	Forgusen and Sons	Surgical instruments, excellent both in materals and workmanship.
	630	Gordon, J	An anatomical model of a buman figure in Ivory, exhi- biting the parts as they appear in dissection, suc- displaying an unwearied application of labour in the execution.
	736 565	Gowing, T. W. Grosetnith and Desjardins	Improvements in veterinary instruments. Artificial eyes, remarkable for their close imitation u the natural appearance of these parts.
	729	Hutchinson, Dr	His spirometer, an apparatus adapted to measure the quantity of air expired, in conformity with the pro- portion said to calet in healthy individuals, between the height of the stature and the capacity of the lungs.
Switzerland -	- 106	Juned, T	An apparatus for hémospasie, namely, for determining blood to large surfaces of the body, on the principle of dry cumular.
France	- 1331	Lüer, A	The general excellence of his instruments, and cope cially for the great ingenuity and admirable work manship of several instruments for operations on the eye.
United Kingdom United States -	- 654 - 39	Machell, T	A circular saw, intended to be used as an estectome. An artificial leg. the contrivance of which combines
Curren States =		1 414141, 11. 2	lightness and a successful imitation of the motion of the loints.
Portugal United Kingdom	- 633 - 629	Polycarpo, A Rain, F. C	A case of surgical instruments. Acoustic instruments, ingeniously contrived for the
Custon Mingroun	- 00	Andrew Co.	aid of deaf persons, in a variety of highly convenien
	624	Simpson, G	 An anatomical model of the human figure, consisting of pieces that may be combined and detached at plea aure, and calculated from its construction to bear th
	642	Simpson, H	beat of tropical climates. Surgical instruments, excellent both in materials and
France	- 1505	Thier	workmanship. An apparatus called Tetrelle, an ingenious contrivance
United Kingdom	- 625	Towne, J	for artificial lactation. Ilis admirable models in wax, illustrating the process of incubation, and representing some parts of the
-	631A	Weiss and Son	human body as they appear in dissection. Instruments of various kinds, exhibiting novelty, in ventive and adaptive ingenuity, and great perfection of mechanical execution.

Hadley, October 1851.

JOSEPH HENRY GREEN, REPORTER,

P. Since the above Report has been in type, the hooffer any opinion on the comparative value of rock a mention of the forpert has been drawn to "Fotos" model of detailing a fresh anylity of various matter, but core with the small hope, aboving the clearates of the activation of the host detailing a fresh anylity of various matter, but core with the small hope, aboving the clearates of the activates of the activate of the activates of the activate of the activates of the activate o

CLASS XI.

REPORT ON COTTON MANUFACTURES.

[The figures after the Names (hetween parenthenes) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLESTRATED CATALOGUE.]

Sir James Anderson, Lord Provost of Glisgow, Chairmon, Glasgow; Cotton Manufacturer. PHILIP ELLINSS, Diputy Chairmon, Frankfort-on-the-Malne; Merchant. THOMAS ASIRON, Reporter, Hyde, new Manchester; Cotton Spinner.

C. Beschen, Austria; Vice-President of the Austrian Committee. Col. R. E. Cour, United States; Planter. W. Gray, Mayor of Boiton, Wheatfield, Bolton; Cotton Spinner, Gronge Jacason, Corporation Road, Carlisle; Cotton Spinner.

PAUL KIRCHHOPER, Switzerland, Avg. Minizer, France; President of General Council of Manufactures. J. Astinal Tunez, Manchester; Cotton Spinner.

Associates,

TROMAS COATH, 7 Bread Street, Chempide; Linen and Manchester Merchaut. Rosser Joneson, 95 Watling Street, City; Warchouseman. Joun Pitzuan, 11 Bos. Lane, Chempide; Mcrchant.

COTTON YARN,

Tire Jury appointed to examine cotton yarn and plain und coloured waven cotton cloths, have to report in vara, that the specimens from England, Scotland, Switzerland, the Zollverein, France, and Austria, which they have considered it necessary to notice, are those manufactured by machinery. In the numbers of usual production and use (say from 6s, to 250s.), they have found it impossible to do more than report upon the general character of the specimeus from the various countries, any superiority appearing to arise, not from greater skill in working, or superior mechanical appliances, but from the character

of the cotton used. Cheapness is the only other quality for which they could have made special mention; but they have found it impossible to arrive at any satisfactory results on this point, and have hence deemed it advisable to award no

medals. The yarns exhibited from England and Scotland are chiefly of second qualities, suitable for use in the trade,

chiefly of second qualities, suitable for nee in the trade, which supplies clothing to so large a portion of the wark-ing population of all parts of the world. Swiss yarms, exhibited by eleven different spinners, are of very beautiful quality, and are adapted to the pro-duction of those cloths in which softness of texture and besuty of dye are required; great attention has been successfully paid to the selection and preparation of the

The specimens from France possess similar qualities, whilst those of the Zollverein are of various kinds; but are not in sufficient quantity to illustrate fully, the trade

are not in sufficient quantity to illustrate fuzzy, the truce of the contribes in that usion. In fine yarms, Merser, T, Hortzinswortzs and Co., of Manchester (p. 452); Messer, Garnesus and Bazzary, of Manchester (p. 279); and M, Malakry, of the firm of Varyarortzs and Malakry, of the firm of Varyarortzs and Malakry, of the file (p. 1213), laxe each exhibited yars of No. 600s.; in the first and the stelling, and in the second instance made into 9-curd sewing thread, believed to be the finest ever yet produced. Messrs. T. Houlds-worth and Co. also exhibit small specimens of various degrees of fineness to 215%, and Messrs. Gardner and Bazley to 2070s.; but it does not appear that they are

produced in sufficient quantity to be of any utility.

Various specimens of yarus of hand-production are ex-

hibited from India-(curious on account of the shortness anotten trom findin-currious on account of the shortness of the filter of the cotton, and the fineness of the yarn produced), from Malta, and from Tarkey. All these yarus have that peculiar excellence of softness and pliability never yet attained by muchinery, but are very uneven and irregular in thickness.

DYED YARNS,

In dyed yarns, with the exception of the Turkey red shown by LEUMANN BROTHERS, Mattwiel, Switzerland, snown by LEXEAN EMPIRES, Natures, Switterland, (p. 1274), the speciment exhibited by Great Britain, the Zollverein, Switzerland, Belgium, and Austria, do not merit especial mention; good Turkey red and other fancy colours being produced in each country.

THREAD, &c. In thread there are few specimens exhibited from foreign countries,

CALICOS, &c.

In plain calicos the specimens of English mannfacture show how successful the efforts to produce good articles of general utility have been. The colour and finish of the blenched goods are very superior, It is, however, unfortunate that the manufacture, which forms a very large portion of both our export and home trade, should have been so imperfectly represented, that

many of its most important varieties are entirely wanting in the Exhibition, From the United States there is a good selection of

drillings, grey sheetings, and jeans of excellent quality; and from Belgium and France a few specimens only of plain grey and white calicos, made, however, of cotton

plain grey and wrate cascos, misor, sowers, and measurably fine for the purpose. Specimens of white calico, prepared according to the putant of Mracux (p. 556), of Accrington, Laucashire, are exhibited, possessing the increased thickness resulting are within the contraction. from this process; but as this invention is more import ant in dyed or printed goods, the Jury connected with that Class will report fully upon it. This Jury would, however, add, that, as far as the specimens canble them to judge, it promises to be a most valuable discovery when applied to bleached cotton cloth.

The Jury regret that no specimens of cords and beaver-

teens were exhibited, or of the very important article of

MUSLINS, &c.

Very good specimens of muslins (tarlatan, hook, mull. lawn, &c.) are exhibited from Glasguw, Switzerland, and France, and of jacconot and cambric muslin from Manchester and Saxony. The British goods are suitable for the Indian and American, as well as the home markets. The plain muslins exhibited by native merchants of Dacca have great merit, especially when the rude mode of pro-duction is considered; but their cost is relatively high, and the finish universally defective; the yara too is uneven, and frequently overtwisted. In figured harness muslins, Scotland, Saxony, Switzerland, and France, exhibit articles of considerable beauty

and utility, at comparatively low cost. COLOURED WOVEN COTTONS.

In ginghams, the large exhibition from Glasgow. Carlisle, France, Switzerfand, the Zollverein, and Belgium, shows that the manufacture of these ascful articles has received great attention, and attained great perfection in

all those countries. An interesting collection of woven checked goods is exhibited from India and the Archipelago, many of them being the originals from which the European manufactures

(nuw much superior) have been copied. In the class of goods submitted to their inspection, although many of them are of very great excellence, and evince the application of great skill, taste, and industry in their production, the Jury have found nothing possessing the contract of the contra ing the pre-eminent merit which would induce them to ing the pre-eminent merit water would induce them to recommend the award of a Conneil Medal. In the perform-ance of their duties they have endeavoured to avoid making any invidious distinctions, or using any expres-

sious which might tend to injure the interests or the feelings of the exhibitors. The Jury award Prize Medals to the following Exhi-

AMOSKEAG MANUFACTURING COMPANY, New Hampshire, United States (2, United States, p. 1433), for a very good assortment of drillings, tickings, sheetings, and

cotton flannel. Andraeco, Tobic, Wattwyl, Switzerland (111, Switzerland, p. 1293), for cambric muslin made of unusually fine yaru

Andreson, D. and J., Glasgow (16, Class XI., p. 481), for a good general assortment of ginghams.

Baoog, Jonas, and Baothers, Huddersfield (24, Class Xf., p. 481), for their 2 to 9-cord thread, for its superior smoothness, strength, and freedom from fibre.

CHRISTY and Sons, Fulrfield, near Mauchester (44, Class XI., p. 481-82), for their improved manufacture of the Turkish bath towel, DAUDVILLE, ALPHONSE, St. Quentin, France (156, France, p. 1178), for excellence of manufacture in harness

windus eutrains and in harness piece muslins.

DE BAST, CAMILLE, Ghent, Helgrim (189, Belgrum, p. 1157), for beautiful grey calicos made of very fine cotton.

DUBLAN, DELESPALL, Robbaix, France (148, France,

p. 1178), for cotton trouserings of excellent taste and DUBANTON, J. B., Paris (494, France, p. 1201), for shirt fronts, produced by the Icom in imitation of needle-

FEIR, J. C., St. Gall, Switzerland (122, Switzerland,

p. 1274), for columned Jacquard muslims. FEBOUELLE and ROLLAND, Paris (200, France, p. 1183), for novelty of design and beauty of manufacture in coloored figured muslin

FINLATSON, F., and Co., Glasgow (S. Class XI., p. 480), for beauty of design and superiority of execution in fastcoloured sprigged lappets. GARDNER and BAZLEY, Manchester (53, Class, XI.,

p. 482), for fine yarus. HARTMANN and Son, Munster, France (256, France p. 1189), for brillantes, or figured cottons, of excellent make and assortment.

HORNOCKSER, MILLER, and Co., Preston (60, Class XI., p. 482), for the superior make and bleuch of their shirt-

HOULDSWORTS, T., and Co., Manchester (54. Class XI., p. 482), for fine yarns Journson, Januz, Manchester (48, Class XI., p. 482), for coloured quiltings and toilet covers, of excellent manu-

JUURDAIN, X., Altkireh, France (1631, France, 1255), for muslin made by power of 190s, warp and 250s, weeth

LAMBERTS, A. CHRIST., Son, Gindbach (604, Prussi p. 1084), for cotton kalmneks and beavers, as an improved manufacture of general utility.

Lano, J., Vienna (185, Austria, p. 1017), for gingham the quality and design of which are suited to French and German taste.

LEUMANN, BROTHERS, Mattwicl, in Switzerland (130, Switzerland, p. 1274), for specimens of Turkey red, of great brilliancy and force of colour. The award is made irrespective of the cost of this yarn. Lisnon Weaving Confant, Portugal (707 to 712, Portugal, p. 1315), for specimens of blankets and shawis of cotton, a manufacture apparently peculiar to that country.

M'BRIDE and Co., Glasgow (6, Class XI., p. 480), for cotton diaper for table cloths and towelling woven by

power, MAIR, J., Son, and Co., Glasgow (59, Class XI., p. 482), for beauty of design and execution in window-curtain produced at a reduced cost by a new arrangement of the Jacquard loom.

Majon and Gill. Manchester (49, Chass XI., p. 482). for double contils and nankeens for corsets produced in the loom

MALLET, -, of the firm of Vantroyen and Mallet, Lille, France (715, France, p. 1213), for fine yarns, Martin, W. and Son, Bolton (37, Class XI., p. 481), for very superior farniture dimities MYERSCOUGH, STERLE, and Co., Bolton (39, Class XI.,

481), for excellence of design and workmanship in toilet quilts and bed covers. NASF, MATTHIAS, Niederurwyl, Switzerland (131, Switzerland, p. 1274), for the hrightness of colour and good assortment of levantines.

NEF, J. J., Herisau, Switzerland (198, Switzerland, p. 1279), for white spotted muslins, Ourseaser, the Company of, (Peigné Delacourt, Ma-

nager), France (379, France, p. 1195), for bleached mada-poliams, of excellent quality and superior roundness of OWTRAM, R., and Co., London (62, Class XI., p. 483),

for figured and checked cambries of very superior manu-PANSA and HAUSCHILD, Chemnitz, Saxony (42, Saxony, p. 1106), for 4-thread knittings and good general assort-

PATTERSON, JAMESON, and Co., Glasgow (ff, Class XI., p. 480), for imitation of Madras handkerchiefs of

fast colours. RANSAUER ARBLY, Herisan, Switzerland, for very per-fect specimens of tarlatan and book muslin. RASCHLE and Co., Wattwyl, Switzerland (168, Switzerland, p. 1277), for imitation Madras handkerchiefs, of fast colours; those with hlue grounds being especially

Symingron, H. H. and Co., Glasgow (14, Class XI., p. 480), for licenty and appropriateness of design and excellence of manufacture of harness window curtains. TANNER and KOLLER, Herisau, Switzerland (206, Switzerland, p. 1279), for scarf, shawl, and dresses with flounces, produced by an improved adaptation of machi-nery, and for beauty of design. Medal awarded in

Class XIX. THUMER and TÖFFFER, Chemnitz, Saxony (90, Saxony, p. 1109), for two coloured cotton table-cloths, of good

design, Torson and Sons, Huddersfield (116, Classes XII, and XV., p. 490), for vestings of great beauty of design and superiority of manufacture. Medal awarded in Class XII, Vocat and Carner, Gern, Saxony (711, Zollverein,

p. 1089), for the cheapness and good quality of their levantines.

for very useful and good wasstcoatings relatively to their

cost,
WILLIMENTIC DUCK MANUFACTURING COMPANY, Connecticut, United States (352, United States, p. 1457), for
a specimen of cotton sail-cloth of very superior strength

and evenness.

And also of the following manufacturers for very good assortments of ginghams and striped and checked goods, These are all useful, being suited to various markets, and

and evenness.

The Jury make Honourable Mention of:—
CLARER, J. P., Leicester (32, Class XI., p. 481), for
the great taste and ingensity shown in winding and
making up the specimens exhibited by bim.

Wender, J. J., Ludwigsburg (29, Wortemburg, p. 1115), all valuable as cheap productions; and the Jury have revry useful and good wasteoutings relatively to their found little difference in their relative merits:—found little difference in their r

p. 1273-74). BREITENSTEIN and Co., Zofingen (117, Switzerland, p. 1274),

Dr. Curren, J. F., St. Nicholas (192, Belgium, p. 1157). DIXON, PETER, and SONS, Carlisle (19, Class XI., p. 481).

JANSEN and LÜSDORF (56, Bavaria, p. 1100), Lienhardt, F., Hof, Bavaria (43, Class XI., p. 1100), Lowthian and Parker, Carlisle (22, Class XI., p. 481), M'GIRRON, EDWARD, Carlisle (20, Class XI., p. 481). PEARSON and Co., Carlisle (21, Class XI., p. 481),

THOMAS ASSITTON, REPORTER.

June 1851.

CLASS XII.

REPORT ON WOOLLEN AND WORSTED MANUFACTURES.

(The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND RESISTRATED CATALOGUE.

Jury.

Dr. Vox Игалилах, Сетенов, Munich; Privy Councillor in Finance Department, Пихак Fonnas, J. P., Върнер-Cheirmen, Bradbord; Merchant, Запул. Арпългом, Веренов, Ida St. Martin's Lane; Weollen Merchant, Hasar Barry, Wood Street, Chenpide; Woollen Merchant.

HEAST BRIFT, Wolds every, a request; in some accusant. C. C. Cani, Zoliverin; Manufacturer, version and Manufacturer. Joins Cooren, J. P., Leeds; Wesilten Merchant and Manufacturer. Grome Lawtox, Meckleburst, near Authon-under-Lyue; Flannel Manufacturer.

Groung Lawyos, Meckelmark, near Ashon-under-Lydo; Financi Manufacturer. Thomas Mannaso, Strond; Retired Manufacturer. J. Randonso, France; Member of Central Jury, &c.; Member of the Legislative Assembly of France, AON SAMOLLOFF, Russia; President of the Council of Manufactures at Moscow.

ARM, Simonis, Belgium; Merchant; President of the Chamber of Commerce, Verylers.

Associates.

Jons Basses, Leeds; Salesman JUNETH BATESON, Leeds: Merchant.
THOMAS DEWINER, Bradford; Worsted Spinner.
BENZAMIA HARRISON, BENJOYCH; Worsted Manufacturer.

GROBGE TETLEY, Bradford; Merchant. * F. Levius, Proxy for M. Carl. † C. Dyyernans, Proxy for M. Schöller.

THE Jury appointed to decide on the merits of the various examples of Woollen and Worsted Fabrics, found it requigrampies or recommand worster rances, found it requi-site to divide their duties, and to constitute four Sub-Juries for the consideration of the several subjects demanding their attention; the Report will therefore be found to present four general heads, vis., Woollen Cloths; Flannels and Blankets; Worsted and Mined Fabrics; and

pelled to call in much additional assistance, and they In the course of their labours, the Jury were comave to acknowledge the valuable aid afforded them by the several Associate Jarors in simplifying daties of no ordinary character, since the great mass of articles coming under their cognizance rendered those duties as onerons as the responsibility was serious, owing to the great similarity and equality of merit displayed in almost every department.

In presenting their nwards without recomm Conneil Medal, the Jury consider it only due to the important branches of industry represented in Class XIL, to state their conviction that in no point can they consider them as unworthy of the highest recognition which the Jury had the power to give or recommend; but feeling, from the great amount of merit displayed, that the recommendation of a Council Medal " for excellence of manufacture, beauty of design, or progress" is any one instance, would have involved the same recommendation in so many others, as utterly to destroy the value of that reward, besides erenting those invidious distinctions which the recognition of various degrees of the same kind of merit must suggest, the Jury determined to equalize such meth must suggest, the suly determined to equalize som acknowledgments of excellence by awarding the Prize Medal only; leaving to the public, as the best arbitrators, the decisions on question of relative degrees.

WOOLLEN CLOTHS.

Before proceeding to report upon the articles contributed by the several Enhibitors, the Jury consider it desirable to give some short account of certain differences of manufacturing treatment between our home produc-

what is called the roll-follog process, which produces a permanent lastre on the face of the eloth, that neither spots by rain, nor is removed by daunt. This process was introduced by Messrs. Daniell and Wilkins, of Twer-

HENRY JENNINS, Leeds; Merchant. HENRY KERARIE, Rochdule; Plannel Manofacturer. DARNINS LUPTON, Leeds; Woollen Merchant. ENGLES PARLIES, Bradford; Merchant.

ton, near light, who took out a patent for it in the above year. The permanent face is imparted by rolling the cloth, before being racked or tentered, round a cylinder, not very tightly, and putting it in scalding water for two or three hours, then taking it out and letting it cool; this has to be done several times during the process of dressing. About the same period great improvements were made in the milling and weaving departments, which enabled the cloth to bear this severe test. Other manufeaturers had to poy a premium to the above-named firm for three years, when the patent was disputed, and ulti-mately lost through the evidence of a Yorkshire manu-facturer, who proved that he had used it several years acturer, who proves that he had used it several years before; but, owing to his connection being very limited, it did not asswer his purpose to continue it. However, the credit must remain to Messrs, Daniell and Co. for the perfection and general introduction of a plan which has since been universally acted upon.

Up to this time the general plan had been to dye blacks Cy to this time the general plan had been to dye black; as in the piece, of a common day; In this new meltod was in the piece, of a common day; In this new meltod was found difficult to make the day presente through the improved finding; this led to the gradual introduction of daying in the word of a permanent kind,—a process which, of the common daying in the word of a permanent kind,—a process which, the common daying in the word of a permanent kind,—a process which, the common daying the day in the word of a permanent kind,—a process which is now to perfect at as the level little or aching to be desired. While speaking of the improvement in woodless manufacture, it is but justifies to mention the introduction, by Mesers, Daniell and Wilkins, of a new method of weaving stout beaver cloth for winter went, called the "patent double cloth," which was patented by them in 1838, the material possessing considerable secrit for its soft phable character, united with great durability, enusing it to entirely supersede the old milled cloth, which was hard and macomfortable. By this straint to give some siner account our events numer excess manufacturing treatment between our home produc-manufacturing treatment between our home produc-ms and those of the Continent. In Executary in new era for this trule may be said to in Executary in new era for this trule may be said to have commenced, in the year 1824, by the introduction of travelling was unknown, and the requirement more felt, This kind of cloth has a good sale, and is much sought after by foreigners, who require the stoater kind of fabrics.

The centinental suchois of probeing a permanent into a continental suchois of probeing a permanent into such a continent and a continent at a mate charge rate. Their matches are,—the one by relike the chit sightly read more general one, by fishing the chit and parting it mitroduced on protein the sixther effect, the other, and more general one, by fishing the chit and parting it is necessary to the charge of the chit and parting it is necessary which is observable as all the evaluational properties the whole balls. Both them entrols causes a lauritous, which is observable as all the evaluation of the chit of th

Considerable attention has been given to the dyving of cloth in the different countries; opecially the fare fabrics, which are all equally well and permanently dyvel. In the middle qualifies some any permanently dyvel and lower qualifies with some few exceptions; they are all of a common dyc. This is a ricromassness easily accounted for by the cost of the permanent dyc being considerably move, and from the chartening slightly from the appearment of the cost of the permanent dyc being considerably move, and from the chartening slightly from the appearnent permanent dyclamates and the considerably move are great impediments in those competitive times, although there can be no destit that real and ublimate economy.

must remain with a permanently dyed stricle.

We shall now proceed to enumerate the different sents of manufactures from which this department of the Exhibition has been supplied,

The weeklen menufactores of the West Riding of Yorksbire, and those of the West of England, were established in the reign of Edward the Third, in the year 1336; and from that period to the present time, the principal weeklen trade of Great Britain has been located in these two imp-rtant districts.

Leeds is the most important town in England for the extent and variety of its manufactures in wool, and exhibits here a fair specimen of its productions; but its principal trade is in the middle and lower qualities, of which a large amount are exported.

The bounds of Leeks, which, seconding to the census of the precent year, centries as positions of 11,360 of the precent year, centries as positions of 11,360 are strongly in the central properties of the properties of strongly in the central properties of the properties of the central properties of the central properties of the central properties of the central properties of the supply central properties of the central properties of the central properties that of our of the central properties of the central properties that of our of the central properties of the central properties that of our of the central properties of the central properties that of our of the central properties of t

Much attention has, of late, been devoted to perfecting the woollen unanufacture in all its hrameloss. It is probable that the opportunity afforded to our local manufacturers of seeing the various productions of other manufacturers of seeing the various productions of other materials in the Great Exhibition, will materially assist in effecting this object.

Holdenfield, with its neighbourhood, is the second place in Importance for the quantity and great variety of woollen cluths which it produces. Here, an immense portion of the funcy trunscrings are made, beides broadcluties, but the productions of this town are principally for home consumption, and of the middle and lower qualities. This town, in 1520, made goods from homegrown wood only, but since that period it has gradually rises into great importance. The manufactures of this megidaturinos challed in great variety of fibrire which fairly represent their prolinets; among these may be reduced a number of cloubs-freed cloths, presenting a modern a number of cloubs-freed cloths, presenting a modern and the cloth of the cloth

Where or Emilann—Strond, or Strondwister, Gloscotershire, is so sailed for the purity of its saster, which have been in repaire for dyving scaletes and light dyes for contarior. This town and neighborhood, with 1264 gr great sents of manufacture in the West, principally for fine broad-cloths. They exhibit great variety, in colours of the finest character and permanent day, but few in repard competentiage the react object of the Eshibition, which they imagined to be for the display of goods of a pre-unional character, rather than for variety of

production. Trowbridge, Wiltshire, is the next town and neighbourhood of importance in the West, exhibiting principally narrow or trouser goods of the finest quality and permanent dye.

Chippenham, Melksham, and Bradford, Wilts, also

chibit a variety of very choice and fine permanent dye, in black and coloured cloths. Frome, Somersetshire, and Twerton, near Bath, exhibit likewise some beautiful specimens of cloths, beaver, and

likewise some beautiful specimens of cloths, beaver, and Venetians.

Scottasto.—Galashiels, Aberdeen, Selkirk, Hawick, and other places exhibit a great variety of fabrics in trouser goods, of a beautiful soft character and permanent

dye.

BELEND.—Mr. J. REID, of Dublin, exhibits a good variety of frieses, and 4-tweeds of considerable merit, particularly deserving of encouragement, as a fair specimen of the products of that country.

ment of the procurses or some consury.

PRANCE—The principal seats of this manufacture in Prance are Sedan and Elbernfi—Sedan, of blacks, broads, and surrows. Sedan exhibits a clone and beautiful this fibric in these articles, all dyed in the piece, but the fibric in the articles, all dyed in the piece, but beautiful variety of face of the season a great not beautiful variety of face; of being shown a great and beautiful variety of face; of being shown a great and beautiful variety of face; of being shown a great and beautiful variety of face; of being shown as a surrow of the season and the season and the season and the season are season as a surrow of recolor activities of considerable merit.

a BLEGHER.—Verview and its neighborhood are the principal set of munificators for woollens in this country. The value of mannfactured goods is about one million sterling per annum (population 24,000), the markets for which are the interior of the country, Holland, Switzerland, Italy, and Auserica. The manufacturers of this country exhibit a small quantity, but a nice cluster of a thin factor.

Cutting to a com more.

ZOLLYZEIN,—The Zollverein, including Saxony, exhibit an iumenue quantity of woollen goods, from a great number of places and munufactories, chiefly of the middle and lower qualities, though several are of a fine character, all very well manufactured and of considerable merit. The chief market for these coods is American.

ACTIMA.—Brunn is the chief seat of manufacture in this country. The products exhibited are without any face, or are of what we should call the "old make;" but this appears to be the fashion in Vicena: in other respects they are of a good character. Reicheoberg, in Bobenia, also exhibits a variety of middle and lower qualities of considerable merit, dressed after the German plan.

Russia exhibits a small quantity of woollen fabrics of good character, prepared after the German plan; and being of a stout make, they exemplify what the Jury previously stated of the hardness produced by that method.

SPAIN has sent a small variety of woollens; some of these made of wool from their own sheep, others from the fiecce of German sheep, which is much superior—a singular fact, as the Germans formerly imported their sheep from Spain.

AMERICA exhibits a small quantity of woollen goods of SWITZERLAND sends a small and indifferent lot of woollen productions.

TUBERT forwards a small assortment, tolerably good for a first attempt

Holland contributes a few coarse woollens. PORTUGAL exhibits a pretty good variety, but of very primitive character

Canapa shows but few woollen goods, SOUTH AUSTRALIA. - From Sydney are exhibited three pieces of 2-tweeds, manufactured by J. Walake, which

deserve great praise, as coming from a young colony, and certainly show that with a few such men, aided by capital and machinery, the colonies might soon be made to produce many of their absolute necessaries of this description, Three exhibitors and manufacturers of woollen cloths

are members of this Jury, and are therefore not strictly within their cognizance, or eligible for any award. The Jury, however, desire to record their opinion of the goods exhibited by them. These exhibitors are:—
COOPER, D. and J., of Leeds. (42, Classes XII, and

XV., p. 486.) RANDOING, J., Abbeville, France. (No. 973, France. p. 1226.) The principal of one of the oldest establishments for the manufacture of wootlen cloths in that country.

Stmonis, E., Belgium (464, Belgium, p. 1166),-who resents a particularly beautiful assortment of piece-dyed blacks for exportation, of permanent dye and finish Each of these gentlemen would have been entitled to a Prize Medal for the excellence of his productions, had he not been a member of the Jury.

The Jury have carefully examined all the woollen goods in the Exhibition -- a task which has been much prolonged by the non-attendance, in due time, of any Juror from the Zollverein, Russia, or Austria, to explain or give informa-tion as to prices. This was a source of great difficulty; but after a long and patient investigation, the Jury have come to the resolution to award Prize Medals to the following manufacturers and exhibitors:

AKSENOTE, J., Klintz, Government of Tshernigoff. (182, Russia, p. 1372.) For excellence of manufacture and finish APPERLY, J. and D., Strond, for the fine specimens of black cloth exhibited by Messrs, Bell. and Wilson, St. Martin's Lane (12, Classes XII, and XV., p. 486). Jury conceive that the merit of the production is doe to the manufacturer, and not to the exhibitor, and therefore award the Medal to Messrs, J, and D. AFPERLEY, whose

award in cateda to refeste, 5 and 5 Arrandas, whose mines appear on the cloth.

ABSITATOR BOOTHERS, Manufacturers, Huddeesfield, (105, Classes XII, and XV., p. 469.) For excellence of manufacture, combined with economy.

Arronara Coornav, Huddersfield. (276, Classes XII, and XV., p. 596; Exhibited through Lewis and Allenby). The common for the common forms of the common forms of the common forms of the common forms of the common forms.

Bacot, Paul, & Sons, Sédan. (1062, France, p. 1229.) For excellence of manufacture in fancy black and satin doeskins, and fine piece-dyed black cloths of a thin make,

of permanent dye and finish.

Banktoor and Huser, Manufacturers, Huddersfield.
(105, Classes X11, and XV., p. 489.) For great excellence of manufacture BEARDSELL, ISAAC, and Co., Manufacturers, Thoughridge, near Huddersfield. (109, Classes XII. and XV

pp. 489, 490,) For excellence of manufacture, with great beauty of design. Beardseas, C., and Co., Manufacturers, Holmchridge,

(120, Classes XII. and XV., p. 490.) For beauty of mano-BENNETT, J. and A., Bradley Mills, near Huddersfield.

(95, Classes XII, and XV., p. 489.) For ingenuity in the application of new materials.

HENNHARD, W., Leisnig. (121, Saxony, p. 1110.) For general excellence of maturfacture.

HENNHARD, CHENNON, and Co., Sédan. (1082, France,

p. 1230.) For excellence of manufacture and beauty of design in fancy doeskius.

BIOLLEY, F., and Son, Verviers. (195, Belgium, p. 1157.) For superior manufacture in piece-dyed blacks of a thin fabric for exportation, of permanent dye and

BRAUN BROTHESS, Hersfeld, Hesse, (491, Prussia, p. 1079.) For excellence of manufacture. BROOKE, JOHN, and SONS, Manufacturers, Honley, near

Huddersfield, (86, Classes XII, and XV., p. 489.) For general excellence of manufacture, finish, and dye, Bnows, J. and H., and Co., Manufacturers, Selkirk, Scotland, (469, Classes XII, and XV., p. 501.) For general

excellence of manufacture, Cass, T. and W., Manufacturers, Twerton, near Bath, Somersetshire, (273, Class XII, and XV., p. 499.) For excellence of manufacture in fine cloths of permanent dye and finish, with beavers of a superior quality and con-

siderable novelty of production.

Chenneyear, Turopour, Elberd. (1559, France, p. 1251.) For extraordioary merit of manufacture and novelties of desigu, in great variety.

CLARK, J. and T., Manufacturers. Trowbridge, Wilsteine. (13, Classes XII, and XV., p. 486.) For excellence in manufacture, permanency of dye, and finish, in a variety of articles

Chombie, James, and Co., Manufacturers, Aberdeeu. (228, Classes XII, and XV., p. 497.) For superior manu-(228, Classes A11, new facture and beauty of design, and Soxs, Manufacturers

nature and leasily of design.

DAVIS, H. X., and SOSS, Manufacturers, Stonehouse
Mills, near Stroud, (14), Class XII. and XV., p. 496.)

For excellence of manufacture in fine scarlets.

Dicksoss and Larkson, Manufacturers, Hawick and
Glasgow, (23), Classes XII. and XV., p. 497.) For superior manufacture and extraordinary fine qualities.

DEROIS, G., and Co., Verview, (196), Berjann, p. 209.)

DEROIS, G., and Co., Verview, (196), Berjann, p. 209.)

For general excellence of manufacture in trouser goods,
For general excellence of manufacture in trouser goods,
Evens, William, and Sons, Leeds. (27, Classes XII,
and XV., p. 487.) For excellence of manufacture, with economy.

FIELDER, A. G., Upatovka, near Kalish. (351, Russia, p. 1383,) For excellence of manufacture and dye FORTIN-BOUTELLIER, Beanvais. (484, France, p. 1201,) For beautiful production of felt cloths for pianofortes. FORSTER, FR., Grueneberg, Silesia. (220, Pras p. 1060.) For excellent manufacture of Spanish stripes,

GEISSLER, C. S., Görbtz, Silesia, (100, Prussia, p. 1054.) For excellence of manufacture, and permanent dve and finish.

dye and nassn. GEVERS and SCHMIDT, Görlitz. (50, Prussis, p. 1050.) For excellence of manufacture, dye, and finish. Gort and Soxs, Manufacturers, Leedu. (47, Classes XII. and XV., pp. 487, 489.) For excellence of manufacture, in a great and beautiful variety of colours, for facture, in a great and beautiful variety of colours, for exportation

GRAY, SARUEL, Manufacturer, Calverly, Leeds. (67, Classes XII, and XV., p. 488.) For general excellence of GROSSMAN, C. G., Bischofswerda. (124, Saxony, b. 1110.) For excellence of manufacture, dye, and finish,

for exportation, HAS, L. F., and Sons, Bortscheid. (357, Prussin, p. 1071.) For general excellence of manofacture. HABERLAND, G. A., Finsterwalde. (99, Prussia,

p. 1054.) For general excellence of manufacture, Hacture, Cookx, and Wonnald, Dewsbery. (25, Classes XII, and XV., p. 487.) For excellent production of Spanish stripes HARGREAVE and NUSSEYS, Manufacturers, Farnley Low

Mills. (28, Classes X11, and XV., p. 487.) For general excellence of manufacture, and great ingenuity in the application of new materials, HELME, W., Manufacturer, New Mills, Strond, (207,

Classes XII. and XV., p. 496.) For very apperior black doeskins, with a very great variety of cass and cash-meretts, in a variety of beantiful and delicate colours. HENDRICHS, FRANCIS, Eupen, near Aix-ta-Chapelle. (367, Prussia, p. 1071.) For excellence of manufacture and finish.

HENRY, A. and S., and Co., Manufacturers, Leeds. (38, Classes XII, and XV., p. 487.) For excellence of manufacture, economy, and uniformity.

Hearmann, W., Leisnig. (139, Saxony, p. 1110.) For general excellence of maunfacture. Hoorea, C., and Co., Manufacturers, Eastington Mills,

near Strood. (210, Classes XII, and XV., p. 496.) For apperium merit in the manufacture of fine cloths of permanent dye and finish, and for great variety; also for a beautiful production of clastic cloths for gloring.

INGLES and Baown, Manufacturers, Galashiesis. (191, Classes XII, and XV., p. 495.) For general excellence of

manufacture and style.

Isatery, P., of Klintzon, Government of Tshernigoff.

(184 Burgle, p. 1372). For reveral excellence of manufacture and
184, Russia, p. 1372.) For general excellence of manufacture.

187, Property Manuary Newdown (97 Property p. 1834)

ITZIGSOHN, MARCUS, Neudamm. (97, Prussia, p. 1034.)
For excellence of manufacture in low-priced productions,
combined with strength.

JUREL-DISSARINS, J., Vire. (278, France, p. 1190.) For

excellence of production, economy, and utility.
KISSIERAPI, J. H., Alxia-Chapelle. (371, Francia,
p. 1071.) For excellence of manufacture and finish.
LENDANNO, A., VINC. (589, France, p. 1206.) For
excellence of production, cheapness, and utility.
LOCKWOOD and KEICHLEY, Manufacturers, Hudden-field. (104, Classes XII, and XV., p. 489.) For excel-

lence of manufacture in woollen cords and velveteens. LUTEZ BROTHERS, Cottlous, Silesia. (103, Prassia, p. 1034.) For excellence of manufacture and of permanent dye and finish. MARLING, S. S., and Co., Manufacturers, Ebley Mills,

Stroud. (209, Classes XII. and XV., p. 496.) For general excellence in manufacture and dye.

MEISMARS, F.T., Grossenhain. (129, Saxony, p. 1110.)

For excellence of manufacture and finish, for exportation.

OYTEMANN, F. W., Munizon, Impenbruch. (330, Prassia, p. 1070.) For excellence of manufacture in amunifacture in

Finey trouser goods, another re, Painswick. (213, Clames MILINO, W., 1986). For excellence of manufacture in billiard cloths and scarlet hunters' or milled cloths. PARVET, DATTMENN, and Co., Ebenif. (673, France,

p. 1211.) For excellence of manufacture, design, and cheapness.

Pawron, Son, and Martin, Manufacturers, Leeda. (40, Classes XII. and XV., p. 487.) For general excel-

(40, Classes MI, and M., p. 487.) For general excellence of manuficture, and permanent dye and finish. PELL and Co., Duren. (395), Prussia, p. 1071.) For general excellence of manuficture, dye, and finish. POCOCK and RAWLINGS, Chippenham, for a variety of very healtful cloths—blacks, blues, and medleys—all of

very entailed conservations, means and we disc, and finth, exhibited by Moster, Bartan, Howers, and Mean, St. Panis Charedyard. (19, Gatters XII, and XX, p. 487). The Jury, in avarding the Medal to the manufacturer instead of the exhibitor, do so upon the principle above stated. In this case, however, there are additional elecanstances to guide the Jury in their award, as Mesex, Poveds and Raveigne application for space had been Poveds and Raveigne application for space had been proved and Raveigne application for space had been came too late, as the citalism node for the Exhibition had been sold to Mears, Rabers, Howes, and Meas, for when

neen sold to Messar, Starter, Howse, and Mend, for whom Messar, Pocock and Rawlings had expressly mannfactured other cloths included in the award. RKID, J., Dublin, for very fine specimens of frieze cloths and milled tweeds, exhibited by Mr. R. ALLEN, Sockville Street, Dublin. (259, Classes XII. and XV.,

p. 498.) The Jury award the Medal as an encouragement to this heanch of manufacture in Ireland.

ROBERTS, W., and Co., Manufacturers, Galashiels.

(480) Cluster VII and XV.

ROBERTS, W., and Co., Manufacturers, Galashiels, 480, Classes XII, and XV., p. 302.) For general excellence of manufacture and style. SALTER, SANCER, and Co., Manufacturers, Trowbridge, Wilbelire. (250, Classes XII. and XV., p. 498.) For

excellence of manufacture, both as to qualify and variety in funcy docukins, and other trouser goods. Sciibaa, A., Brunn. (126, Austria, p. 1017.) For excellence of manufacture of stont goods for overcosts and trousers.

SCHÖLLER, L., & Sons, Düren. (374, Prussis, p. 1071.)

For excellence of manufacture in fine cloths, of permanent dye and finish.

SCHCRMANN and SCHRÖDER, Lennep. (496, Prussia, p. 1079.) For superiority of manufacture, dye, and finish.

SEAW, J. W. and H., Manufacturers, Victoria Mills, Huddersfield. (98, Classes XII. and XV., p. 489.) For excellence of manufacture and dye. SEEMINER, W., Reichenberg. (230, Austria, p. 1018.) For general excellence of manufacture. SIGNOMAT-BOCHAS, P., Vienne. (1018, France, p. 1227.)

SNEAD STATESOCIAL PLANTING WHILE COURSE AND ACTUAL SERVICE AND ACTUAL

p. 487.) This gentleman is not a manufacturer, but a finisher of cloth, and the award is for the beauty of finish only. SPENCLER, KARL, Crimmitzchen, (117, Saxony, p. 1110.) For general excellence of manufacture.

STANOUMN, W. and J., juns., Manufacturers, Trowbridge, Wiltshire. (17, Classes XII, and XV., p. 487.) For excellence of manufacture in a great variety of trouser goods. Syrans D., and Co., Finishers, Leeds. (75, Classes XII, and XV., 4.88.) For beauty of finish.

Sykax D., and Co., Finishers, Leeds. (75, Classes XII, and XV., p. 488.) For beauty of finish. Sysax, J. and Sox, Leeds. (34, Classes XIII, and XV., p. 487.) For uniformity of make and general excellence of finish.

TCHETYERISOFF, ..., near Moscow, (187, Russia, p. 1372.) For excellence of manufacture and finish.
THORNTON, FIRTH, RANDERS, and CO, Leeds. (32, Classes XII. and XV., p. 487.) For general excellence of manufacture, finish, and great suriety of character.
TOLONY and SONS, Manufacturen, Dalton, Huddersfield. (116, Classes XII. and XV. p. 490.) For superfield. (116, Classes XII. and XV. p. 490.) For superfield.

riority of make and style in trouser goods.
VETOBLA FILT CLOTH CONTANY, Leeds, 0327, Class
XIX. p. 572.) For superior felt cloth for flooring or carpets. Medal awarded in Class XIX.
WALKE, DOSEPH, and SONS, Lindley, Huddersfield.

WAIRIT, JORIFIT, and SONS, Lindley, Huddersfield, (87, Classes XII. and XV., p. 489.) For excellence of manufacture and finish in mohair cloths.

WAIRITA, J., and SONS, Manufacturers, Millshaw Mills, Leeds. (79, Classes XII. and XV., p. 488.) For excellence of manufacture and economy.

proce or manufacture and economy. Wilashoo, Join, Investor and Manufacturer, Leeds, (5), Chases XII, and XV., p. 488.) For felt cloths for ships shouthing, and medical purposes, in great variety. Windler, J. and T. C., and Co., Manufacturers, Illudenfield, 1117, Clases XII, and XV., p. 490.) For general excellence of manufacture, and ingenuity in new application of materials.

application of macerians.
Your and Surgermanne, Mannfacturers, Dyers, and
Finishers, Leeds. (49, Classes XII. and XV., p. 488.)
For general excellence of namefacture.
The Jary desire to make Honourable Mention of the
following Exhibitors:—

following Exhibitors:—
GYKEL, R. C., of Reichenberg. (210, Austria, p. 1018.) For woollen cloths.
Mono Baothess, of Klagenfurt. (218, Austria,

p. 1018.) for the hearty of their colours.

WALKER, J., of Sydney. (23, p. 487.) For three pieces of tweeds, of great merit for so young a colony.

Wostern Start Goost.

The term "Western Start" is expelled to fabric under the term "Western Start" in expelled to fabric under the term "Western Start" in expelled to fabric under the term of the considered with cotton and silk. These fabric was a considered with contract the term of the term

of the Duke of Alva, in 1570, drove over a large number of Flemish refugees, to whom both the woollen and the Many settled in worsted trades were much indebted. Yorkshire, especially at Halifax, which was, for many years, the principal seat of the manufacture, and has always maintained its superiority in the production of damasks, lastings, and other heavy goods. The inventions of the spinning-jenny, the mule, the threstle, and other machinery, in the latter half of the last century, were gradually extended from the cotton to the worsted The first spinning machinery erected in Bradford was in 1790, when a few frames were set up in a private house. At this time the wool, after being combed, was carried into the villages to a considerable distance around, and there spun hy the hand-wheel; a primitive method, which was gradually superseded by the spinning-france. The first factory in Bendford was built in 1795; but it was not intil thirty years afterwards that the power-loom was introduced, and considerably later before its use became general. From the year 1825, the worsted manufacture has made most rapid and unprecedented progress. Up to that period, and for some years afterwards, all the goods were made from weol aboue; but about the year 1834, manufactures of worsted weft and cotton warp were first brought forward, and gave a great impetus to the trade, This was still further increased by the introduction, in 1836, of the wool of the alpaca, an animal of the flower tribe, inhabiting the mountain ranges of Peru. This weel is of various shades of black, white, grey, brown, &c., and is remarkable for brightness and lustre, great length of staple, and extreme softness. Considerable difficulties were at first experienced in the working of this material; but they were altimately overcome, and the alpaca manufacture now ranks as a very important hranch of the worsted trade. About the same time, or shortly afterwards, mohair, or gout's wool, from Asia Minor, was brought into general use in the West Kiding of Yorkshire, and many beautiful fahries were produced from it: silk, also, in combination with wool, alpaca, and mohair, has been largely used. Improved machinery has been devised; more rapid processes of manufacture adopted; and the results of all these improvements, and the introduction of these new materials have been-the opening of new branches of industry,-the quadrupling, within thirty years, the number of workpeople employed,-and the production of an immense variety of fabrics for the purposes of clothing and furniture.

poses of clothing and turniture.

The rapid progress of the trade may be illustrated by a reference to the town of Brailford, which is the centre of the manufacture, and the great market where its productions are disposed of. The population of the borough has increased in the following ratio, viz.,—

ln	1801	It was		-	-	13,264	
_	1811	12	-	-	-	16,012	
	1821		-	-	-	26,300	
	1831		-	-	-	43,527	
	1841	**	_	-	-	66,718	
	1851		-	-	-	163,782	

At the beginning of the present century there were only three mills in Bradford; there are, now, upwards of 160. The following returns will show the extent of its present manufacturing operation: they comprise the parish of Bradford, and the village of Bingfore;—

Number of spindles - - 355,792 Number of power-looms - - 17,294 nmber of power-looms 3,884 (horse power) Moving power, steam -Do. water -134 do. Children employed under 13 years of age: - Males 1,469 Females Males from 13 to 18 3,426 Do. above 18 Females above 13 -21,290 Total persons employed :- Male 10 846 Female 23,009

Total - - - 33,855

• We except of course bombasines and other articles manufactured in Norfolk, which come under the head of "Mixed Fabrica."

The following is a summary of the whole of the worsted factories in Great Britain and Ireland, nearly sevencighths of which belong to the West Hiding of Yorkshre.—See Table, p. 355.

The classification of worsted stuffs contained in the list drawn up for the Jurors has reference to the naterials of which they are composed; viz.—

with cottou or silk.

Fabrics composed entirely of wool,
 Dite of wool and cotton,
 Ditto of wool and islk.
 Ditto of wool, silk, and cotton,
 Ditto of spees and mohair, mixed

The first of these divisions comprises the well-known fabrics called "merius," double-twilled, so denominated from the Spanish wool of which they were first manufactured. In this article the French have always had an anquestionable superiority, and many of the specimens in the Exhibition fully maintain their reputation. There are some goods of this class, however, in the Bradford department, had little inferior to them. In single-twilled merimos, the worsted manufacturers of Yorkshire have. at all times, had the decided pre-emineuce. Shalloous says, serges, lastings, all stout and heavy articles, are manufactured cinety at Halifax and at Keighley. Da-masks for curtains and hangings are also made at Halifax; and this branch of the trade has arrived at great perfection, both in excellence of material and elegance of design. Of the fabrics composed of wool and coston, the articles denominated Cobourg and Orleans cloth, the former being twilled and the latter plain, have been st-ple manufactures, of which the consumption has been immense: they are made chiefly at Bradford and Keigh-ley. Many of the silk warp and worsted weft fabrics are distinguished by their richness and durability. The alpaca and mohair manufactures (carried on at Bradford and Bingley) are remarkable for their softness and brilliancy, and the great variety of purposes to which they are applicable. The importation of alpaca weol has inare applicable. The importation of alpaca wool has in-creased from 7,000 bales in 1836, to 20,000 bales in 1850; and of mohsir, from 5,621 bales in 1841, to 12,884 bales in 1850. It is in the production of articles in which wool of various kinds is combined with cotton and silk, that the superiority of the British manufacturer is most apparent; no such goods being produced on the Continent in any extent, or of any great excellence. This result could not have been attained had not the skill and enterprise of the manufacturer been nided by that of the worsted dyer. The chemical processes required, in order that a fabric composed of both vegetable and saimal substances may be made to receive an equal and regular dye, are neces-sarily varied and intricate; but so successful have been

the efforts of the dyers, that goods made of white cotton warp and worsted week, can be dyed quite as perfect in colour, as French merines composed of wool above. The cosmangious of these various namedicurus inrible commission of these various namedicurus inrible commission of the control of the colour interest in the colour interest in the colour interest in the 80,000 pieces per week, averaging 50 yards each. These goods are not only sold in the United Kingdom, but are largely experted, as the following returns will show, to the United States of America; and to Germany and other

parts of the continent of Europe.

Exports, during the six mouths from the 1st of January to 28th June, 1851:—

Woollen and worsted yarns, 5,567,854 lbs.

Woellen and worsted yarns, 5,367,854 lbs.
Woollens and cottons, mixed (value) £830,478.
Stuffs, woollen, and worsted do, £1,896,228.

All that is now wanting in the English worsted trade is, that the same enterprise should be exhibited, as heretofore, in the working-up of materials into new forms, combined with greater taste in the production of fancy

goods. The goods of this division, contained in the Exhibition, include a very large wariety of fabrics need for ladies' and châthreis dereses, for familiare hangings, for costings, and other purposes, made from well-place, and mohair, combed and span, either slone or in continuion with cotton, silk, see. The Jury have carefully and minestly examined all the fabrics hought under their

1	Namber	Number of	Number of Pawer	of Movin	Amount Power.	of Childs 13 Years	Number of Children under 13 Years of Agt.	Number of Malon between	Number of Females above	Number of Males above	Total	Total Numbers Employed.	ployed.
	Vactories,	Spindles,	Losses.	Steam.	Water.	Male.	Female.	Years of Age.	of Age.	of Age.	Male.	Female.	Male & Forn.
Factories employed in Spinning-													
England and Wates	222	417,473	,	4,060	813	2,310	2,657	2,883	10,8.6	8,905	9,104	13,552	22,036
Scotland	9	9,404		121	88	-	01	8	330	287	324	353	116
Ireland	C4	1,352	,	,	98	•	,	12	51	13	52	s	16
	230	428,423		4,181	926	2,311	2,659	2,967	11,337	4,205	9,483	13,995	23,478
Factories employed in Weaving—	18	,	12,814	1,124	92	75	3	770	11,324	3,489	4,337	11,379	15,716
Scotland		,											
Ireland	,		,	,	,	1	,		1	,	1	,	
	16		12,814	1,124	1.6	22	99	770	11,324	3,489	4,337	11,379	13,716
Factories employed in Spinning and Weaving-													
England and Wales	155	447,177	19,797	4,367	809	1,836	3,000	3,703	23,789	7,031	12,570	26,794	39,364
Scotland		1			,		,			,	ı		
Ireland	,				1					1		٠	
	133	447,177	19,797	4,387	809	1,836	3,005	3,703	23,789	7,001	12,570	26,734	39,364
Factories not included in either of the above descriptions													
England and Wales	19	234	ø	198	20	13	,	255	432	460	727	452	1,179
Scotland	,				•	•	,	,		,	,	•	
Ireland				ı			1	1		,		١	
	18	234	0	198	e	97		255	452	460	727	452	1,179
Total of Worsted Factories-													
England and Wates	493	864,374	32,617	9,769	1,501	4,236	5,717	7,617	46,460	14,885	26,738	52,177	78,915
Scotland	9	104'6	,	131	88	-	01	99	830	282	354	302	2.16
Ireland	01	1,552			96			120	15	13	23	21	20
Total	203	875,830	32.617	9.890	1.625	4 23.77	\$ 719	7.045	100 37	15, 165	07 117	60 600	79 797

notice, and award Prize Medals to the following Exhi-

ASSOTD, JAMES, and Son, Manufacturers, Halifax, (130, Classes XII, and XV., p. 491.) The productions of this firm are eminently diversified and beautiful. The damasks are distinguished by elegance of design, richness of colour, and superiority of weaving. The "union damasks," composed of worsted and cotton, are noticeable also for economy of production. The satin Turc goods have a regularity, which shows that all possible eare has been bestowed on their production. Some fabrics, cutilled "Moires d'Exposition," are remarkable for their povelty and the brilliancy of their effect. The articles made with silk warp and China grass are very beautiful. The patterns, colours, and combination of materials, are alike deserving of praise. The ponchos are well made and adapted for the markets of South

Burray and Sox, Manufacturers, 102, Rue Richelien (356, France, p. 1194.) For cashmere fabrics of Paris. (1996, France, p. 1997). The great finences and regularity.
Borronter, Mossa, and Son, Shelf, Bradford. (165, Classes XII, and XV., p. 499-4.) The goods shown by this firm are woven with great regularity, and the designs

of the figured fabrics are good, BOUCHEZ-POTHIER. (34, France, p. 1173.) For merinos of excellent manufacture,

Brown, W., Manufacturer, Halifax. (129, Classes XII, and XV., p. 490.) For damasks composed of com-binations of wool, silk, and cotton. Great taste is dis-Dinations of wool, silk, and cotton, terest taste is dis-played in the designe; and in brilliancy of effect, and per-fection of manufacture, the goods approach very cearly to those exhibited by Messra, Akroyd.

Batus and Natura, Manufacturers, Gera. (816, Parasla, p. 1095.) For cloths made with worsted weft and

silk warp, well woven and dyed.

CAILLET-FRANQUEVILLE, Marfen. (82, France, p. 1175.) For merinos of excellent manufacture.

Dauphinor-Prinand, Manufacturer, Isles-sur-Snippes (Marne). (471, France, p. 1200.) For merinos of excel-

leut manufacture. DAVID, BROTHERS and Co., Paris. (157, France.) For

merioos, and cloths mixed with organize and spun silk. The average of these fabrics is very good, the weaving satisfactory, and the colours and elegance of design very praiseworthy. Payter Lanes and Co., Sains, Richanmond. (138, France, p. 1178.) For the lowness of the prices at which

their fabrics are produced.

DELATTRE and Son, Manufacturers, Roubsix (Nord), (142, France, p. 1178.) This firm is eminently distin-(142, France, p. 117-3). This firm is emineatly distinguished by the excellence of its productions, and the specimens, now shown, fully justify the numerous distinctions which the French fovernment has, at several preceding Exhibitions, accorded to it. The Jury has noticed particularly a fabric, all wool, denominated "Chambard," or which the work is admirably perfect; the cleth named "Tole Victoria,"—equally beautiful; and the "natin de Chiné"—made of the finest materials and with unequalled

accuracy of workmanship. These goods occupy a very cuinent position amongst the French productions, and in the judgment of the Jury fully entitle the manufacturers to a Prize Medal.

Deliosse, Baothers, Manufacturers, Roubaix (Nord). (144, France, p. 1175.) For great merit in the articles they display. The "Chambard" is very admirably manufactured, and some of the "satins de Chiné" are remarkably fine in their texture.

remarkanty and to their exture.

Foster, Jostx, and Son, Manufacturers, Black Dyke
Mills, near Bradford. (143, Classes XII, and XV., p.
492.) The goods exhibited by this house are interesting, 492.) The goods extinited by this house are interesting, not only on account of their intrinsie excellence, but as displaying the great variety of fibrics produced in the worsted staff trade. They comprise articles for ladies' dresses, coatings, vertings, linings and serges, umbrella and parasol cloths, and damasks for hangings. The display of alpaca and mohair manufactores is remarkably densese, contiaga, vertings, lissings and sergese, unibrella and parasol cloths, and damassis for hangings. The display of alpaca and mohair manufactures is remarkably varied, and the worstigs is erea and regulats. The con-bilation of materials is very good; general designs of the jahries broaded by the Jacquard bounts are departs, and

the effects well brought ont. The contings shown (of which large quantities are exported to the Continent and the United States of America) are distinguished by their stoutness, fineness, and general excellence.

Gourchkory, E. and J., Manufacturers, Moscow. (189.

Russin, p. 1373.) For cloths, "satins de Chiné," all wool, brocaded; fabrics of worsted and organzine silk warp, and ca-limere-de-laines. These goods are distinguished by unsurpassed neutness of manufacture, excellence of

by unsurpassed nearness of manufacture, excenesses of design, and economy of production. Guessas, F. W., Glanchan. (101, Saxony, p. 1109.) For merines, all wool, of great regularity in weaving, and of excellent colours,

HAAS, P. and Sons, Manufacturers, Vienus, (259, Austria, p. 1019.) Damasks for furniture, of excellent combinations. The styles are magnificent, and the shades beautiful; and altogether the goods are of unquestionable

Holdmonth, John, and Co., Halifax. (166, Classes XII. and XV., p. 494.) For damasks and other furniture cloths, which are well made, and of good colours and considerable variety; some of the styles being very elegant.

etegant, Hoopers, G., Carroz, and Tarouraira, Mannfacturers, Paris, (1625, France, p. 1255.) For a great variety of light goods of the Burye class, plain, checked, and bra-caded, of excellent combinations. The cloth called "Bresilence," though very difficult of execution, is admirably worked. Medal awarded in Class XIII.

Hossvall, J. G., and Co., Mannfacturers, Bradford, (174, Classes XII, and XV., p. 494.) For fabrics made entirely of wool, and of wool combined with cotton and silk. The Jury have noted, as particularly deserving of silk. The Jury have coled, as particularly deserving of commendation, the article denominated "Saxony eloth," for ladics dresses, The weft is used from the finest Saxony wod, and the warp from the finest Australian wod, both combed by hand. The "Cobourgs," in cuton warp wefted with worsted, are admirable, and manifest a high degree of regularity, obtained by the excellence of the yarn em-ployed and the talent of the weaver. The "Henrietta" ployed and the fatent of the weaver. The "Henrietta" cloths are made from spun silk warps and weft of the finest Saxony wool, and are distinguished by a softness, combined with firmness of texture, that has never been surpassed. Hosel, R. and Co., Chemnitz. (86, Saxony, p. 1108.)

For damasks of superior manufacture,

JONETT, TROBAS, and Co., Mano facturers, Bingley, oear Bradford, Yorkshire. (144, Classes XII, and XV., p. 452.) For a great variety of stricles produced from alpaca werk, and silk and cotton warps, plain and figured. These goods are very well made, and show a good lustre. A new fabric of silk warp and linen weft is very neat, and affords encouragement for increased attempts in this direction KAY, RICHARDSON, and WROE, Manufacturers, Man-

chester. (186, Chasses XII. and XV., p. 495.) For a very admirable range of Chiné goods produced from com-hinations of worsted, cotton, silk, and linen, with printed warps. These are distinguished by the excellence of the designs and the economy of their production.

KNUEPFER and STEINHAUSER, Manufacturers, Greiz. (528, Prussin, p. 1080.) For merines and broended satins de Chiné.

LOHSE, EDWARD, Manufacturer, Chemnitz. (85, Saxony, p. 1108.) For damask goods, made with worsted and cotton, and worsted and silk. Their designs are in good taste, the combination of colours and materials very cre-

ditable, and the weaving of superior regularity.

M'CREA, H. C. and Co., Manufacturers, Halifax. (135, Classes XII. and XV., p. 491.) For damasks of great excellence.

MATRIEU, ROBERT. (France, 1443, p. 1245.) For merions of superior manufacture.

MILLIOAN, WALTER, and Son, Manufacturers, Bingley, (140, Classes XII. and XV., p. 492) For

blocks may fit; this point has been very successfully accomplished. All the designs are nearly executed, and the whole of the goods shown by this firm are highly creditable to their ingennity and industrial skill. MOLIET-WARMÉ BROTHERS, MANUSECUTES, Amiens.

(64) France, p. 110-2). For goods composed of worsted, mixed with silk, largely used for foreign consumption. The designs are in excellent taste, and the fabrics of heantiful texture.

MORAND and Co., Manufacturers, Gern. (731, Prus.a., p. 1690.) For draps d'été, or summer cloths, twilled like

merinos, very creditable in their manufacture.

Movacxax, —, Manufacturer, 27, Rue du Mail, Paris.
(1668, France, p. 1256.) For a remarkable exhibition of stuffs for furniture hangings, screens, table-covers, &c.
The zoods manifest an enisoust superiority in their mann-

The goods manifest an emission of the the control specialty in their manafacture; being stout, woven with great care, and peculiarly rich in their effect. The colours are beautiful, and perfectly shaded; and the designs indicate an artistic taste. This species of manufacture is adapted, mainly, for the saloous of the rich and the elegant.

PATRIAL-LEYS, SETOOIS, SUREAS, and Co., Mussificatore, Paris, (138), France, p. 1242. That firm has long been celebrated for the decided superiority of internal control of the decided superiority of internal control of the control

are made are most carefully spun from the chooses woo; the cloths are woven in the most perfect manner possible, and, altogether, the members of the Jury cordially unite in awarding a Price Medal to this firm. Prace, II. and Co., Mannfacturers, Darfington. (184, Classes XII. and XV., p. 495.) For Cobourg cloths, single and double [will worsted weft and cotton warp.

single and donné tellui wôriest wert and corons warp, The lower and middle qualities are much storier than the majority of such goods, and are remarkably even and the majority of the such as the such as the such as Pears, and Mackettr, Paris, (674, France, p. 1811.) For cashtnere fabries of great fineness and and regularity. PETIT-CastNEXT, Manufacturer, Boult, Marine, (679,

Prance, p. 1211.) For merinos of excellent manufacture.
Prs-Bayano, Manufacturer, Roubaix (Nord). (662;
Prance, p. 1211.) For flabries all wood, of great excellence. The texture of the satins de Chiné is magnificent, and the yarn employed in them is perfectly spun.

Hava, Joses, and Soos, Manufacturers, Bealderd, (175, Classer M.I. and Xv. p. 40.1). For a variety of articles made entirely of word, and of wood conduced with and irregularities, and the clother produced are evidently woren with great care. The merious made in the French style new bittom defects. The Choung cloths made from mens of a faltier most extensively used for drewer; and the chotts made from worstee who for drewer; and remarkally soft, fine, and even. The whole of these the chotts made from worstee who and silk warp are remarkally soft, fine, and even. The whole of these this department of the westeed and samade-time.

this ceparament of the worsted staff animalacture, Bookse, Goodor, Manufacturer, Badford. (142, Classes XII. and XV., p. 492.) For a series of Cobourg cloths, composed of worsted and cotton, of various qualities, which are praise worthy for the regularity and eveness of their texture, and their economy of production. SALT, TITS, Manufacturer, Bradford, Yorkshire.

(13), Chaose XII. and XV, p. 24)-22. For a compiler oriest of algaes and mobair manufactures—(a branch of huntanes curried on almost exclusively in England). these materials. The articles are of much varietyic dusing fairies composed of alpaes with outnoways, and with silk warps sura-dy-cl, and dy-di in the piece—they are with silk warps area-dy-cl and dy-di in the piece—they are variety. There are, also, produ composed of making with variety. There are, also, produ composed of making with

here and brillary, qual is many case to silt, they are also remarkable for regalacty of extrum, actions, and the second of the

working up to counse a massering, where the combed prior to Mr. Salt having effected that object.

Melhane (Hard-Halin), (1000), France, p. 127.) For substance (Halin), Halin,
concerns and Co., Proprietes, Bradfact, (14, Classes M. Land XV., p. 922). The grouts shown (14, Classes M. Land XV., p. 922). The grouts shown being and confirm the observations already made on the startest of the foliates approached by the Bradfact manufacture of the confirm of the confirmation of the conlatering, all seried, and versetd considered with cotton shiring, all seried, and versetd considered with cotton shirt, and litters, of admirable manufacture; emboused shirt, and litters, of a shiring all series, and a storage of the confirmation of the controlled and the confirmation of the controlled and the confirmation of the confer foreign markets. Mesens, Schwam, Red, and Co., are merchants, and on sometherwers, lets they have, are merchants, and on sometherwers, lets a they have, the strictle exhibited, as to texture, constitution of the strictle exhibited as to texture, constitution of the strictle of the strictle exhibited as to texture, constitution of the strictle exhibited as the strictle exhibited

SUCDEN, JONAS, and BROTHERS, Manufacturers, Dockroyd, near Keighley, Bradford. (167, Classes XII. and XV, p. 494.) For says, princettas, echicas, shalloons, &c., made of English wool,—alone, and in combination with cotton. They are chiefly intended for foreign cousumption, and they are of great regularity in the waving.

and highly creditable to the producers.

TRENTA, A., and Co., Mannfacturers, Bradford. (147,
Classes MI. and XV., p. 453.) For goods made chiefly
for foreign consumption, consisting of worsted, alpaca,
and mobiat manufactores, shot with cotton, silk, and
Bloca. The fishries of these Exhibitors are commendable
for their varioty, good texture, and economy of produc-

Volke, William, Mannfacturer, Chemnitz. (89, Sanony, p. 1004). For dumaks of great merit in their styles, colours, and combination of materials. Volkers, —, Mannfacturer, Moscow. (190, Russia, p. 1572.). For plain the linners and "Canhmere d'Econse." monte deliber of word, while have d'intiguished by great monte obliver of word, while have d'intiguished by great monte perfect in their make, and the colours are decidedly good. Bearing in recellection that Russia is only

starting in this species of unanufacture, the results now exhibited are quite wonderful. Winssyr.co., E. F., Manufacturer, Gera. (720, Prussia, p. 1090.) For merinos and brocaded "sestina de Chino." Very superior fabrica, and the patterns elegant and

Wisking and Son, Manufacturer, Rochlitz. (91, Saxony, p. 1109.) For display of Chambard fabrics, merinos, &c., of good manufacture, and for their economy of production.

ZIRGLER and Haussmann, Manufacturers, Glauchau, (92, Saxony, p. 1102.) For merinos, all wool, remarkably

well made; "satins de Chiné," plain and brocaded; and figured goods, made of a combination of worsted and siik. All those are of good texture and commendable designs.

The Jury make Honourable Mention of the nuder-

BOTTOMET, WILKINSON, and Co. (165, Classes XII. and XV., p. 493-4.) For satin-faced figured goods, made with worsted and cotton. These goods are exhibited by Mr. Jacon Beyrens, merchant.

BOUGHART, FLORIN, Tourcoing (Nord). (1103, France, p. 1250.)

CLOUGH, ROBERT, Keighley, (151, Classet XII, and XV., p. 493.) For his meriuos made from English long

CHAVEN, J. and Sox, Prospect Mill, Thornton, (149, Classes XII. and XV., p. 493.) For excellence of mannfacture of Orleans cloth, composed of worsted and cotton, DALBT, JANES, Bradford. (152, Classes XII. and XV., p. 493.) For figured fabrics, composed of worsted and

alpaca, with cotton and silk warps. Daumono, James, Hendford, (150, Classes XII. and XV., p. 493.) For figured fabries, composed of worsted

and aluce, with cuton and silk warps.

Ecsovin, William, and Sox, Lomeshaye, near Burn-ley. (190a, Classes XII, and XV., p. 491.) For fabrics, including Colourge and menselines-de-laines, made of worsted and cotton; bunting cloths for naval flags and signals, &c., made with great care. (Medal awarded in

this Class for carded and Genappe varns.)

Gasen, R. F., and Sons, Manufacturers, Leeds. (65. Classes XII, and XV., p. 485.) For Orleans cloths of excellent manufacture.

GUILBERT and WATEAU, Manufacturers, Paris. (860, France, p. 1221.) Their fabrics being of such a character

as to merit commendation. HASQUE and FISON, Bradford. (145, Classes XII, and XV., p. 492.) For a new and perfectly original fabrie, made with welt spun from the down or far of the Ancola

rubbit. It is exceedingly soft, and much resembles cash-mere. As an experiment to introduce a new material, it is very interesting and worthy of encouragement. HOADLEY and PRIDIE, Damask Manufacturers, Halifax. (128, Classes XII, and XV., p. 490,)

KERSHAW, S. and H., Laisterdyke, near Bradford. (161, Classes XII. and XV., p. 493.) For excellence of mannfactore of Orleans cloth, composed of worsted and cotton, Milliana, Jones, and Co., Clayton, near Bradford. (168, Classes XII, and XV., p. 491.) For excellence of massafacture of Orleans cloth, composed of worsted and

cotton. Scheppers, F., Loth, Brabant. (497, Belgium, p. 1166.) For a great variety of woollen stuffs, &c., which evince coosiderable merit

SHEPARD and PERFECT, Damask Manufacturers, Hali-IX. (131, Classes XII. and XV., p. 491.)
TAYLOR, J., and Sons, Dumask Manufacturers, Halifax.

(88, Classes XII, and XV., p. 489.)
Wann, J. W., Damask Manufacturer, Halifax. (134, Classes XII, and XV., p. 491.)

Wilson, J., Ovendeo, near Halifax, Manufacturer. (138, Classes XII. and XV., p. 491.) For ponehos of regular make, well adapted to the markets for which they are intended, An article of a novel and unique character, contributed

hy Russia, deserves especial notice. It is made from camels' hair, spon by hand, and is produced by the Bashkirs, a wandering tribe on the banks of the Caspian Sea. The yern is of astonishing regularity, and the texture remarkably good. The dresses made of it, the Jury are informed, are intended for Her Majesty the Queen of

HIS ROTAL HIGHNESS PRINCE ALBERT exhibits in Class XII, (p. 495) cashmere brocade fabrics, manufactured by Thomas Gregory and Brothers, of Shelf, near Halifax. These goods are composed of silk warp, and weft of wool shorn from the Cashmere goats in Windsor Park, the roperty of His Royal Highness. The Jary have examined these goods with peculiar pleasure, as being the first finished, and at reasonable prices.

made from customere wool grown in this country, and as one amongst immumerable punifestations of the deep and artive interest which His Boyal Highness has ever taken in promoting and encouraging British manufactures. Viewing these goods as distinguishable for the novelty of the materials employed, and the opening thereby offered for the production of a new class of fabrics, the Jury have unfeigned pleasure in drawing attention to this

PLANNILS

Wales is the country in which this article was originally made, and the flannel produced there is still beld in high repute, and deservedly so, for vests worn next the skin, though it is not so cheap as some others. It contioues to be chiefly manufactured by hand-labour, but few power-looms being employed. The finest is made from the fiecees of the flocks of the adjacent mountains. The supply exhibited is not large, but sufficient to show the neculiar quality and fuish of this fabric.

LANCASHIRE, especially Rochdale and its neighbourhood, is the district where flannels are made more extensively

than in any other part of the world, and in the greatest variety of widths, finish, and substance; that is, the thin the medium, and the thick, double-raised, or swanskin quality; both for home consumption and ex-Machinery is more generally used here than portation. chewhere; that is, the mule for spinning, and the power-loom for weaving. The greatest number of goods and Exhibitors are also from this district. SADDLEWORTH and its neighbourhood are remarkable

for the manufacture of Saxouv flannels, especially those of very fine make, which have been very much admired in the London and other markets. A few are produced in the neighbourhood of Leeds, of common quality, and finished the natural colour of the wool, In the west of England some white and dyed finnels

and coatings are made, but not extensively. The fine dyed flamels partake somewhat of the quality of light cloths, but very few are in the Exhibition. largand supplies a few low flannels and ecutings, commonly called Galways, made of Irish-grown wool,

and adapted for the native population, Canada furnishes a few common and low flannels, but not much in this line has been yet attempted here, prices were furnished for the few exhibited, nor do they profess to compete with those of England

FRANCE.—There is considerable merit in the five light flanuels made in France. They are fine spun, and of light texture, approaching nearest to the Saddleworth in wool and make: they are very suitable for printing, dveing, and outer garments. The quantity exhibited is not large, but sufficient to show the style and quality: the prices are reasonable.

Bragaru.—There is a very good assortment, especially

from one house, here (but which furnishes no prices), of various kinds of fianucis of the ordinary substance, and of medium and stout make, both twill and plain, white and dved of various colours; and of dometts of cotton warps. The wool, make, finish, and dye are good.
UNITED STATES.—The few flaunels exhibited from
America are well made and finished. They are made

from wool of the United States' own growth,

The Jury desire to record their high opinion of the

flannels exhibited and manufactored by Nesses, Kelsall. and HARTLE NORE, of Rochdale (486, Classes XII. and XV., p. 502), the excellence of which would have fully entitled them to a Prize Medal, had not Mr. HENRY KERALL, one of the firm, been an Associate Juror: also the productions of Mr. Lawson, of Ashton-under-Lyne, as exhibited by Mr. J. Wilks, 79 and 80 Wating-street, London. (6, Classes XII. and XV., p. 486.)

The Jury award Prize Medals to the following manufacturers, viz.:-

BENOUST, MALOT, and WALBRAUME, Rheims. For fine flarascis, well grade and finished, and at reasonable prices, CHATELAIN and FORON, Rheims, Marne, (86, France, p. 1175,) For flannels of fine qualities, well made and Dr Hovelle, A. J., Manufacturer, Themester, Dowlers, near Verviers. (203, Belgium, p. 1157.) For n large assertment of white and dyed finnels, swanskins, mediums, and dometts, well made, dyed, and fluished.

Ginuerr and Systems, of Massachusetts. (44), United States, p. 1463.) For n good make of finness of American grown wool, exhibited by Jostson, Switzia, and Co., Boston, United States, Learn, J., and Soxs, Mannfacturers, Calillards, Roch-

Leach, J., and Sons, Mannfacturers, Cailliards, Rochdale. (5, Classes XII. and XV., p. 486.) For a good general assortment of flauncls, of meritorious make and finish, at reasonable prices.

finish, at reasonable prices.

LLOTE, WILLIAM, and Co., Manufacturers, Newtown,
Wales. (234, Classes XII. and XV., p. 488). For all only assortment of real Webb flames, of good make and finish, and all made from the Webb mountain wool.

SCHOPIELD, BROWN, DATIS, and HAMAS, I Gerehamstreet. (3, Classes XII. and XV., p. 486). For a large assortment of meritorious financis, well assamblentered.

and of new designs. The manufacturers of these are Messex, John Schoffeld and Co., of Haybrook, Rochalde. Sultin, J., and Soss, Saddleworth, near Manchester. (235, Classes XII, and XV., p. 437.) For merit in very fice well-made flameds. Twerdall, J., and Soss, Manufacturers, Healey Hall, Rochdale. (, Classes XII, and XV., p. 456.) For finned

of excellent make and finish.

Money Award.

The Jury award a prize of 10% to J. Ramford, Mannfacturer, Rochdale, Lancasbire (237, Classes XII. and XV., p. 497), hand-loom weaver. For fine light gauze flancels, well your and woven.

BLANKETS

In Tuxus (pp. 5, 9, 11, 30) a very peculiar make of blanketa is arbitined, some of these with a regular strips across, others with alternate white and red stripes through out, about an inch wide, made very similar to the gazaces shared worn by ladies in summer; also a very fincieff, therefore the stripe of the stripe of the stripe of the berked dismond pattern blanket, entirely, kuited, the perfect workmanship of which possesses great merit. The Jury award Prize Needslas to the following Ex-

hibitors:—
ALBINET, jnn., 19 Rne de in Vieille-Estrapade, Paris.
(400, France, p. 1197.) For a small quantity of biankets,
which are extremely fine.
EASLY, EDWARD. (269, Classes XII, and XV., p. 499.)

Early, Edward. (269, Classes XII, and XV., p. 493.) Fur Witney blankets of a genuine eharacter and moderate price. FABAY, JOHN, and Co., Manufacturers, Witney, Oxfordshire. (268, Classes XII, and XV., p. 499.) For an

fordshire. (288, Classes XII. and XV., p. 499.) For an excellent assortment of real Witney blankets, of sterling useful qualities. Fight, E., and Sons, Manufacturers, Heckmondwike, near Leeds, Yorkshire. (37, Classes XII. and XV...

near Levels, 1078Shipp. (14), thusees A1s, mon A1s, p. 487.) For blankets with cotton warp, with good workmanship and elicapsess combined. This is a new article of produce, and it has become a great branch of trade to the slave states of America.

GANELS, W., of Milton Mills, Dundas. (139, Canada,

9.96.) For fine specimens of blankers, and well made. HACHER, COOK, and WOARAM, Dewbury, Yorkshire. (25, Classes XII, and XV., p. 487.) For a great variety of excellent blankers, in all qualities, for the Irish, English, and American markets; scarlet and blue blankers, for the American trada; and travelling rugs of various kinds.

PATTERION, J., Dundas Mills. (146, Canada, p. 966.)
For fine specimens of biankets, and well made.
ROSINSON, TRONAS, Devabury, Torkahire. (34, Classes
XII. and XV., p. 480.) For bhankets. This person is a
small manufacturer; but his goods are the shot of their
kind for quality and workmanship.
WILDOS, J., and W., Mannfacturery, Kendal. (245,

WILOON, J. J. and W., Mannfacturers, Kendal. (245, Classes XII. and XV., p. 497.) For excellent qualities of railway wrappers and Windermere rugs, of good styles. ZAALIJAO, J. C., and Sox. Manufacturers, Leyden. (34, Netherlands, p. 1144.) These geutlemen have exhibited a fancy blunket, of particular merit,

The Jury desire to make Honourable Mention of the reductions of the following grattenen, viz :-
BUFFAULT and TRUCHON, Essenne, (1122, France,

p. 1232.) Gerox, E., 57 Rue Galande, Paris. (1264, France, p. 1237.) Houses, B. T. and D., Coucord, United States. (United

States.)
Thounton, Firth, Ramsder, and Co., Leeds. (32, Classes XII, and XV., p. 487.) Awarded in this Class. Zeuradezo, 1, and Son, Leyden. (33, Netherlands, p. 1144.)

WORSTED AND WOOLLEN YARNS.

In reporting upon weeted, wouldn, algan, and inhar years, we have great to done them used reflection
that years, we have great to deep the most of efficient
to the property of the property of the control of the con

The Jury have divided the yarms which they considered to come within their province, into worsted, woolen, alpeca, mohair, realmere, and mixture yarms, white and colosured. The worsted yarms again, although all come soler the same general term, yet, being different in chawifer the same general term, yet, being different in chawick of the province of the province of the worst which is the most numerous, the Parry will call "Merino Yarm;" another, "Lustre Yarms," a third, "Genappe and Sundi Ware Yarm."

There might, perhaps, have been a further distinction made in the merior spars; namely, between such as were combed by machinery and those which were combed by hand; but as this distinction was not in all sease; expreced by the Ethibiton in that not been adopted. In weather years, gain, a further distinction might to deword to year, the property of the property of the carded well only any other than the property of the lange or hard stapled wood, fase or cours. Wood, therefore, which has not passed through the precess of combinge, either by meather; or by Inada, is stread "woolline."

With these preliminary remarks the Jury begin their Report on worsted merino yarns. Of these there are a larger proportion than of any other, principally from France, the districts included in the Zollverein, and Austria. There were also one or two samples deserving Austria. I nere were and one or the amount of note shown by English spinners, and one sample by a Russian establishment. The samples of 160 weft shown by J. Kand and Sons, and of 144 shown by H. Pease and Co., are very good indeed; but although deserving great credit, as specimens of threatle-span yars, yet the Jury were of opinion that the same yarn, had it been prepared on the French principle, spun on the mule, and equally weil managed, would have been improved in character. The mule, which is in all but universal use on the Coutinent for spinning short-stapled wools, is (combined with the Freech mode of preparation) better than the throstle for the production of yarns adapted to the manufacture of merino cloths; and this circumstance, no doubt, has been the chief came why the French have been able to take the lead through the world in merinos and mousse-line-de-laine fabrics. The best specimens of yarn, both as to softness, evenness, and fulness of thread for the number, belonged to PATURIX-LUFIN and Co.; computed by the English number it was No. 178, or 200 millimètre, and we have never seen a more perfect specimen of west yarn.

The French house which exhibited the negrest approach

The French house which exhibited the nearest approach as to number was that of ROGER BACTHERS and Co.; but their yarn was not made from so fine a wool as that of Paturle-Lupin and Co., and certainly not so well managed in the spinning; they were, however, upon the whole pretty good, especially their finest numbers of warp yarn. The samples shown by the house of BILLIET and HOOT (p. 1251) were equal to the best in the spinning of the

yarus, although not spun to so high numbers. The finest humber of merino weft yarn exhibited by the LEHPEM SPINNING CONPANY (165, English, p. 1106) was very good, and deserving of great praise, being very little inferior to that of Paturle-Lupin and Co. In addition to those already named, there were very good specimens of merino varus shown by the following houses:-

Hindenland, sen. (p. 1238), La Chapsele, and Levablet (p. 1238), Lucas Brothers (p. 1240), Pradine and Co. (p. 1243), Cauvet (p. 1232), Fournival, Altand Co. (p. 1243), Cauvet (p. 1232), Foundmar, Althouse, Bold Co. (p. 1487); Harthans and Co. (p. 1189), Deleguer and Co. (p. 1178), A. Them (p. 1017), Vol. and Worstein Varn Stinning Company (p. 1017), A. Schmidger (p. 1018), C. F. Solinio (p. 1108), Persolut and Ember (p. 1107), Solinio (p. 1108), Persolut and Ember (p. 1107),

Weiss, Jr. and Co. (p. 1090).

The Jury may also here mention a rather peculis kind of Barège yarn, said to be spun by the hand, exhibited by LANTEIN and Co. (1205), used in the manufacture of very fice gaute cloth, chiefly for men's veils. In the medium numbers of merino yarns nothing appeared superior in management to a specimen of No. 72, shown Mr. Pamasa, but spon by Jonas Smith and Sons; this yarn was shown in connection with specimens of tops ed by the patent machine of Mr. Preller, and if these were an average of the work done by this machine, it has almost attained to perfection in clearing the wool from noil, as well as leaving the staple unbroken. The No. 72 named appeared to be made from an ordinary quality of Australian wool, yet the yarn was clearer, feller, and more even than any other we examined of the same number. Perhaps it ought to be stated here, that as Mr. Preller, one of the Jurors, is a relative of the Exhibitor, he gave no opioiou in this case, but left the other members to themselves in the examination of this specimen.

Although there were many more Exhibitors of merino arus beside those named, whose yarns were npon the whole good, yet the Jary are of opinion that the houses already named excel the remainder in one or other

either in warp or weft yarns.

In lustre worsted yarns very few samples were shown, as compared with the merino yarns; those exhibited by J. Fortes and Son were thought the best. There was a good sample shown by William Thomas (p. 502), dyed in the preparation.

in woollen yarns, or such as were carded only (not combed), the specimens exhibited are numerous and connect, the specimens exhibited are numerous and generally good. Among the best of those which were carded from long-stapled woods, of low quality, were J. Axrovo and Son (p. 491), and Franc and Mastrian (p. 1236). In the fine numbers spin from better qualities of wool, there were beautiful yarns shown by Choutelle (Nerdew) (p. 1177), Sentis, Son, and Co. (p. 1227), Lantein and Co. (p. 1205), Xnorray and Co. (p. 1157), Joseph Kellen (p. 1217), Clasennach and Son (p. 1079), E. Leidenmost (p. 1017), and L. THOMAS (p. 1017).

There were also some good yarns shown by other bouses, but not equal to those of the parties named.

The specimens of hosiery yarns shown by A. Bergerss and Co. (p. 497), Barwix and Wheterstone (p. 497), and WINTIMORE and Co. (p. 497), were good, and gave full proof of the deserved fame which the Leicester houses have long maintained for the production of this class of yarns; there were also good samples of this kind shown by R. Poppleton (p. 497), and J. G. Schmidt and Sons (p. 1106).

There were very few exhibitors of cushmere yarns of these those exhibited by HUNDENLANG, sen. (p. 1238) were the best. Their finest number was a beautiful

In yarns made from a mixture of silk and wool (mixed in the carding and preparatioo), there were samples shown both white and coloured, which, so far as we were com-petent to form a judgment, were very good; but as this b.nuch of the worsted trade is comparatively new (at all 1106.) For merino yarus.

events to ns), the Jury could not venture to give as opinion as to the relative merits of the different yarns uf

In sipsca and mohair yarns the samples shown appeared to be very good, both in evenness of thread and mixture of colours, for the various descriptions of fancy goods made from them. This branch of trade, although comparatively new, has made rapid strides towards perfec-tion. A few years ago these raw materials were of little or no value, but through the skill and enterprise of those engaged in this trade, amongst whom Mr. T. Sait must by universal consent have a pre-cusinent position, they have now become very valuable; and it cannot be doubted, from the beautiful specimens exhibited, that they are destined to maintain a high price as compared with ordinary qualities of sheep's wool. In the first stage of its progress, alpaca yarus were found to be very imperfect in their evenness for the manufacture of plain goods: this obstacle is now entirely overcome, and every rimen of alpaca yarn we examined was all but perfect

in this respect Although the wool in its natural state is either black, brown, or white, yet from these three colours an almost endless variety is produced, enabling the manufacturer to secure shades adapted to all seasons. The specimens of fine numbers, exhibited by T. Saxt. (pp. 491-2) and J. Fostrax and Sox (p. 492), show that it is capable of being term as small in the shade of the capable of being spun so small in the thread as to reader it available, either alone or in combination with cashmere varus, or silk for fabrics of the lightest description

Most of the samples of mohair yarn exhibited, single and folded, were very good, both in lustre and evenness of thread, especially those shown by T. Salt pp. 491-2), J. FOSTER and SON (p. 492), STOWELL and SUODEN (p. 502), and TOWNEND BROTHERS (p. 493). The mohair poplin yarn made by the last-named house, is the only yarn of this description prepared for the manufacture of poplin fabrics, and appeared perfect; they had also some press assers, and appeared perfect; they find also some beautiful specimens of coloured mobiair yaras, suited for the small ware trade. There were also very good speci-mens of alpaca and mobiair yaras exhibited by— D. W. Shaap (p. 434), J. Whitzer (p. 494), W. Mit-

LIGAN and Son (p. 492), and BAUGHEN BROTHERS (p. The Genappe yarus shown were numerous and gen rally excellent in management: in the finer numbers of

this class there are very good specimens shown by Town-END BROTHERS, and J. ARROYN and SON. The variety of small-ware yarns shown by J. Scoden and BROTHERS was very great, and their general management must give them a good position in the market for this class.

The Jury recommend as deserving of Prize Medals the exhibitors named below, who, to the best of their judgment excel in this class of yarns:-

AKROYD, J. and Son, Halifax. (130, Classes XII. and XV., p. 491.) For carded and Genappe yarns BILLIET and HOOT, 43 Rue dn Sentier, Paris. (1550, Prance, p. 1251.) For merino yarns. CLARENBACH and Sox, Hutteswagen. (506, Prussia,

p. 1079.) For woollen yarms.
Choutekle Nephew, Rheims (Marne). (132, France,

p. 1177.) For woollen yarus.

Ecnorn, W., and Son, near Burnley. (130a, Classes XII. and XV., p. 491.) For carded and Genappe yarus. FOSTER, J., and Sox, Manufacturers, Black Dyke Mills, near Bradford. (143, Classes XII. and XV., p. 492.) For alpaca, mohair, and lustre yarus. HINDENLANG, SCH., Cramoisy (Oise), and 24 Rue des Vinnigriers, Paris. (1269, France, p. 1238.) For cash-

mere and merino yarns. KELLER, JOSEPH, Brunn, Moravia. '191, Austria, p. 1017.) For woollen yarns.
Lacuarette and Levanter, Rheims (Marne). (1285,

France, p. 1238.) For weolies yarns.
Lanyers and Co., Rheims and Tinqoeux (Marne),
(366, France, p. 1205.) For Barège and woollen yarns.
Lanyers Spinning Co., Puffendorf. (44, Saxony, p.

LUCAS BROTHERS, Baraneourt (Marne), (1331, France, p. 1240.) For merino yarus, PATURLE-LUPIN, SEVENUX, STERER and Co., le Cateau,

PATULE-LEPIN, SETIOUX, STERRE and CO., le Catean. (1814, France, p. 1242.) For merino yarms.
PASS, II., and Co., Mannfacturers, Darlington. (184, Closex XII. and XV., p. 453.) For merino yarms.
RAND, J., and SONS, Bradford, Vorkshire. (173, Classes XII. and XV., p. 494.) For merino yarms.
ROGER BROTTERES and Co., Trie Chalessu (Oise). (1449,

France, p. 1245.) For merino yarns,
Salt, Tirros, Bradford, Yorkshire. (139, Classes XII.
and XV., pp. 491-92.) For alpaca and mohair yarns.

SCHMIDT, J. G., jun., Sons, Penig. (49, Saxony, p. 1107.) For folded earl yarns.
SCHMIDDER, A., Neudeck, Bohemin. (193, Austria, p. 1017.) For woollen yarns.

SENTIS, Son, and Co., Rheims (Marue). (1011, France, p. 1227.) For woollen yarna. Solmato, C. F., Chemnitz. (47, Saxony, p. 1107.) For meripo varus.

Louien, September 1851.

STOWELL and SUCDEN, Bradford. (496, Classes X11, and XV., p. 502.) For mohair yarns and Av., p. 502.) For monary yarrs.

Scourse, J., and Bornizas, Dockroyd Mills, near
Keighley, Bradford. (167, Classes XII. and XV.,
p. 494.) For Genappe, mohalir, and popin yaras.

TOWNERS BROTHERS, Collingworth, user Bingley.

(162, Classes XII. and XV., p. 493.) For Genappe and mobair yarus.

XHO FRAT and Co., Dolhaim-Limbourg (Liege). (204, Belgium, p. 1157.) For woollen yarus. The Jury also desire to make Honourable Mention of the two following houses:-

Cavver, Chantilly, near Paris. (1138, France, p. 1232.) For merine yarns, FOURNIVAL ALTMAYER, and Co., Rethel (Ardennes), (221, France, p. 1187.) For merino yarus,

SAMUEL ADDINGTON, REPORTER,

CLASS XIII.

REPORT ON MANUFACTURES IN SILK AND VELVET.

[The figures after the Names (between Parentheses) refer to the Exhibitors' Numbers and to the Pages in the OPTICLAL DESCRIPTIVE AND ILLUSTRATES CATALOGUE.]

Jury.

Grount Taver, Kun, Chioman, 28 Spilal Square; Sik Manadurture,
ARLES-D'ens, Dipopt Chioman, Fancey Mandre of Gentral Jaure,
Thomas Waxawarin, Reporte, Greslam this, Loodon; formerly Sik Manadurture,
Sayare, Courach a, C. Lury Laure, Chopselde: Clope Manafacturer,
Licont, Ghond Hawar Daviran, Tarley; Coldrivens Gazela.

Hand Colond Hawar Daviran, Tarley; Coldrivens Gazela.

Hand Managaria, Zarley, Managaria, Managaria,
Hand Managaria, Maria Managaria, Managaria,
Hand Managaria, Maria Managaria, Managaria,
Hand Managaria, Ma

(USBRI MARIKA, ARIPOTA, AVANORA FABRICA, ARIPOTA, VICE-President of Chamber of Commerce, Verous, J. Ventre, Sardhia, Chaules Wanwica, 132 Cheapalde; Silk Warehouseman,

Tax Jean of this Class have in their awards endeavoured to adhere to the instructions they received from the "Soh-Cusmittee of Chairmen," as to the principles by which it was describle they should be governed; and athough in many cases the great ment of individual exhibitors seemed to justify such a deviation therefrom as would have enabled the Jury to recommend the Conneil Medal, they have abstrated from so doing.

Meisl, they have abstanced from so donog.

They have also make their assays in other with regard.
They have also make their assays in other with a remparison between the productions of exhibitors from different countries, or from the same country, might, of the
Meisla were insited in number, have rendered accessary,
Itali it leve of therwise, the defents, and to some extent
Itali it leves of therwise, the defents, and to some extent
and it has the contribution of the contributi

justice to all parties whose productions have heen submitted to their inspection and judgment.

Not among the least of the difficulties under which the Jury have felt thenselves placed, is that which arises to out of the discretion they were allowed to exercise of animing exhibitors whose aggregate productions, though of high merit, are not yet sufficiently so to entitle them to Prize Medals.

It must be obvious that unless all these articles are of the first class as to quality, a line must be drawn between those which are and those which may be very nearly so: this the Jury have endeavoured to do, and in naming those exhibitors who in their judgment appear in this latere entegory, they fithis it better to abstant from mentioning the grounds on which in each instance their judgment is based.

As there is a very proper rule which prohibits Jaryman from receiving Medias in the Clause where they serve, the Jury can only mention that three of their number elling children, no opinions on their productions are lettly as the control of the control of the control Turin (p. 1930); Mr. Sumed Courtsald, of the firm of SAMETI. CORTACTION and Co. 1930; and Mr. G. T. Kerny, Spittlifeld (p. 0.40) of Kerny, Six Manufactures, Spittlifeld (p. 0.40) of Kerny, Six Manufactures,

The important position which the silk trade, in all its stage and limaches, sow complex, would appear to call for an extended report on its present condition in each country where it is entimeted; has the Jury do not feel country where it is entimeted; has the Jury do not feel as the several classes of productions to be found in the Exhibition, and complete it in Una XIII, may suggest. They do not powers the elementh accessary in a statistical feer address the suspective to such points of interest as may arise out of the awards they have made, taking the averal countries which alwave callstell on lightaritiest order.

Before, however, they proceed to those particulars, it of this susadistion, the several amples to be found in the Eshkhistic affects that fixed except almost to be found in the Eskkhistic affects that fixed except a fixed particular articles are almost the process of the Eskkhistic affects that fixed except a fixed particular, it is no influently consecred with the three strike, it is no influently consecred with the three strike, it is no influently consecred with the three strike, it is no influently consecred with the three strike, it is not harder of the consecred to the proposed beautiful to the cross-strike and the consecred with the three strike, it is not harder to be consecred with the consecred beautiful to the consecred with the consecred to the cons

a angle sample. The importance of this material to France, as an article of national industry, may be gathered from the fact that the annual value of the quantity of the product of the contract of the product of the product of the other contracts is gat mentioned, the Jury have not the means of ascertaining: it cannot, however, but be very considerable.

Accessor

The silk productions of this country, as seen in the Exhibition, comist principally of thrown silks, ribbous, garments, furniture, and ecclesisatical mounfactured goods, landkerchiefs, craps, &c., all of which are more or less indicatory of a high state of cultivation, and reflect credit on the skill of the amounfacturers.

CHINA

The critivities of manufactured silks from this country, while it maply vartains the reputation she has long enjoyed for damask and other articles, is not sufficiently moved to justify mover than passing notice. The Jury have, however, much pleasare in tendering their thunks to Mr. H. H. Lurheax (p. 1422), and to Mr. L. Draxt (p. 604), for the benatiful collection they have made, and sent for imspection, of the goods peculiar to that nation.

ENGLAND.

A very slight glance at the goods exhibited by the English manifectures will enable those who have atteoded to the state of the slik trade of this country, of cherre the great progress which has been made in quaitiv, design, and chespoess during the last twenty year. Until within talls period this beamch of nonnefector was unspectures, both in regards the quantity and value of the goods produced, and the geater of the markets opcode for their rule and consumption. It is remarkable that theselved her are untited in the continuous contents, the characteristic in the continuous contents and the continuous contents are continuous contents. The temperature is a substitute of the contents consumed to the contents co

rated as special problètion on the firetige manifectured critic was reductived in an illustrational intensity of the control o

fabries are now produced apon the largest scale. It may be doubtful whether excess of competition is not rather calculated to lower the standard of perfection than otherwise; but where, as in the silk management the market is the word, and the consumption suffinited, the reope for the exercise of taste and skill in all producing countries is proportioustely extensive and producing countries is proportioustely extensive and pro-

https://ec.errainating these proliminary remarks, the Jury deem it right to merion that the bone of Lewrs and ALEXEN, of London [p. 505], exhibit some breends that the first of the highest order of artistic and mannfastering edits of the highest order of artistic and mannfastering this of the highest order of artistic and mannfastering they formithed both the pattern and the premainy means they formithed both the pattern and the premainy means the producing it by the waver, vp at they are not then-active mannfasteriores, the Jury did not noiseive it to be 10 which, under other circumstances, they would be 10 which, under other circumstances, they would be

emitted.
The Jary are of opinion that those sals should have controlled to the control of the co

Section Inclusion on the Pointering and Co. (p. 205); J. M. Pocer (p. 2001); R.DMATERIAL and SWILEROFF (p. 505); J. W. Pocer (p. 5001); R.DMATER and Co. (p. 504); SEWELL EVAS, and Co. (p. 504); SWAN and EDGAR (p. 504); and Tever and Co. (p. 504); s. SWAN and EDGAR (p. 504); and Tever and Co. (p. 504); s. SWAN and EDGAR (p. 504); and Tever and Co. (p. 504); s. SWAN and EDGAR (p. 504); and Tever and Co. (p. 504); s. SWAN and EDGAR (p. 504); and Tever and Co. (p. 504); s. SWAN and EDGAR (p. 504); s. SWAN

FRANCE,

Loog the cradle and chief seat of the silk mammfacture, amply sustains its position in the present Exhibition. It would be difficult to do adequate justice to the varied chains of the throwster, dyer, designer, and waver, of the magnificent assortment of goods which occupies the department a viceor with the country, and which excites the portant branch of industry. The Jury have had no heritation in avanting Medials to the large number of exhitation in avanting Medials to the large number of exhihines where muses will be found below, and have redescring of that man, of dissistents. The well-surfield descring of the manefertures of Frame, and the number of the manefertures of Frame, and the number of the properties of the superior of the surfield of the results. The properties of the surfield of the surfield of the standard of the surfield of distributions, and has alread to the surfield of the disstance of the surfield of the surfield of the surfield of the first which they stribute mainly to the circumstance that for the surfield of the surfield of the surfield of the probability delay, which approach the translation of man-

GREECE

Only exhibits a few articles of comparatively small importance.

Holland,

The same remark applies to the comparatively small assortment from this country.

Indta. The manufactured silks from this important dependency

of the British Empire which have been exhibited, are inconsiderable in quantity, and out very movel in character. The Jury have been unable to award Medals to exhibitor, not only for this reason, but also because the parties exhibiting are not the producers or manufacturers. They are such, however, the less contrided to thanks for perment of the Entribution to be manufactured and exhibited.

ITALY.

The reputation of this country, as the chief preducer of the raw and thrown metrial, is well austained by the namples exhibited. Manufactured goods of great north are also to be found in this department, among which the velvets of Genoa and Turin must be signalised as fully sustaining their ancient character for beauty and quality.

PORTUGAL.

The manefacturers of this country exhibit a small assumement of rise gold and silver breeades for ecclesian it rial purposes, and miscellaneous articles in gauze, televic, smin, Res., but nothing of smill-ient importance to merit special notice. Considering the advantages of eliments and the administration of the control of the contro

Ressta.

Although, an before observed, raw silks are not comprised in their Class, the Jury has noticed mone very fair samples from this country, which, as also some thereon silks, affed promise of an important branch of trade being opened at no distant period. The same may be emphasically said of the manufactured silks to be found in this department. They are highly credible to text, the colours, the design, or the manufacture. Some magnificent silks for furniture and eccleiustical purposes decree special nodes.

The progress made in this important branch of mannfacture during the hat few years, is illustrative of the advantages which seldem fail to result from the removal of probibitory duties, and the introduction of n low tariff.

SPAIN.

The Jury have only been able to award one Medal to on exhibitor from this country; but specimens of good raw silk, and of considerable manufacturing swrit in ribbons, broad silks, &c., may be found in this department

ment.

A very little attention to details might make this branch
of manufacture of great importance to the country.

SWEDEN AND NORWAY.

The few articles exhibited by these countries offer no feature for particular notice.

SWITZEBLAND.

The character of the silk manufacture in this country demands a discriminating notice. The goods exhibited are of a low class, as to weight and texture, but are well made in all respects. The material employed is generally inade in all respects. I he numeron employed is generally from Italy, and excellent of its kind; the workpeople are economical in their habits; the manufacturers confine their attention to the precise kinds of goods which lost anit their localities, and their means of obtaining a regular sale for them; and, altogether, a trade of much importauce is sustained with Germany, Russia, Italy, and the

two Americas. Forty-two manufacturers of the canton of Basic ex-hit. In one case (152) are shown the united contributious of twenty-six ribbon manufacturers. This case contains some very good specimens of figured ribbons, which are clearly indicative of the improved condition of this trade in that district,

TCRRET.

The silk fabrics sent from this eastern part of the globe exhibit a pecaliarity of taste and execution, such as might have been expected from a country so essendifferent in all its habits from those of Europe generally. While there is much to excite currosity, and even admiration, there are no goods so strikingly superior and novel as to justify the Jury in awarding more than two Medals. There is, however, in the articles exhibited by this conatry, the most satisfactory evidence that at length the more intimate interconese with other countries which steam navigation has superinduced, has begun to tell favourably on their national character and domestic economy. It appears that, with the introduction presty generally by the Suhlime Porte of Europeaa attire, a relish for business, and an aptitude for mercantile trans-actions, have supervened. To the active exertions of the Turkish Comul-General, M. Zohran, we are mainly indebted for the highly ereditable display of goods in this department of the Exhibition, in which are to be found cocoons, raw and thrown silks from Brussa, Salonica, Adrianople, and Syria; manufactured silks from Constansimilar goods, made under the immediate superintendence and with the pecuniary assistance of the Turkish Government. The Jury would also direct attention to the light silk shirts, made from a comparatively inexpensive and otherwise useless raw material, specimens of which are worn by the boatmen who take charge of the graceful caique now floating on the Serpentine, and sent as a model of the boats which line the shores of the Bos-There are other woven fabrics, particularly phorus. ome gold embroidery peculiar to Constantinople and Smyrna, which deserve notice, but which do not belong to this class.

ZOLIVERITY.

In this department, embracing the manufacturing talent of a large portion of Germany, including Prussia, a con-siderable variety of silk goods is exhibited. The greater part, however, are of low qualities, suitable only to the home and the American markets, in both which they command an extensive scale. The velvets are perhaps the most important of these products, and are charac-terised by the regularity and evenness of the pile, and the economical application of the skill and labour neces-sury to their manufacture. They are articles which are largely exported from Crefeld and Vierzen, which are the chief seats of this peculiar branch of the silk trade.

The Jury award Prize Medals to the following Exhibitors:-

THEOWN, SEWING, AND SPEN SILE. ALSOP, ROBESS, and Co., of Leck (48, p. 506), for some excellent samples of sewing silks,

L'annia Baothess, St. Julien en St. Alban (Ardèche).

(41, France, p. 1173), for the perfection of their trans-for talle, and for organizine 16/18, 20,22, and 26/24 deniers, for sain and plush. BONNETON, J., St. Vallier (Drôme), (771, France p. 1217, for his organzine for plush and satin.

Buavo, Micharl, Pignerol (24, Sardinia, p. 1303), for excellent organizme for sating BRIDGETT, TROMAS, and Co., of Derby (49, p. 506),

for newing silks, purse twist, and sarsnet ribbons BRODUM, J. and J. and Co., of Leck (44, p. 506), for some excellent samples of sewing silks, CHANDON, CASIMIR, Alaix (Gard), (113, France,

p. 1170), for his fine six-thread greatedine, for the manufacture of " tulle bobin," and for his organzine 26/28 deniers, for satin. CHARTSON and Sox, Vallier, Drôme (796, France,

p. 1218; for organizine 13/13 deniers, for tulle; 32/34, for ribbous; and 19/20, 24/26, and 26/28, for plush and Coupene and Soucaser, Montaulan (Tarn and Garouse), (96, France, p. 1176), for gaze à hister (used by millers), of extraordinary perfection, numbering from 10

to 220 threads per inch.
DUNAINE, XAVIER, Tournon (175, France, p. 1181). for organtines 18/19, 20/21, and 26/28 deuler

Hanwan and Sons, of Halifax (42, p. 505), for beantifel spun silk yarus iu all numbers. HERME, AUGUSTY, Cross (537, France, p. 1204), for organzine 18/19, 26/28, and 37 deniers, for ratin

Negamente 10/19, 20/28, and 32 seniets, for salin.

Hottasourta and Sox, of Leeds and Congleton (61, p. 5/67, for spun silk yarus in all numbers, in the production of which they appear to have arrived at a high point of perfection, JAME, BIANCHI, and DURIGNEUR, Lyons (Rhône),

(1087, France, p. 1230), for grenadine and organizes. The Jury consider the productions in raw silk of M. Duseigneur, and of other exhibitors of this material, as belonging to Class IV. LANGEVEN and Co., Laferté Aleps (Seine-et-Oise), (898,

France, p. 1223.) for spun silks, in great perfection, from

France, p. 1223, 100 span sust, in great perfection, from the lowest to the highest numbers. MENSET, JEAN; Benufieu and Ausonay (Ardéche), (1657, France, p. 1236), for heautiful qualities of organ-zine, both white and yellow, especially those which are suitable for the difficult and delicate manufacture of

bloosles. POIDEBARD, N., di Porsici, near Florence (51, Tuscan) 1291), for organizoes and trams 22/24 and 36/40 deniers

Rignos, F. and Co., of Piedmont (30, Sardinia, p. 1303), for execulent organizine for satins.
SCHEIBLER and Co., of Milan (80, Austria, p. 1011),

for organzine, 28 deniers for satin, and for their greandinc. 48 demera in four threads, Surneymann, Louis, St. Jenn-du-Gard (1490, France,

p. 1248), for organizor 18/20 and 26/28 desires.

TEISSIER DU CROS, L. and E., Vallerangue (1031, France, p. 1228), for organizine from 20/21 to 32 34 desires, and for grenadines. (Prize Medal, Class IV.) VERTA BROTHERS, Milan (874, Austria, p. 1012), for

Rennove

BALAY, JULES, of St. Etienne (1064, France, p. 1229), for ribbous made of silk in the gum, and dyed afterwards, They are well finished, and command a considerable sale. Brussos and Co., of St. Etienne (1125, France, p. 1232), for the good taste and quality of their gauze ribbous, COLLIARD and CONTE, of St. Literae, Loire (1154,

Frauce, p. 1233), for the assortment of ribbons, which are considerable in quantity, novel in design, and credit-able to the manofacturer and draftsman in every way. Cope, Hannerron, and Co., of Coventry (70, p. 507), for an assortiment of figured ribbons made by power, which is good, when taken in connection with price.

Connella, Lyella, and Wynstyr (22, p. 504), of London and Nunea on, for ribbous which are in good taste, well executed, and the colours judiciously blended COVENTRY RIBBOSS CONSISTER (72, p. 507), for a ribbon exhibiting much taste and skill in its production.

Cox, R. S., and Co., of London and Coventry (66, 5.77), for an assortment of fancy ribbons of good quaties and mextures.

DE BART and BISCHOFF, Basle (152, Switzerland, p. 1275), for good specimens of figured ribbous.

FREYYOUGL and HEUSSLER, Basle (152, Switzerland, p. 1275), for good specimens of figured ribbons.

Larchen, Faure, and Co., St. Essenc, Loire (1293,

France, p. 1238; for good specimens of ribbons,
MESST, ANT, Vienna (246, Austria, p. 1019), for an
assortment of figured taffetas, gauze and erape ribbons, well manufactured. Mornino, Charles, Vienna (247, Austria, p. 1019), for

a good sud well executed assortment of figured and chine RICHTER, LINDER, PAle (152, Switzerland, p. 1275). The ribbous exhibited by this manufacturer are all plain

sain, of different qualities, and woren in the gum. Some are left undved, to show the process. They command n large sale ou account of their comparative cheap-

Sanavin and Co., Basle (152, Switzerland, p. 1275), for good specimens of figured ribbons. SARASIN, J. F., Basle (152, Switzerland, p. 1275), for good specimens of figured ribbons.

Solden and Co., Basle (152, Switzerland, p. 1275), for good specimeus of figured ribbons. SCLORE and STUCKERSHERGER, Basic (152, Switzerland,

p. 1275), for good specimens of figured ribbons.
Vionat Brothers, St. Etienne (1524, France, p. 1249). for chine ribbons, which are beautifully designed and executed; and for some specimens of figured ribbons.

MANUFACTURED SILER.

ANDAKAE, C., of Mulbeim on the Rhine, near Colorne (360, Prussia, p. 1071), for plain velvets and stamped fancy velvet ribbons, in good taste and cheap. Balleidiks, F., of Lyons (1065, France, p. 1229), for an excellent assortment of vestings in large variety, both plain and fancy; and for the figured velvets and terry, which also bear testimony to his extensive knowledge of

the resources of the Jacquard loom. Massing, and Patcuon, of Sarreguem Moselle (21, France, p. 1172), for an assortment of black

silk plash for bats, remarkable for the brilliancy of the suk pitch for Ints, remarkable for the brilliancy of the colour and the excellence of the workmanship, BAYMAN and STRETLE, of Hoggen (133, Switzerland, p. 1276), for plain and armure silks of the best work-manship, and for shot or glack grounder-Naples, which are excellent for a low-priced article.

Bellon, Joseph, and Co., of 2 Rue dn Griffon, Lyons (1079, France, p. 1229), for black satins and taffetas, in great perfectiou as to colours and qualities, and variety

BERNOVILLE, LARSONNIER, and CHENRET (1548, France, p. 1250), for printed silks, plain coloured groundines, and ties in silk-gauze dresses, all in excellent taste. Medal awarded in Class XVIII.

BERTRAND, GAVET, and DUMONTAT, of Lyons (1085, France, p. 1230), for a beautiful assortment of chine and figured silk shawls, searfs, and cravets, in excellent taste. BISCHOFF, CHRISTOPHER and JOHN, of Basic, (157, Switzerland, p. 1277), for black taffetas, and gros-de-Rhin, of excellent quality, and remarkable for the bril-

liancy of the colour; also for some good black satins.

BONNIT, J. and C., of Lyons (197, France, p. 1230), for black satius, from 2f, 75c. to 14f.; and black taffetas, from 4f, 25c, to 8f, 25c. These manufacturers confine their operations to these two articles, and have attained to great perfection in the production of them.

Bouvano and Lancon, of Lyons (1110, France, p. 1231). This house enjoys a high reputation for silks snitable for furniture and ecclesiastical purposes, and had prepared a large assortment for exhibition on this occusion, which was unfortunately consumed by a fire on the 31st of March last, which destroyed their premises. For the few specimens of their looms now shown, which exhibit manufacturing takent of a high order, a Prize Medal is awarded.

Baisson Bauthers, Lyons (1117, France, p. 1232), for

black silk plush, of excellent quality, principally made by

BROCKLEHURST, J. and T., and Sons, Macelesfield, (38, p. 505), for Persians, serges, sursuets, gros-de-Naples,

BROSSE and Co., Lyuns (1118, France, p. 1232), for slopred velvets in great variety, and well manufactured. BRUNET, LECONTE, GUICHARD, and Co., of Lyons 1120, France, p. 1232), for a most spleadid assortment of chine and embroidered silk gauzes, grenadines, and crépes for dresses, shawls, colinrs, scarfs, and cravats, the execution of all which is admirable in taste and in mixture of colour. Their printers, Perrigaux, Branet, and Co., deserve great praise fur the skill displayed by them in that

department of art. CAMPBELL, HARRISON, and LLOYD, of London (31). for some beautiful specimens of moiré antique; figured and brocaded silks, which are very superior in quality, taste, and execution

CARGUILLAT (Weaver), of Lyons (1134, France, p. 1232), for a woven portrait of Pope Pius IX., and another waven picture of the visit of the Due d'Ausanle to his workshop; and in the compartment occupied by Messrs. Pottou mad Rambaud there is also a portrait of the Queen by this superior weaver, all of which are executed with artistic skill of a high order

CARTER, VAVASEUR, and RIX, of London (30, p. 505), for figured silks and moir' entique. Caser and PHILLIPS, of Spitalfields (23, p. 504), for

plain black Endrimore and other plain silks, all of which are well made. CHAMBER OF COMMERCE OF LYUNS, for a magnificent assortment of fancy silks, in great variety, of the richest

quality, in exquisite taste, of the choicest colours, and the best manufacture (awarded as unclassified Council CHAMPAGNE and ROUGIER, of Lyons (1143, France,

1232, for a magnificent assortment of rich figured silks, n great variety of design and mixture, including some exquisite specumens of rich broché, at 36f, per metre.
CHICHIDOLA, J., and Co., of Turin and Genoa (39, Sarlinia, p. 1304), for an assortment of plain velvets, peculiarly fresh and brilliant in colour, and admirably manufactured; also for figured silks, well made, in good taste, and in considerable variety.

Carrenter, Bansley, and Co., of Macclesfield, (40,

p. 505), for a great variety of figured silks, handkerehiefs, and eravsts, in good taste, well made, and cheap at the prices quoted. DIEBGARDT, F., of Viersen (509, Prussia, p. 1079-80),

for plain velvets, farured velvets for vesti assortment of velvet ribbons in all qualities, all of which are excellent of their kind, Donar and Co., Lyons (1193, France, p. 1234), for black silk plush, of excellent quality, principally made by

DONAT, ANDRÉ, of Lyons (1192, France, p. 1234), for an immense variety of vestings and silks for cravats, in plain, figured and broche satin and grenadine. Also for some of the former in velvet grounds, brocaded in gold and silver; and for plain and figured moiré antique, the whole displaying fine taste, and artistic skill of a high order of ment

FONTAINE, Fa., of Lyons (1225, France, p. 1236), for a similar exhibition of vestings and garment silks of count

GARAIN, GEORGE, of Berlin (119, Prussin, p. 1055), for a good assortment of silks in damask and brocatelle for furniture, in good potterns, and well excented.

GENDRÉ, L., and Co., of Lyons (1247, France, p. 1237),

for white and coloured satins, from 3fr. to 7fr., which are well made at the prices quoted, GIRARD, NEPHEW, and Co., of Lyons (1248, Prance, p. 1237), for black and coloured voivets, in great variety,

and admirably manufactured. GRAHAM and Sons, of Snitalfields (17, p. 504), for black moires, satins, and velvets, well manufactured

Gasevexon, W. and Co., of Kidderminster (52, p. 506), for furniture silks in great variety, of good design and texture, especially ut the prices quoted,

GROUT and Co., of Loudon (36, p. 505), for black empes, erèpe aerophane, erèpe lisse, &c., all well manofactured and in cood colours GUILLOT and Co., of Turin and Genon (41, Sardinia,

p. 1304), for plain velvets of great excellence; for figured velvets for tapestry and farniture, remarkable for their width, good taste, and the ingenious method of weaving ; and plse for a beautiful imitation of white lace on velvet ground, in several varieties

Harnop, Taylon, and Peanson, of Macchester (62, p. 506), for a good assortment of black and shot plaio ailks, well made at the prices quoted.

HECKEL and Co., of Lyons (870, France, p. 1221), for

satius in white, black, and colours, of all qualities, which are probably the fixest specimens of which the article is auscenible HELL, GEORGE, of Vicusa (260, Austria, p. 1019), for

a considerable assortment of brocatelles, to excellent toots, and well made. Some of these show the design on both sides, and others are to be noted for their unusual width. HILL, JANES, and Co., of Spitalfields (25, p. 505), for plain and figured silks, well made, and chesp at the prices quoted HOERN and BAUMANN, of Horgen (53, Switzerland

p. 1276), for lustrings, which are well made for low-priced

HOOPKA, G., CARROZ, and TABOURIER, Paris (1625, France, p. 1255), for plnin, figured, and printed silk gauzes, well made and printed. Also for an assortment of illusion tule, peculiar to the house, of excellent colours; and for a great variety of other goods deserv-

ing special notice.

Houldsworth, James, and Co., of Manchester (64, p. 506-07), for furniture silks in great variety, of good ssign and texture, especially at the prices quoted.

IURAIIM AOA, Turkey (p. 1391), for specimens of

figured velvets, of some taste and well made. KEITH and Co., of London, Maoufacturers (1, p. 504). for a great variety of furniture silks, in excellent taste, and exceedingly well made,

KOLOKOLNIKOFF, Pairl, of Moscow (203, Russia, p. 1373), for magnificent specimens of gold and silver brocade, chemille, and other textures, principally for eccle-siastical purposes, from about 60s, to 70s, per yard. Kondansherr, of Moscow (353, Russia, p. 1383), for a variety of silks in brocade, damask portraits à la Jacquard, and other textures, in great variety of design and

of good taste.
LAPETER and DOLBEAU, of Lyons (1292, France, p. 1238), for a beautiful assortment of damask reps, and me figured and chine silk shawls.

LENANN, J., and Son, of Vicona (265, Austria, 1019), for brocatelle, embroidered in gold and silver, for ecclesiastical purposes. Also for broché gold on chenille and velvet grouods. The assortment is generally supe-rior, and well deserving of notice and commendation. Le Mare and Sons, of Spitalfields (21, p. 505), for black and coloured velvets, satins, moiré and glacé silks, some of which are made by power, and are cheep at the

prices quoted. Le Mine and Son, of Lyons (1649, France, p. 1256) an old-established and eminent firm, for some beautiful specimens of their carlier productions of figured silks for furniture of churches, combined with their newest styles in lampas, damask, brocatelle, and embroldery to gold and silver, for ecclesiastical vestments, and other purposes requiring even the introduction of jewellery.

Marin and Casimia, of Lyons (612, France, p. 1207), for nn excellent assortment of black silk plush, from the highest to the lowest qualities, principally made by power. They produce annually in this article to the value of about

Massing, BROTHERS, HUBERT, and Co., of Paris (333, France, p. 1193), for a similar assortment made by power. MATHEVON and BOUVARD, of Lyons (1349, France, P. 1240), for some splendid specimens of rich silks for churches and ecclesiastical vestments, as well as for fursiture in lampac, damask, brocatelles, and reps, worked in bouquets of flowers, in gold, silver, and silk, the cost of some being 300f, per metre, and the mere labour of good colours, well made, and chesp.

which costs from 60f, to 70f, per mètre; for moiré antique shot gold and silver, of the highest perfection; and for the woren medallion of Her Majesty, in a garland of natural flowers, beautifully designed and executed, Managing Blacturing, of Victoria (530, Prusin, p. 1080)

for a large variety of plain and foucy velvets, and velvet ribbons, well made, and cheap at the prices quoted. MOLINADI, A., of Genoa (43, Sardinia, p. 1304), for plain velvets, and also for rich figured velvet for furniture,

in sutique designs and styles, MONTESSUY and CHONER, of Lyons (1360, France, p. 1241), for erôpes, erôpe fisse, crôpe acrophane, and gange of many kinds, all of which are very well made, and cheap at the prices quoted. They are manufactured by

MUSTAPHA, Aoa Hapul, Turkey (596 and 663a. p. 1392; for empes, NARY and Schwarzenback, of Thorweil (153, Switzer-

land, p. 1276), for lustrings and gros-de-Rhin, of various qualities, which are well made, and cheap at the prices quoted. CEDENA, V., Valencia (214, Spain, p. 1342), for da-masks, velvets, and other silks of great merit. Poliakoff and Zaniatis, of Moscow (205, Russia,

p. 1373), for magnificent specimens of gold and silver brocade, of great originality and spleudour, from 60s to 80s. per yard. Possos, C., of Lyons (1403, France, p. 1243), for plain silks, of different kinds and in great variety, parti-

cularly in glace, all of which afford satisfactory evidence of the great skill and ottention of the manufac POTTON, RANDAUD, and Co., of Lyons (1402, France,

p. 1243), for a beautiful assortment of rieb figured silks, in execllent taste. Their execution of a woven picture, from the original by Winterhalter, of Her Mujesty, Prince Albert, and the Prince of Wales, merits the highest commendation as a work of art. RETRIER, Cousins, of Lyons (1435, France, p. 1245), for a great variety of very superior velvet, gauze, satin, and tailets handkerchiefs, collars, shawls, and scarfs, in

excellent taste RESCHARDT, F., of Vicuna (268, Austria, p. 1020), for plain, figured, and moiré silks, and for black and coloured

atins, all of which are well made and in good taste. piece of wide black satin deserves particular ootice for its quality nod finish. REFIGURE and SILVENT, of Lyons (1432, France, p. 1244), for a beautiful assortment of faney vests in velvet and planh, in great variety and of excellent taste. This firm also exhibits a choice assortment of stamped

vel- et ribbous, of great merit. Komisson, J. and R. and Co., of London (5, p. 504), for velvet vestings, black armorines, silks and satins for

eravnis, &c., nil in good designs, and well made, Romsson, J. and W. and Co., of London (24, p. 504), for a great variety of satins, serges, velvets, plush, &c., for dropers and tailors, all of which are well made.

Essussion, J. and T., of Spitalfields (6, p. 504), for

black and coloured velvets. RYFEEL and Co., of Staefa, Switzerland (153, Switzerland, p. 1276), for half-Florence, Florence, and marce-

line, which are all good at the prices quoted.

Sanderson and Rem, of Londoo (3, p. 503-4), for figured vestings, in good designs and well nude.

Sanderson, Hums or, of Moscow (372, Russia, p. 1384), for magnificent specimens of gold and silver

rocade and other textures, chiefly for ecclesiastical purposes, excellent in design and good in execution. SCRETHALER and Co., of Crefeld (534, Prussla, p. 1080-81s, for a large variety of plain and fancy vel-vets and velvet ribbons, well made and cheap at the prices

quoted. School of Distor, in Spitalfields (37, p. 505), for a brocaded silk, of considerable merit as to taste and

execution. Schorpen, M. A., of Vienna (270, Austria, p. 1020), for an assortment of brocatelles, good in taste and quality. Schwangermann, F. J., of Kilebberg (153, Switzerland, p. 1276), for gros-de-Rhin and poult-de-soie, all in mod redient, well made and obtain.

SHAMER, THOMAS, of London (15, p. 504), for moire antique and plain velvets, well made.

SIMONS, J., Ilgage or, of Elberfeld (514, Prussin, p. 1800, for a great variety of velvets, figured silks, era-vars, handkerchiefs, scarfs, ressings, games, &c., all indicating skill, taste, and good knowledge of all the appliances of their manufacture.

Solky, B., Turin (40, Sardinia, p. 1304), figured silks, armures and a royale ground, for furniture; and for some gauze disphane for the same purpose; all

which are in good design, texture, and quality.

Statism, J., of Horgen (153, Switzerland, p. 1276),
for plain, coloured, striped, and checked gros-de-Naples, which are neat in style and well made

STAUB BROTHERS, of Horgen (153, Switzerland, p. 1276), for figured silks deserving especial notice, exhibited by the canton. They are in good taste, and well made for the qualities and prices at which they are pro-doced. The arms of the canton, woven in silk, deserve

TEHLARD, C. E., of Lyons (1030, Prance, p. 1228). for plain glace silks, armures in great variety, moiré antiques of the best colours, qualities, and execution, and rep silks; all of which are excellent in every

VATIN and Co., of Paris (1704, France, p. 1258), for an excellent assortment of fancy silk gauzes, dresses, and shawls, some brounded and very rich, VON BRUCK, 11. SONS, of Crefeld (535, Prussin. p. 1081), for an assortment of plain velvets and velvet-

bons, which are chesp at the prices quoted.
WALTERS and Sons, of Spitalfields (9, p. 504), for black plush for hats, in various qualities.

Wandle, II. and T., Macclesfield (41, p. 505), for figured silks, handkerchiefs, and eravats.

Winkworth and Procties, of Manchester (65, b NXWORTH and FRONTAGO, or independent parties; also for figured and chiné silks, in cluste designs and mixtures

of colour, all of which are characteristic of the taste and skill of the manufacturers. Zellers, Frier, and Soss, of Hirslanden (153, Switzer-land, p. 1276), for gros-de-Naples and satinet, both jaspe;

all of which are in good taste and well manufactured ZURBER, JACOB, of Hausen (153, Switzerland, p. 1276). for Persians and sursacts, which are well made and cheup. This house confines its manufacture to these articles, and deserves credit for the perfection to which they have arrived.

The Jury make Henourable Mention of the following Exhibitors in their respective departments:-ALIOTH, T. S., and Co., of Basle (154, Switzerland,

p. 1276), for chappes and span silks.

ANANN and EGLE, of Thorveil (153, Switzerland, p. 1276), for sainet chiné, lustrings, and gros-de-Naples.

BACHOVEN and VOLLECHWITZ, of Zerbet (830, Prussia,

p. 271), for black plush for travelling caps BADER BROTHERS, of Vienna (250, Austria, p. 1019).

for an assortment of check and chine silks, cravats, handkerchiefs, and scarfs. BERT, -, of Lyons (765, France, p. 1217), for a collection of antique silks.

BERTRAND, AD., of Lyons (764, France, p. 1217), for figured nuhrella and parasol silks, plaid poplins, chine and figured silks.

BIN HOFF BROTHERS, of Paule (152, Switzerland. 1275-76), for plain sarsnet ribbons, heing specimens of a low-priced article commanding a large sale.

BORLGER, MARK, Canton of Zurich (158, Switzerland, p. 1277), for chappes and span silks.

BRACCI-FILANDA, Al Fano (7, Rome, p. 294), for organzine. BROOKS, THOMAS, of Spitalfields (26, p. 505), for plain silks, well made.

BUJATTI, FRANZ, of Vienna (252, Austria, p. 1019). for damask and furniture silks; also black satins, and some table-covers for Greece, of a peculiar style.

CALDICOTT, R. and R., of Coventry (68, p. 507), for

CAUSSE and GARION, of Lyons (1137 France, p. 1232),

for white poil 12/13 deniers for ribbons, and for their Organizes and trams, both white and yellow, CHANDANIET-SARGEAS, J., of Vals, near Auberns (114, Prauce, p. 1176), for organzine 18/21 and 26/28 deniers,

(Awarded a Prize Medal by Jury of Class IV.) CHWALLA, ANTON., of Vienna (71, Austria, p. 1010), for "drammed" silks (h tours comptés) DELABSKE, Victor, Ganges (Herault), (1176, France, 1234), for white organize 10/11, and yellow 24 deniers,

DEVENUE, PARL, of France (1580, Prance, p. 1252), for organzine 18/21, and 26/28 denters.

ETHEE, PAUL, and Son, of Saillans (Drôme) (831, France, p. 12:0), for spun silk, both west and warp FAIREMET-NOTHEY, SON, BARNOTTN, and Co., of Nimes (832, France, p. 1220), for span silk, both weft and warp. FORMENTO, L. of Piedmont (37, Sardinia, p. 1303), FORMENTO, L., of Piedmont (37, Surdin cessor to Prandi, organizae 26/28 deniers.

Faces and ZEPPEZACER, of Vicana (255, Austria, p. 1019), for damask and brocké shot cotton for furniture and ecclesinatical purposes; also for figured silks in low qualities.

GANTILLON, T. E., of Lyons (1241, France, p. 1237), for his woven landson GESSNER, AUGUSTE, of Wadenschweil (153, Switzerland, p. 1276), for armures, glacis, and striped and

checked gros-de-Naples. GREER, F. W., of Viergeu (533, Prussia, p. 1080), for velvets, and also silks for parasols and umbrellas HAAS, P and Sons, Vienna (259, Austria, p. 1019), for brocatelles of low quality. (Prize Medal awarded in

Class X11.) Hoannoster, C. G. and Co., of Vienna (262, Austria, p. 1019; for an assortment of plain and figured silks in considerable variety; also for figured silk handkerchiefs, terry velvets, and figured crops shawls.

Henex-Rospoar, of Zurich (153, Switzerland, p. 1276), for striped and plain gros-de-Naples

Inar-Ocaz, of Shemakha (207, Russia, p. 1373), for plain and striped goods made from Caucasian silk. Though deficient in quality and hrillinney, the low prices of these goods secure an extensive consumption Jacons and Branco, of Crefeld (524, Protein, p. 1080), for specimens of parasol silks,

KAIREL JOHN, of Crefeld (525, Prussia, p. 1080), for chine and figured silks in low quali KNORR, F., of Zweyhrucken (38, Bavaria, p. 1100), for silk plush for hats. MOSTNER, ALBERT, of Vienna, Mannfesturer (264,

Austria, p. 1019), for an assortment of brocaded silks.
Kaicka, Esnest, Victima (263, Austria, p. 1019), for gured silks for erelesiastical purposes. (Honourable Mention awarded in Class XIX.) Mention awarises in Class A.1A.)

Lapters, N., of Moscow (371, Russin, p. 1384), for plain, checked, striped chine, and figured silks.

Laverance and Mattiner, of Uses (1298, France, p.

1239), for poil or tram singles of 90 deniera for gaze i hluter and erepe-de Chine, and for organzine 18/20 and 26/28 deniers.

LORTEST, J., of Moscow (204, Russia, p. 1373), for ribbons for orders of knighthood, &c., plush, vestings in gros-grains, and neckerchiefs. Mantel, Georgiot, and Valensor, of Lyons (921,

France, p. 1224), for an assortment of figured and brocho silk cravats. MESPREDS, ARMENTARIO, of Rome, for organsine. Mésran, A., Lyons (1253, France, p. 1241), for organ-ne 24/26 and 26/28, and grenadine for lace.

MEYER and ENGELMANN, of Crefeld (582, Prussia, p. 1083), for parasol silks, eravats, shawls, and vertings.

MEYER BROTHERS, of Zurich (227, Switzerland, 1281), for handkerchieß, marceline, and flounce p. 1281), 10r meses... brochés, marceline jaspé, &c. Max MEYER, and Co., of Berlin (133, Prussia, p. 1055 for plush for vestings and caps. (Awarded in Class XV.)

NEVIANDT and PELEIDERES, of Mottmann (523, Prussia, p. 1080), for cravuts and handkerchiefs in low qualities, PSENNINGBERGER, JOSEPS, Vicana (248, Austria, p. 1019), for ribbons suited for the use of the country triets of Austria, being low in quality, and cheap at the prices quoted,

PREISWERCE, D. & Co., of Bile (152, Switzerland, p. 1275;, for ribbons. REGARD BROTHERS, of Darbees (1426, France, p. 1244),

for white organitne, 32 '24 desiers for ribbous, (Prize Medal awarded in Class IV, for raw silk.) Rosst, G. M., of Soudrio (88, Austria, p. 1012), for trams and organzines. RYHINER and Sons, of Bile (161, Switzerland, p. 1277),

for chappes and span silks. Sauvage, R. and Co., of Lyons (1472, France, p. 1246), for poire silks, armures, and taffetas,

Schippen, Cant., of Vienna (269, Austria, p. 1020), for black plush for hats.

Sixon, H., of Zweybrucken (37, Bavaria, p. 1100), for silk plush for hats.

SITOFF BROTHERS, of Moscow (202, Russia, p. 1373), for an assortment of silver-gilt fringer, brandings, and wire thread, and samples of brocade.

Soren, Henry, of Spitalfields (29, p. 505), for an

assortment of parasol silks.

STRINKR, G., and Sons, of Bergamo (57, Austria, 10121, for trams 20/30, and organize 22/24, and

28/30 deniers. STIEFF and HARRAS, of Potsdam (161, Prussia, p. 1657), for vestings and fancy cravats. (Prize Medal awarded in

de-Naples, glace, and checked moire, and satin.

STILWELL and Sox, of Spitalfields, London (7, p. 504), for damask for furniture.

THEVENET, RAFFIN, and ROUX, of Lyons (1500, France, p. 12481, for a collection of rich rep silks and chine shawls, and crope-de-Chine shawls. THIBERT and AHAM, of Mets, Moselle (1037, France,

122%, for an assortment of black silk plush for hats, р. 122%), for an assortment of black silk prime on man. Тиомая Ввотикая, of Avignon (1040, France, р. 1228). for florences of various shades,

TROCCON, A., of I.yous (1511, France, p. 1248), for a few silk slawls, and an assortment of silks for eravats. VALANSOT, M., Lyons (921, France, p. 1224), for terry velvets and plushes for bounets.

VANNER and Son, J., of Spitalfields, London (28, p. 505), for an assortment of parasol silks.
Von DER MUELL BROTHERS, of Basle (162, Switzerland, p. 1277), for glace gros-de-Naples in four qualities. WASHINGTON and DAVIS, of London (8, p. 504) for plain and figured plushes for vestings, in great variety

Wilson and Co., of London (10, p. 504), for silk plush for bats. for nats.

Winz and Co., of Zurieh (153, Switzerland, p. 1276), for satiret and black gros-de-Naples.

Zalognis, of Moscow (209, Russia, p. 1373), for gros-

THOMAS WINKWORTH, REPORTER.

London, August 1851,

Class XV.)

CLASS XIV.

REPORT ON MANUFACTURES FROM FLAX AND HEMP.

I'The figures after the Nanes (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOG; E.]

Jury.

Count FRANK ERNST VAN HARRACH, Chairman, Austria; Chamberlaia of Ilis Imperial Majesty, Presi-Count Frank Ensir Van Habhardt, Challman, Austril Chimeserian in the deep of the Chimeserian Society of Arts and Manufactures, Pragac.
Charles Tax, Deputy Columna, Fluder Oak, Barneley; Manufacturer.
WHAMAN CHARLEN, Joint Repeter, Symmon Hill, Bellatt Bencher,
Germen Lettwar, Joint Reporter, Belgium; Member of Senate, President of Clamber of Commerce,

LIZILATI, France; President of Chamber of Commerce, Paris, and of Ceatral Jury, &c. Jans M. Mastras, Guilford, Banbridge, Ireland; Massafacturer. Jonn Mon., Dumber; Maudicturer.

CARL NOBACK, N. Germany; German Commissioner.
ALLYANDER SCHLERER, Russin; of the Ministry of Finance.
John Wilkinson, J. P., Leeds; Flax Spinner.

BEFORE proceeding to describe the various flaxen products brought under our notice, we wish to uffer a few abservations on the progress and position of this im-portant branch of manufacture. We shall, however, con-fine our remarks to those portions of it which are in some way exemplified by the objects collected in the Exhibition from the mannfacturing countries of the world; as, in a Report like the present, a great accumulation of statis-tical details would be out of place, even were we prepared to offer such.

In consequence of the great autiquity of the Egyptian nation, we shall first call attention to the specimens of linea cloth sout from that country. These are in many respects much surpassed by the European manufacture, It may, however, be interesting to remark, that the first mention of linen in the ancient chronicles of the Jews certainly alludes to the productions of Egypt or some adjoining country. The Jewish priesthood were directed to use "linen garments and clothes of service;" and linen has been so generally looked upon as emblenastic of purity, that it is still considered becoming in the costume of ministers, and in the services of the Christian churches.

From the Asiatic continent we have some specimens of cloth made from "Color grass," This article is no donly, in its essential qualities and uses, a species of flax, and therefore properly comes under our notice. It has been produced for many years by the industrious and ingenious people of China. We have remarked that in the course people of Chinn. We have remarked that in the coarse kinds of cloth made from it, the fibre appears to be split into lengths, and attached to each other at the smaller ends. In this simple state the pieces are pat together with great dexterity. This is an interesting example of the position of this manufacture amongst one of the most ascient untions of the world.

Beside the coarser kinds of cloth, there are exhibited ome beautiful handkerehiefs and other fine lineus made from this material. At the present day "China grass is occasionally used in making coloured fabrics, combined with other substances, such as silk and cotton; and from with other substances, such as SIK and cotton; and riven the poculiar brilliance; in the fiber it shows to much ad-vantage in this way. It has not as yet entered into ex-tensive use for plain goods; but some very meriturious attempts to ascertain its stilly for that purpose have been made, and are still in progress, - (See pp. 370, 371.) Among the continental nations of Europe, the northern have long been celebrated for the production of flax and its manufactures; Flanders being especially distinguished for the beauty of its fine goods, and Russia and Germany for the strength and durability of their beavy and other

and Ireland were not much noted for the manufacture of lineus. The wonderful change, however, wrought by the invention of the "spinning jouny," and its application to cotton machinery, speedily led to the development of the same principle in making mill-spun yarn from flax and

same processes.

The immense and cheap supply of coal possessed by Great Britain, and the consequent facility in producing steam-power, combined with the privilege of first apply-to-administry in machinery to any great extent, has given ing spinning by muchinery to any great extent, has given her considerable advantage in the production of many descriptions of mill-span yarns and manufactured goods. Lately this system is becoming more general on the Coninent, although there has been for a long time a strong prejudice in favour of hand-spun yara, especially in Flauders. This latter country (comprising portions of Belgium and France) has long been celebrated for the production of the finest kind of flax, and the superior production of the inice and the last seem that the texture of its hand-span yarms. These latter require most careful and skilled manipulation, more particularly in the exceedingly fine description used in making the benutiful lawns and handkerciness of Cambray and Valenciennes. Ireland is producing, very extensively, both lawns and bandkerchiefs, more distinguished, without doubt, in the lower and middle-priced qualities for general consumption than in the extremely fine goods. The same country has now for many years enjoyed a high and merited reputation for its lineu manufactures, and supplies large quantities of the usual kinds to the differcut markets of the world. Scotland is pre-eminent in low-priced goods, of the qualities extensively used at hume and abroad. The principle of weaving by powerloom appears to be coming into very general use in that country, and also on the Continent, as will be found by

cetting our Report further on. The Jacquard loom is now much used in making damasks, and has tended to improve, in many re-

the manufacture of that article, both in the British dominimus and on the Continent, England produces a large quantity of mill-span yarn

from tax. Although her attention is more directed to the manufacture of cotton, she has contributed heavy finens, which, for texture and darability, are deservedly For the better elucidation of our decisions, we Invo-

divided our remarks on this Class into two principal departments, viz., 1st. The perpured fibre and spon or Inited fibries, such as yarn, threads, and cordage; and, 2ndly, The waves fabries of all kinds.

We have also divided these into minor sections, keep-It is a remarkable fact, that so long at hand-spinning ling, as near as possible, to the printed form of classifica-tion is such by the Royal Commissioners for the guidance of the Jurica. As a general rule, we have endeavoured to abstain from mentioning any person more than once in the Report; but there are a few cases where such persons deserve special mention in more than one of the subdivisions or minor sections. Some of their productions might be overlooked if all were mentioned together, and therefore we have occasionally noticed such cases twice We shall now proceed to detail the results of our ex-

I. FLAXEN FIRME.

In the specimens of prepared flaxen fibre the Jury did not observe anything worthy of very particular comm or any feature exhibiting a decided improvement in the management of hax for manufacturing purposes. Honouruble Mention, however, is made of two Exhibitors:— DESCRIPT and Co., Zele, East Flanders, Belgium (104, Belgium, p. 1154); and Lowis Draostica, of Bousbecque, There are other samples of Fictush flax which are

meritorious on account of their extreme fineness The Jury regret that the specimens of good that from Ireland are so few in number. Those exhibited by Mesers, Branash and Co. of Belfast, and rated on Schenck's patent hot-water steeping process in sixty hours, are the best samples; and those by Gailley, of Coleraine rated on the old cold-outer principle, are good specimens of the material prepared in that way. Both are worthy of commendation, and the Jury make Honourable Meration of them. [See "Royal Belfast Flax Improvement Society:"

The particular attention of the Jury was directed to the specimens of English flax, as illustrating the successful growth of that useful and valuable plant by some of the

agriculturists of this country

The samples exhibited by Messes. Haves and ATRANSON, of Leeds (45, Class IV. p. 1988), and grown by Mr. Wannes, of Trimingham, Norfolk, possess a large propertion of the uccessary qualities of perfect flux, and are equal, in point of quality and strength, to any the Jury met with of similar flueness. The dressed line, with the yarns from it, are excellent, and run up to a tolerable

degree of fineness.

The specimens exhibited by Messes. Caros. Neasox, and Co., of Selby (46, Class IV., p. 1984), are also very good, the finzen fibre being evidently well rated, scutched and put out of hand. The quality is sound, tough, and good. Great credit is due to both these firms for the pains they have taken to bring forward such meritorious opecimens of English-grown flax, The Jury have also to notice that an execulent assort-

ment of prepared flax, of various qualities, has been sent from Russia; but in comparing these with other specumens, the Jury did not observe anything worthy of special

Before quitting the department of fluxen fibre, the Jury desire to report that as it was questionable whether preparation of flax by the method of M. CLADSEN (Cl. 1V., p. 202*-3*) should properly come under their cognizance, they have not pronounced any judgment on the merits of this novelty. After being discugneed from the merits of this novelty. After being disengaged from the flax straw, it may be said to become by M. Claussen's process "cotton," in all its essential qualities, and is intended to be manufactured by cotton machinery, and to compete with that material. The Jury, therefore, do not feel competent to venture an opinion as to its practical utility and value.

China Grass.

Among the specimens shown of the different stages of reparation, dressing, and manufacture of " China grass, the Jury consider the series exhibited by Messes. Manare early consuler and series cannoted by Michael Mar-Brall and Co., of Leeds (Class IV., p. 192*), the most suitable for manufacturing purposes. This house is deserving of great commendation, for the trouble and expense it has incurred in testing the utility of this material.

Leeds, and spun from the flax grown by Mr. WARNES (of report), as already noticed, are superior in quality and spin-ning, without reference to price. They consist of from 40 to 200 leas line, and are, in all respects, good in quality, fully confirming the opinion already expressed of this

irchind produces a great quantity of flax yarns, but is not adequately represented in this department. There are u few specimens from Scotland, of fair quality.

in the exhibition of hand-spun yorns there is a great amount of excellence displayed in the various specimens, more particularly in those from Belgium. The samples shawn by Mesors, Berrnettor and Boxri, of Cambrai (p. 1158), are surprisingly line, perfect, and beautiful, being up to 1200's warp and 1600's weft yarn, and are certainly equal, if not superior, to anything of the kind hitherto produced. The specimens from Ireland are also very eredstable; that spin by Jane Magill, 8t years of age, being the finest (760 leas), and that by ANN HARVEY (about 600 leas), being the most perfect in quality and spinning (No. 106, p. 203* (lass IV.) The Jury recom-mend the award of money premiums to these individuals, in quality and as, from their lowly condition, this will be the best and mest useful recognition of their skill. The yarns from the HEEPEN SPINNING-SCHOOL, Biele-

The Jamis Hom the IRAPEX SPIRASHO-KHOOL, DIVER-ded Jobs, Zeildevein, p. 1083), me also very excellent, enableding the youth of the spinners. One sample pro-duced by a little gird of 10 years old, in very flaw, and exceedingly will span out of a weak unstrial. Another sounds, by a claid 8 years of age, is very good, but her quite so perfect. The dury ensistent the farmer of a proper subject for precunity resund, and have recommended that, and the two previously-noted cases, for thin distinction.

In the samples of linen threads, there is such varied and general ment, that the Jury found it exceedingly difficult to draw any marked distinction as regards superiority. Those exhibited by Messes Manshatt and Co., of Lanna, (No. 26, p. 511) are found to be the most perfect as regards evenuess of spinning, particularly in

the fine numbers; and the Jury desire to state that the Prize Medal already awarded to this house for examples of China grass, is intended also to mark the high merit of the threads exhibited, which would certainly have recrived a Prize Medal, if the award had not been already number on another ground.

In shoe threads, those exhibited by Mesers, W. R.

In since threads, those exhibited by National Holoton-wearin and Co. Locale (53, p. 512), are the best; and the samples shown by Misson, Fisharoon, Botssind Helding, Co., Glasgow (48, p. 512), and Messer, Trans, Tathan, and Walkers, Lecch (51, p. 512), are of good quality. The two former firms having been maraded good quality. The two former firms having been awarded Medals on other granuds, it is sufficient to record this opinion of the shoe threads. Cordage, 4c.

The Jury found the collection of ropes for morine and are stry rouns use collection of ropes for morne and other purposes, with cord, twine, &c., very limited in extent; and from the few goods exhibited it is impossible to have a precise idea of the progress made of late years in these manufactures. They found but one exhibitor worthy of the bonour of a Mcdal.

II. WOVEN FARRICS,

In the second department of flaxen products, namely "woren fabrics" of all kinds, the following constrict lave contributed: - England, Scotland, and Ireland, France, Belgium, Brasia, North Germany, Spain, Por-tugal, China, and Egypt. From the British dominions there is about one-half the

umber of the entire exhibitors and goods. (a) Cauras, Sailcloth, Sacting, Carpeting, 4c.

Some goods have been exhibited by several manufac-turers in conjunction, from the town of Bridport, and the Torus,

In mill-span yarst torus nppcars to be little competition.

The yarus exhibited by Mestre. Haves and Arrassoss, of being of options, in such case, that Medias could not be awarded, think that Particular and Honourable Mention is due to them. In this subdivision the Jury have found great excel-

In this subdivision the Jury have found great excellence, the exhibition of the various countries being highly creditable to the manufacturers engaged in this branch of industry.

(b) Woren Febrics, heavy and homoprical Linear; Rechabacks, Crash, Duck, Taba; Low Sheetings, Errorn and Finey-striped ditto, Doubles, Holland, Low Bruce Linear, Omalonys, &c.

The goods of this mobilition are of very extensive consumpton, and their chief characteristic, especially in the Scotch and Irith, is lowness of price; those exhibited by the manufacturers of Barnsley are of very imperior quality for family nee, and consist of an extreme assorment of these and the late previous properties of the mobility of the contract of the contract of the town and district. The Jury were much pleased with the general excellence of these goods.

(c) Plain Linen of all widths, bleuched or unbleuched.

In this subdivision the exhibition is very extensive and varied, and the goods generally display much care and skill of manufacture, particularly the finer descriptions. Const Harracts, of Janowitz, Moravia (285, Austria, p. 1020), has exhibited band-spon Nesched lines and

p. 1020), has exhibited band-spin bleached linen and bleached yarn of very fair quality. Also fancy damasks for lining extrigues and for covering furniture, made in limitation of silk. These latter the Jusy consider worthy of special notice;

These latter the Jusy consider woway as special member to and Harmeh, being a member of the Jusy (and also Chairmans), cannot compete for any Medial. The kill and merit, however, in producing these goods, deserve bigh commendation.

The Royal Beleast FLAX INTROVENENT SOCIETY

(p. 203*), have exhibited a very interesting series of patterns of the flaxen manufactures, characteristic of that country; comprising sacking, huckabacks, drills, diapers, ticks, linens, lawns, hollands, &c.

Wintrus, a merchant of Cunton, China (1419), has shown, in the department allested to this aution, a suriety of cloths and handkerchiefs made from China grass. Homorable Mention is due to him, as the only exhibitor of this peculiar article from that country.

Some sample have also been contributed by Massmath. Some sample have also been contributed by Massmath, the contributed by Massmath, and the surface of the contributed by Massmath, and the contributed by Massmath, the contributed by Massmath, and the contributed by Ma

developing the manufacture of this material.

Willoan, John, & Sons, of Northalberton (42, p. 512), have sent, with their other goods, a piece of sheeting made from China grass, and bleached in Ireland. This is also worthy of notice.

(d) Drills, Damasks, and Twilled Liness of all linds.
In this subdivision the Jury have had much difficulty in discriminating, the competition being so close and the excellence of the goods so general.

The town of Barnsley, as before mentioned, exhibits very deserving specimens of its manufacture in this and division. And the names of those manufacturers who lative contributed to this Exposition will be found only classified amongst those of whom Honourable Mention has been made.

CHARLES TER and Sox, of that town (37, p. 512), have exhibited a raried and beautiful assortment of plain and funcy cloths for welstecasts and dresses of excellent quality, and made with great taste in the patterns. The Jury would have awarded a Medal to these goods, but Mr. Tex, senior, being a member of this Jury, cannot enter into competition for such a distinction. Honourable and Special Metalon is therefore due.

(e) Cambrics, Lucas, and Printed Linear, for Decases, &c. This subdivision is the last of Class XIV.

Conclusion.—In conclusion, the Jury wish to remark, that the management of flax and its products involves a great amount of skill and labour, from the sowing of the weed iff the completion of the numericated activities, and the New ten expects that relatification is the excellence of the New ten expects and the state of the confidence of the new ten expects, as to render thirt task of the new ten expects, as the new ten expects of the thirty as much the many case, we exceeding difficult, they have equificate to recent appears need wherever and they have equificate to recent appears need wherever and they have equificate the new girns Models. Or Honourable Medicine, in each of the pattern The Jury have needed. Medicine, in cash of the pattern The Jury have needed. Medicine, in cash of the pattern The Jury have needed actives. The remarks in this Report, as before mentioned, as needed, as the pattern through the three notice, in

The Jary have decided on not recommend. Council Mechals in this Chas, an they considered that such a distinction was intended to mark either discovery or investion, or such a new application of known materials as might tend to important results in the department of industry to which it was applied, and not to perfection of manufacture or taste. It is antifactory to the Jury to be able to state, that

It is satisfiated by to the Jury to be able to state, that there has been no disagree-cureat amongest the members in making their decisions. This fact not only confirms then in the function of their awards, but will tend to strengthen the public relinace in their impartiality. The office of Judge or Jurur is at all times one of great

responsibility, and on the present evension more particularly so, as the whole world is marting their decisions. The members of the Jury are sensible of the confidence placed in them, in being selected for such an heasurable task, and they have endeavoured intitlifully to discharge the important and oneroos duties cutrusted to them.

The Jury award Prize Medals to the following exhibitors in the various subdivisions:—

INFFERIAL ALKLANDSOVER MARVIACTORY, Russis, (19a, Russis, p. 1366, for casuus of superior quality, Andrews, Michael, Ardoyne, Belfast, Ireland (3, Andrews, Michael, Ardoyne, Carlot, C

p. 510), for excellence in double damask table-clotbs and napkins.

BERTHELOT and BONTÉ, of Cambrai, Belgium (216,

Belgrium, p. 1158), for superior excellence and fineness in hand-spin flax yards. BETERS WIDOW & Co., Zittau (51, Saxony, p. 1107), for superiority of design in damask cloths and napkins. BERSELL, DAVID, DUMFORMISIC (27, p. 511), for damask

table-cloths and napkins of superior quality, fineness, and design.

Boxesure and Noate, Bielefeld (562, Pressia, p. 1082), for fine linear.

Boxtrack and Sox, of Cambrny (32, France, p. 1172),

for cambries of exceedingly fine and beautiful finish.

CLINDORS, HILL, & Co., Beshridge, Ireland (20, p. 511),
for dispers. An excellent assortment, bleached.

COORSMAN, A. J., Rebecq, Belgium (212, Belgium,
p. 1150), for the finest and most perfect lace thread made

from hand-spun ynrus.
Coruson, Janes, & Co., Lisburn, Ireland (92, p. 516),
for an extensive and admirable exhibition of fine, wellmade damask table-cloths and mpkins.

COX BROTHERS, Dundee (63, p. 513), for low-priced striped hedding and hessians. Crnoxr-Decleracy. Alost, Belgium (235, Belgium, p. 1158), for superiority in the colour of his lines

threads.

DAUTRENES and Co., of Lille (Nord) France (187, France, p. 1178), for excellent quality and evenly-span flax-yarus, from 100 to 320 less.

Discock-Wattmator and Battootts, Roulers, Belgium, (221, Belgium, p. 1158), for fue liness. A good variety, Exemour, Astrox, Heirs of, Warendorf (549, Prassia, p. 1681), for neatures of design in his exhibition of damasks, and ecoders-s of colour in his liness.

masks, and goodness of colour in his lineas.

France, Boyal Manufactory of babells II. at, Spain (193, Spain, p. 1341), for canvas of superior quality.

FISLAYSOS, BOUGHELL, & Co., Glasgow (48, p. 512), for the strong threads exhibited in the coarse and

2 B 2

- middle sizes, and for the great taste and neatness with which they are got up FRASSIS, DOUGLAS, Arbroath (79, p. 515), for canvas of
- superior quality, made by steam-power locass, Grassor and Co., Lyons (52b, France, p. 1204), for superior style of damasks, and excellence in carrying out the patter Haso, E. F., 18 Rue des Petit Augustins, Paris (806,

France, p. 1221), for the extraordinary dimensions and excellence of canvas for historical painting. Henring, John, Waringstown, Ireland (16, p. 510),

for damask table-cloths of superior patterns and quality, bleached, brown, and mixed colours HIVES and ATKINSON, of Levels (45, Class IV., p. 1951),

for good quality in mill and span yarns.
Holdsworth, W. B., and Co., Leeds (53, p. 512), for the superior style and colour of their satiu-fluish lines threads, being the best examples of threads prepared by that method.

KIRK, WILLIAM, & Son, Armagh, Ireland (10, p. 510), for brown lineus, of low description and prices; Hollands, brown, black, and state-coloured, &c.

KRARITA, C. G., and Soss, Freyburg, Silesia (128, Prussia, p. 1055), for a good assortment of blenched platillas of export quality.

Kuss, E., Antwerp (468, Belgium, p. 1166), for variety

of low heavy goods, comprising canvas, imitation Russia sheeting, &c. Laino, J. and A., Dundee (63, p. 513), for ducks, imitation Russian sheetings, striped ditto, &c., of excel-

lent quality, LAWSON, ALEXANDER, Fifeshire (63, p. 513), for a large and low-priced variety of dowlas, hneks, sheeting, window-blinds, &c.

M'CAY, THOMAS, Dromore, Ireland (19, p. 511), for an exceedingly fine piece of fronting linen, made of millspun warp and hand-spun weft, exhibited brown,

MALO-DICKSON and Co., Dunkirk, France (329, France, p. 1192), for canvas of superior quality. M. MURRAY, TROMAS, and Co., Dromare (25, p. 511), for a superior assortment of fine linens, bleached,

Marshall and Co., of Leeds (55, Class IV., p. 190* for their examples of the preparation of "Chius grass for the purposes of manufacture.

Meanie-Lerevae & Co., Havre (926, France, p. 1224),

for a varied assortment of cordage of remarkably good Mestivien and Hanoto, Valenciennes, France (636 France, p. 1208), for the great excellence and superiority,

exceedingly-fine and very beautiful finish, of their assortments of cambries, plain and bordered.

Milvain & Haarond, Newestle-on-Tyne (71, p. 514), for eanyas of superior quality, mode with bands, which

add to the strength. Mönnan-Vanlagre, J., Ghent (231, Belgium, p. 1158), for variety of canvas of tow, flax, and hemp, and very

broad coverings for milway waggous.
PARMETER, P., Isighem, Belgium (222, Pelgium, p. 1158), for fine linens of superior quality, exhibited brown, and made from mill-spun yarn of Liege. Also a

small assortment of handkerchiefs, very well manufactured.
PELDRIANS HEIRS, Hoheueile, Bohemia (288, Austria, p. 1021), for fine lines, of hand-span yarn RICHARDSON, I. N., SONS, & OWDEN, Belfinst (7. p. 510),

for a superior assortment of light shirting liness for export, SADLER, FENTON, and Co., Belfast, Ireland (18, o. 510-11), for a superior assortment of heavy shirting

nens, for home trade, bleached, SCRIVE BROTHERS, Lille, Nord, France (1007, France, 1227), for damasks, including their yarus and poweroom goods. SMICTON, J. and Sox, Dundee (63, p. 513), for dowlar, crequillas, ereas, &c., of light and low-priced quality for

export.
WARNIG, Cus. Dav., and Sons, Gress-Schonau, Zittan and Leipsie (53, Saxouy, p. 1107), for damask table-

cloths and nipkins, of superior neatness in design and good WARNER, JOHY, of Trimingham, Norfolk, for the drabbets, &c.,

growth and preparation of the hax cameron of Hives and Atkinson, of Leeds (45, Class IV, p. 198*).

(543, Prassia, p. 1081), for lineus, well bleached. Williams, Jones, and Sons, Northalterton, Yorkshire (42, p. 512), for plain and fancy drills of very superior

The Jury make Honourable Mention of the following Exhibitors :

ANDE-BEATE Chest (209 Belgium, p. 1158), for waggou-coverings and other beavy goods made by power-Been and Soxs, and other exhibitors, Switzerland (163,

Switzerland, p. 1277), for damasks and drills of fair quality BECK and Son, Courtrai, Belgium (324, Belgium, p. 1161), for a very fine piece of linea of hand-span yara, bleached. (Prize Medal awarded in Class XIX.)

sleached. (Prize Medal awarded in Class XIX.)

Braz., T., and Co., Lurgan, Ireland (6, p. 510), for a
rood assortment of cambric hundkerebiefs. Bennand and Co., Belfast, Ireland, for good hot-water steeped flux. (245°.)

BEVERIDGE, ERSKINE, of Dunfermline (29, p. 511), for damasks. (He also exhibits a good variety of stair and floor covering, &c.)

BOLENES and NOLTE, Bielefeld, Germany (562, Prussia, 1082), for evenly-pun flax yarns, 480's being the Baudohin, Alexander, Kaluga (216, Rossia, p. 1373),

for good canvas. Bt anacst Bnormens, and Co., Horfelgii, (799, Prussia, p. 1094), for water-pipes of hemp, with Canten, J., Barnsley (3:, p. 511), for ducks, drab-

bets, &c. CARTER BROTHERS, Burnsley (35, p. 511), for ducks, drobbets, &c. Castragena, Royal Arseual, Spain (191, Spain), for

excellence of cordage. CATOR, NELBOX, and Co., of Schy (45, Class IV. p. 198*), for the excellence of their flaxen fibre. (Honourable mention awarded in Class IV.)

Court, Blass, and Co., Belfast (24, p. 511), for good damasks, made with power-looms; and a beautiful and novel design, on paper, for a table-cloth, not yet executed Courses, Whillam, Lisburn, Ireland (93, p. 516), for

very fine damask cloth.

Datuné, A., St. Quentin (1170, France, p. 1233), for ood dannsks, Denocuars, Hesse, Contrai (239, Belgium, p. 1158), for good drills and other articles DESCRIPT and Co., Zele, Fast Flanders, Belgium (104, Belgium, p. 1154; for specimens of Flenish tlax, being

the most perfect from Belgium. (Prize Medal nwarded in Class IV.) Donntarar-Hulis, Ghent (208, Belginin, p. 1158), for brown hand-span sheetings, imitation Russian ditto,

good quality, Donnen, T., Alost, Belgium (233, Belgium, p. 1158), for some good eambrie handkerchiefs, white and printed, and a variety of other linen articles

Dox, W. & J., and Co., Forfar and Dundee (63, p. 513), for brown sheetings and Osnaburghs of good quality. Don PROTREES and Co., Forfar and Dondee (63, p. 513), for brown sheetings and Osnaburghs of good quality.

Documentum, Locas, of Bousbeegue, near Lille, Nord.

France (177, France, p. 1182), for the best and most perfeet specimens of scutched flux, rated and prepared on the Courtrai system. (Prize Bedel awarded in Class W.) Eason, Alexandra, Duidee (63, p. 513), for rail-cloth and socking of tow, homp and jute.

EDINDUBGH HOPE AND SAIL-CLOTH COMPANY, Editburgh (p. 513), for good canvas, ELEXENDOR, E. F., (470, Prussia, p. 1078), for sych-

ess of good middle-sized yarns. Frank, Wenzer, Bohemia (284, Austria, p. 1020), for laws of fine quality and colour.

Figure 182, H. T. Barasky (36, p. 511), for ducks,

GAILEY, D., Coleraine (106, Class IV., p. 203°), for flax steeped upon the cold-water system. GHENT LINEN COMPANY of Belgium (250, Belgium, p. 1158), for the heavier examples of tow yarn

GODARD and HONTENDS, Valenciennes and Paris (240, France, p. 1188), for a good variety of white and printed fine cambries. Goess, L. J., Termonde (237, Belgium, p. 1158), for

general excellence of cordage GUYNET and RECOVET, of Combeny and Paris (254, France, p. 1189), for fine cambrie

HATTFRSLEY, PARKISSON, & Co., Barnsley (36, p. 511), for ducks, drabbets, &c. HANNORTH and CARNEY, Barneley (36, p. 511), for

decks, drabbets, &c.

HEXXIVO, JOHN, Waring town, Irrland (16, p. 510);
Honourable Mention is here anale, as this exhibitor is awarded a Medal for damasks, which also includes the

variety of cambrics and printed goods he has exhibited in this subdivision Holloway, T. J., Salisbury (74, p. 515), for the general excellence of the cordage exhibited by him.

HUNT, W. and Sox, of Dunfermline (28, p. 511), for

good quality and designs in damasks.

Journal Honnaire, and Co. Augers (532, France, p. 1295), for good canvas, principally made of hemp. (Prize Medal awarded in Class IV.) JACKSON and MATTHEWHAN, Parmiley (36, p. 511), for

ducks, drabbets, &c. KAZALETT, A., St. Petersburgh (102, Rassia, p. 1369), for general excellence of cordage

KIRSTEIN, C., Hielefeld (120, Prussia, p. 1055), for a good assortment of lineus. KROKNIG, F. W. and Sons, of Bielefeld (556, Prussia,

p. 1081), for a good assortment of linea-LAINE-LANCEIR, and Max-Richand, Augres, Maine et Loire, France (286, France, p. 1120), for dry spun-varas made of bentp, of good material and quality. (Prize

Medal awarded in Class IV.) LANDERNEAU JOINT STOCK LINEN COMPANY, France

(1019, France, p. 1227), for good canvas made from LEADBETTER, J., and Co., Dundee (63, p. 513), for a comprising blenched and brown, heavy and frosting lineus,

low-priced variety of checked and striped linens.

Lizmann, Danke, Avesne, Nord, France (1313, France, p. 1239), for good and fine cambric handkerchiefs

LIESKE and HABLER, Gross-shaudle (52, Suxcey, 1107), for good damasks. MALCOLN, J., Lurgan, Ireland (22, p. 511), for bleached

lawis and handkerchiefs,—a good variety.

Mingden, Michael vox, Russia (222, Russia, p. 1373), for good damasks. MOORE, W. F., Isle of Man (67, p. 513-14), for good

Picor and Newron, Barnsley (36, p. 511), for ducks, drabbets, &c. KENNY, Sons, and Co., Arbreath (81, p. 513), for good

RICHARDSON, J. and T., and Co., Springfield, Lurgon, Ireland (21, p. 511), for cambric handkerchiefs.

RICHARDSON and Co., Lisburne (23, p. 511), for excel-lency of bleach, shown in fine lineas.

ROYAL BRIEAST FLAX IMPROVEMENT SOCIETY (Class IV., 106, p. 205*), for a very interesting series of patterns of the flaxen manufactures, characteristic of that country; comprising sacking, buckglocks, drills, diapers, ticks, lineus, lawss, hollands, &c. (Council Medal awarded in Class IV.)

SCHULZE, DANIEL, Bodenteich, Luncburgh, Hanover (6, Hanover, p. 1133), for specimens of good atiddle-sized

SEYNAYN, C. and IL, Stotgard (36, Wurtendung, p. 11171, for fine white and printed lines Sasca, J., and Co., Moravia (290, Austria, p 1021), for

n good specimen of creas, bleached. ST. BLESARD, the House of Correction, at Antwerp

(28, Belgium, p. 1158), for dowlas, instation Russia sheeting, ducks, &c.; a good variety. TITLET, TATHAN, and WALKER, of Leeds (51, p. 512), for excellence in colour of the linen threads Van Ackene, J. C., Courtrai (215, Belgium, p. 1158),

for a very fine piece of linea of land-spua yara, double thread, in warp VAN DEN HOOGEN, T. Dortrecht, Holland (26, Nether-

lands, p. 1143; for general excellence of con VAN DER VOORT, H., Bextel, Helland (45, Netherlands, p. 1144), for good danusks.

Waltron and Co., Kunresberough (38, p. 512), for sheetings and huckabocks of good quality. WARDEN, A. J., Dundee (63, p. 513), for carpeting

made of jub WESSEL, F. W., Bellefeld (142, Prussia, p. 1081), for a good assortment of linens. WHOTUNE, of Canton, China (p. 1419), for a variety of cloths and handkerchiefs made from China grass.

WILSOND, WILLIAM, Tamise, Ikigium (211, Belgium,

have sext, with their other goods, a piece of sheeting mode from China grass, and bleached in Ireland. This is also worthy of notice. WHER, JONAS, Watling-street, London (31, p. 511).

huckalucks, and Russia sheetings, all of very excellent quality and style. This gentleman exhibits as a merchant; but the Jury, in accordance with the rules laid down by the Royal Commissioners, cannot award a Medal in such a case, he not being the manufacturer. The Jary award the sum of 101, each to the following

subjects :

Harvey, Ann. Belfast, Ireland, for perfection and quality of hand-span flox yarn. Exhibited by the Royal Flax Society of Ireland (106, Class IV., p. 203*). Herren Synnings-Science, Bielefeld, Germany (346, Prassin, p. 1081), to a lattle girl 10 years of age, for fine

and well-spun flax yara.

Macilla, Jaxr., Belfast, Ireland, for fine hand-spun flax Exhibited by the Royal Flax Society of Ireland (106, Class IV., p. 2(3*).

> WILLIAM CHARLEY, JOINT REPORTERS. GRENIER LEFEVEE,

Louden, June 1851.

CLASS XV.

REPORT ON MIXED FABRICS, INCLUDING SHAWLS, BUT EXCLUSIVE OF WORSTED GOODS,

The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the CHECKLE DESCRIPTIVE AND RECOTRATED CATALOGUE.

 J_{trTH}

CHARLES VAN HORGARADEN, Chairman, Belgium: Metriant, Member of Clamber

of Commerce, Brussels,

Of Conserver, Jacobs. Jones B. Lavass in; Joseph Chairman, 6 New Burlington Street; Silk Mercer. W. Caamman, Norwich; Manufacturer. Maxime Gaisots, France; Member of the Central Jury. David King, Glaspow; Slawd Merchant.

Davity Kiver, Chispow; Shawl Merchant, N. Kivasini Yi, Initel States; Manufacturer, Jona Mionava, Grindow, Phisby; Manufacturer, William Francer, Reporter, Di Climecuter Cardena, Taris Saar, J. P., Bradford; Manufacturer, Franchise Seava va, Hubbles-field; Merchant, Juny II, Swire, Enited States; Merchant, SB Ganova Wikasswo, Tarkey.

Associates, F. Bravoviller, France; Spinner and Manufacturer. (Jurer in Class XX.) Gronge Haus, 31 Milk Street, City; Stawl Manufacturer.

A.—Mixen Woven Farrics, of various Materials, 20,000 lules per annum. Of mobair, in 1841, 3,621 short with enther Cotton, Linex, Wood, Silk, bles; in 1850, 12,884 holes. MORAIR, OR OTHER SUBSTANCES.

Ting description given in the "Classification for the use of Juries" of the articles to come under the examination of this Class is so very miscellaneous, manuely, "for dresses, damasks, aprous, shoe and boot cloths, livings, ureses, unusass, aprous, ance and noot cloths, licitizs, cravats, vestings, pouchos, pantalum cloths, coatings, tweeds, quiltings, plaids, tabinets, poplins, paramatas, chalis, barèges, cashineres, articles for funiture, shawls, that some necessity was found for drawing a line more definitely between this and Class XIL, where, under the head of "Woollen and Worsted," many of the above articles would be better placed.

We have consequently confined our notice to the fol-lowing articles:—Vestings, coatings, tweeds, linings, pantaloon stuffs, shoe and loot cloths, cravatings, plaids, tabinets, poplins, paramattas, cashmerets, cassinets, chalis, bardges, cashmeres, shawl cloths, and Utrecht velvets.

General Renvarla.

It is difficult to give a correct idea of the origin of many of these fabrics. Varieties of them have been made in Yorkshire, Gloncestershire, and Nurfolk, from time in Torkshire, thoucestershire, and Aurtois, from time immemorial, and are of equally ascient date in many parts of Europe. The introduction of spin silk with wood may be dated from 1685, when the revocation of the Edict of Nantes brought over to Spitalfields and to Norwich especially nearly 30,000 artisans from Paris and Lyons, who established these manufactures in England. We find that the importations of silk into Ireland in that year were of 80,000%, value. Tabinets or poplins have been produced in Ireland ever since 1771. Novelties are being constantly introduced, both in style and texture. as well as in new combinations of materials, and many most valuable experiments of this character have been adopted, particularly within the last ten years. We may notice two articles in particular, which have become of great importance to this class of manufactures, viz., alpaca and molair. The former is the wool or hair of an animal of the llama tribe from the region of Peru; the latter, that of a goat peculiar to Asia Minor: and some idea of the rapid development of such novelties may be formed the Byon seventy-many returns of imports, vis...—Of alpice. Portugal has exhibited some good copies of French and from the fallowing returns of imports, vis...—Of alpice. Portugal has exhibited some good copies of French and the portugal from the fallowing the fallowing from 186 to 1856. [82] has backed give fair promise of excellence. Issti to 1845, 13,000 backs per annum; from 186 to 2566, [82] has contributed some specimens of its carry usages.

We believe that to England must be accorded the chief credit of searching for and adopting most of the new and credit of searching for and adopting most of the new mod important materials which are every year being intro-duced into these manufactures, tending naturally to in-crease the value of the trade; she also takes the lead in the quantity of production. France, ever ready to adopt and improve, produces very largely the same articles, and is peculiarly successful in the fiper and richer descriptions, where delicacy of design and colour is most favour-ably applied; and had she equal facility with England in sending her productions into foreign markets, the development of her medium classes of these goods would have been more complete. Anstria has made very great progress within the last ten years in these fabries; her materials are excellent, and ably put together; and she presents them at low price, for a large internal consumption. Bohemin, in particular, supplies tissues of a quality that bears the stamp of decided progress. Labour in these countries is extremely cheap, and the artisaus are intelligent, and if the progress now apparent continues with gent, and it me progress now apparent continues with increased energy for the coming ten years, their pro-ductions may vic, particularly in price, with those of all Europe; hot we find no originality among them, whether of design or manufacture. Prustia and the States of the Zollvereis have given valuable proofs of their powers of copying the productions of France and England. They require but the support of capital, and the encouragement of a natural taste for design, to become the producers of the best articles at low prices; for in many cases they have the raw material at hand, and they are not wanting in either energy or ingenuity to give the fullest develop-ment to such advantages. In Belgium we find proofs of a very active commerce in these fabrics, and an increasing desire to take advantage of the demand for exportation of midding and low-priced goods. The ancient excellence of the weavers of that country has not, apparently, prompted the manufacturers to keep the lead in textile fabrics, either in character or quality. Their produce is very extensive, both for the home and foreign demand, very extensive, som for the mone man though a commo, and they appear to prefer leading purchasers to their stores by cheaponess and goodness of manufacture, rather than by the attraction of superior excellence or novelty.

in these fabries; but as they are chiefly the produce of artisas of other countries, they should only be noticed as evidence of her desire to promote the industry of her population in working upon the raw masterials at her command.

The peculiar feature of this manufacture is, that is most descriptions the hand-loom aloue is made use of giving employment to a vast number of persons, we may perhaps say millions; who are thus, by the various occunations connected with it, placed entirely above want.

Particular Remarks,

Exhibitors of various articles are in number as follows:-

From Fogland	-	-	-	-	-	-	30	
Scotland		-	-	-	-	_	-3	
Ireland -	-	-	-	-	_	-	6	
France-		-	-	-	-	_	11	
Zollverel	In Stat	es.	-	_	_	-	38	
Austria	-	-	-	_	_	_	16	
Belgium	-	-	-	-	-	-	13	
Holland	-	-	-	-	_	-	- 1	
Portugs!	-	-	-	-	-	-	2	
Switzerla	and	-	-	-	_	-	2	

Total - - - 122

Among whom we proceed to notice those who are most worthy of remark.

SCHWANN, P., Haddersfield (115, p. 400). All his sasortment of embosiner calculures and other descriptions are of perfect character, particularly the valentine. The designs are rich, and in good taste; and the execution such no cereate regret that the mames of the artisans are not recorded. This contributor being a member of the Jury of this Class, his goods are not under consideration in compse-

tition for the reward of merit.

The Jury award Prise Medals to the following Ex-

hibitors in this department:

ATRINSON, R., and Co., 30 College Green, Duhlin (256, p. 488), for puning of excellent quality, rich in colour

p. 498, for poplins of excellent quality, rich in colour, and perfect in manipulation. There are some double and triple corded, of admirable excention. The figured pieces are of good design and brilliant effect. The specimen given of their weaving, by the presence of one of their weaving, who works at an elegant loom apon a rich and elaborate design, is hubly uteresting and instructive.

claborate design, is highly interesting and instructive. BOLINGBROKE, C. and F., Norwich (311, p. 501), for poplins, Palin, striped, watered, of superior make and excellent colours; the character of their manufacture is highly neritorious.

Biown and Fonstron, 5 Vigo Street, Regent Street, London (9, p. 480), for a variety of superior vestings, of cetton warp and well of wood, worked by Jacquard, in designs of excellent taste; likewise stuffs of other descriptions. Their, wastecontings of plants vegonia will be found remarkable for novelty and excellence, and as heing well adapted for a longe consumption.

CATTAXX BROTHERS, Bruse-le (244, Belgium, p 1159), for pantaloon stuffs of cotton-wool and lines with cotton. They are fabrics of good taste and extensive consumption, and highly deserving of marrist for cheapment. CATTAXX—GAUGUS, Courtray (245, Belgium, p, 1159), for fabrics of the same description, has theirly calculated.

for fabrics of the same description, but chiefly calculated for the lower classes. A Prize Medal is awarded for goodness of texture and cheapness.

ness of PXTUTE and encapness.

CONMAID, D., Vienna (not in the Catalogue), presents
specimens of vestings of spun silk and wod, also in fine
SXXON wod, figured on the Jucquard. There are some
with comera embroidered on a new principle. These
goods are of decided merit

Casco, F., 163 line de Charonne, Paris (809, Franco, p. 1219), for vestings distinguished for the parity and elegance of their design, and for fineness of execution, particularly in the cashnere descriptions, attention being apparently more given to quality than to chemposes of price: his goods are of high merit.

Dar, Jonn, and Son, Mold Green, Haddersfield (113, p. 490), for a pantaloon stuff, warp of cotton with a weft

of carded wool, crossed on one side only, of the character of ensainer. The surface of this stuff is soft to the touch, without having been sheared. This fabric is rentaricable for excellence and equality of tints, difficult to accomplish.

Emisson Brothers, Victora (304, Austria, p. 1022), for vestings of a strong and useful character, made with cotton, wool, and silk, of moderate price, worth about 4e, per yard; some with combination of colours.

Fassis, "jim," librium (France's, for a variety of excellent goods of a similar description, destined for home coassumpton, and got up with good taste, shiefly waincutings of cetton warp shot with wool and silk, also with combeil wool, such as cashimere and victuitas, figured with span silk, of good design and quality. These examples are of great merit, both in execution and lownum

of price.
FENER, B., Gladbach (587, Prassis, p. 1083), for a variety of superior fabrics, well coloured and of excellent materials, in several combinations of cotton, wool, and silk, for summer cloths and dresses, such as the Victoria cloths and cassines, which deserve particular notice.
GRAIR and NEVEARDY (591, Prussis, p. 1083), for extince, made on the Jacquard loom, of cotton warp

vestings, made on the Jacquard loom, of cotton warp shot with weed, and figured in various styles; they are of superior merit. Hass, Philary, and Sons, Vienna (259, Austria, p. 1019), for woollen velvet shot with eviton, of superior

quality, soft in texture, and strong. Medal awarded in Class XII.

HETMANN, CHABLES, and Co., Cerfeld (575, Prinsia, p. 1082), for vestings, chiefly made on harness looms, of the character of poplin, corded with cotton in weft. Some worked with good thread have a first effect, at a moderated

price, averaging not more than 3c, 7d. Their productions are not devided merit.

KACTPRANN, H., Berlin (117, Prassia, p. 1055), for speciments of woodlen velvets, of planshes of goots' latt of various descriptions, printed, and elinis, and all of high

Variotis El-Septement, protects, most castle, and compenies, full descreting the guards.

Lamorte, Jacob, Hedder-Sield (115, p. 40%), for cassinets of a very superior quality, exhibited abong with the goods of Mr. Schwamri although his time does not appear to the control of t

excellence.

Leanorra, W., Huddersfield (115, p. 490), for ensincts
of a superior quality and novel make, presenting different
faces of natin and cloth, where the difference of tint in
dying is not perceptible; and other fabrics of superior
merit. This manufacturer has exhibited his specimens

Lexinxus - Decarruse Buornaus, Roubuix (1000, Pracee, p. 1220, for vestings of excellent quality, and although clainfly prepared for the middle classes, distinguished for good design and make. We noticed particularly a waisteening of cotton warp, with sect of conshed wood, checked with silk. Also some calentins, figured with silk, of admirable design and fabric. Their tasteful and vested edseign goods are prepared for a very

with those of Mr. Schwann.

large consumption.

Laranter, Discamps, and Plissast, Tournay (240,
Belgium, p. 1188), for specimens of pantaloon stuff of
lines warp and weft of satisf. Those at the price of
64d, are extraordinarity cheap.

Lienar-Charpara, Madame, Tourany (242, Belgion, p. 1158), for specimens of pantaloon stuff of linea warp, and west of cotton sating, well manufactured, and at the low price of 7d, and 8d, per yard.

bow price of Jd, and 6d, per year, an amount of the per year, and year, ye

mere, surp of cotion and weft of word (carded merina). This stuff is milted and worked with a faif, and is remarkable for its softman and perfection. The tints of both cotton and word are so perfectly equalized as to be rearcely distinguishable. There is another keney mere warp of cognatine silk and weft of carded wool, equally well blended in colours, of which the fiel and quality are admirable. Their merit is undoubted, Morgensorie and Kregmann, Elberfeld (502, Pressin, p. 1080), for woollen velvet, plain and figured, of a

quality of distinguished merit.

Weaker, vs. usettingui-f. on the character of the character of the character of velvet with goods hair and orders of out on which with sold well. These are of superior character: but their vs. with sold well. These are of superior character: but their vs. with sold well. These are of superior character: but their vs. Their enthroid and silk are truly remarkable. Their enthroidered waist-castings by the "button becker," aren't puri-outs attention for excellence of workmanship. This house-

process arrives of high metts. (1900, Tenze, p. 1107. Eventus, Chance, Beliani (1900, Tenze, p. 1107. Eventus, Chance, Beliani (1900, Tenze, p. 1107. Eventus, Chance, with cotten warp and wift of silt and work the control of which period and the control of the

but this was not confirmed by the Council of Chairmen.
Preapments and Klerkeren (573, Pressia,
p. 1082), for an excellent description of vestings of cotton
warp, with weft of carded and combed wool, worked

with slik checks, of varied and good designs. PM BROTHERS and Co., Dublin (255, p. 49%), for excellent specimens of poplin got up with great carefulness and evenuess of make. There are some on the Jacquate, figured of single colour, worthy of particular notice, and one expecially worea with Sur colours highly descring

of merit for perfection af make and design.

(ROCKTROM, E., Vienna (10.8, Austra, p. 1022), for good apociment of waitestanting of cetten and wood, with good apociment of waitestanting of cetten and wood, with They are sold at the love piece of 1s. 7d., and, in this respect, the merit af the exhibitor entitles him to reward. STRIPT and HAMARAM, Forbandin (16.1, Priessis, p. 1087), for a variety of imperior restings of silk warp and cotton effect, at very moderate priess. They also show was certainly not considered in the contract of the

pictures of Jacquard imitations of engravings. Their productions are of high merit. TAYLOR, J., and Sos, Newsome, Huddersfield (111, p. 490), for vestings of great variety and superior make.

The cashmeres are of good taste and high aeril. There is among them a novelty of good invention, being a variegated cloth of cotton warp, figured and shat with goats' hair, styled Tiger. The faliries of this house are of the bighest merit, and in the opinion of the Jury entitled to the award of a Conneil Medal; but this was

not confirmed by the Conneil of Chairmen. Træ and Sos, Barnely (37, Closs XIV., p. 312), for a variety of finites of excellent quality, distinguished both worthy of merit, being the introduction of a new material called China grass. a substance which has larly been pun by Mears, Markall, of Leeds. The employment of this new thread in vestings and pantaleon obthis gives Torston and Sosson, Bullon, Hadderfield (116, p. 490). Torstow and Soxos, Dalton, Hadderfield (116, p. 490).

To ssox and Soxs, Dalton, Huddersfield (116, p. 490), for an excellent assortment of vestings and other articles af superiar quality, among which we particularly distinguish some Scotch designs, with silk and wood, brilliant and cheep. There is also a lady's cloth, lightly drossed, af particular merit. Their fubries generally are of high merit. Medal awardel in Class XII.

Walmsplett, H., Fallsworth, near Manchester (51, Class XL, p. 483), for poplins at a new and cheap description, with several other fabrics of excellent character, showing great ingenuity. WRIGES, J. J., Ludwigsburg (29, Warth-mburg, p.

WEIGLE, J. J., Ludwigsburg (29, Wirthenburg, p. 1115), for a fabric of restings of cetton, carded wood, plnin, and crossed with tilk, an excellent description of valentia well manufactured. Medal awarded in Class XI.

The Jury make Honourable Mention of the following Exhibitors: -Asen, T., and Sovs, Halifax (107, p. 491), for panta-

loon cloths of cotton and gonts' hair, and light coatings, wery well manufactured, and of very good colours. Racmovers and Vollschwitz, Zerbst (850, Prussia, p.

1095), for silk and cotton plush, highly esterned for the hinings of caskets. (Awarded in Class XIII.) B Annoza, J. (683, Portugal, p. 1315), for excellent fabrics for pantalous, of good manufacture, strong, and

printing read promine of equality with the productions of other countries.

Bassarr and Co., Abing-lon Street, Manchester (185, p. 4°5), for speciment of Utrecht velvet. One design in refief, made in the Jacquard loom, is well worthy of notice; more, however, for the happy idea than for the excellence of its execution. Credit is due to them for

the introduction of the article, BoxTr, L., Bouloix (33, France, p. 1172), for pantaloos stuffs of cotton warp, shot with wool, of well-chosen colours and good materials, at prices suited to the working classes.

ing classes. Braa. and Witsox, London and Bradford (12, p. 480), for waistecasings of wool called backskins, being a kersymere of very fine texture, cultivathered with slik by children of twelve years of age. The work is of remarkable beauty, particularly in its character.

BURGARANT, H. T., Crimmitzschan (109, Saxany, p. 1100), for light cloths, cassincts, the qualities and colours of which are good.

Cocu, A., 58 Faubourg du Temple, Paris (125, France, p. 1177), for vestings of cashmere design, af good quality, and well-assorted colours for general consumption.

Dantaz and Co. (855, Portugal, p. 1315), for most creditable goods of various kinds. We nuticed waist-

coatings in the Scotch style, made of wool, catton, and silk. (Honourable Mention awarded in Class XIX.) Far, W., and Co., Dublia (267, p. 499), for furniture pieces, manufactured in a superior manner; also far some

fair specimens of dress pieces plain and figured.

Gausex and Bosser, Tournay (241, Belgium, p. 1158),
for specimens of pantaloon stuffs of lines warp, strong,
useful, and cheap.

Ilass, G., 6 Rue de la Villère, Paris (263, France, p. 1189), for vestings of considerable excellence of manafacture.

LEMBANN, D. J., Berlin (126, Prassia, p. 1055), for specimens of plush and woollen velvets, plain and printed. We also noticed some in two colours made on the Jacquand, after French designs. The manufacture is good and the colours well chosen.

LEVIN, II., SONS, Berlin (114, Prussin, p. 1054), for vestings af a similar description, also worked with wool and silk on the Jacquard. Their goods are of excellent

Max METER and Co., Berlin (133, Pressia, p. 1055); for sik nod cotten plush, of excellent quality. Pressurences: Biorranas, Gladlach (574, Prassia, p. 1082), for light elohs, called cassinets, with contour warp and carded wool weft. The manafacture is good and price moderase.

REFIGURE and SULEXET, Lyons (1432, France, p. 1244), for goods almost entirely composed of silk, and perhaps belonging to Closs XIII., but we find some variateoutings of silk velvet shot with cotton, and some poplins of good quality; the waisteants being in particularly good taste, (Princ Medal in Class XIII.)

REFIGURE W., 81 Grafton-street, Dublin (266, pp. BERYSOLES W., 81 Grafton-street, Dublin (266, pp.

RECEOUDS, W., 81 Grafton-street, Dublin (266, pp. 498-99), for poplins for furniture, manufactured in a

superior manner.

RENEARS and MECKEL, Elberfeld (580, Prussia, p. 1082), for vestings distinguished for their moderate cost, Cotton warp shot with silk and cotton made an the Jacquard, some of popin and satined descriptions.

quality, some or popul and standed descriptions.
Senontian, J., Rastrick, Hindder-Seid (125, p. 490), for
pantaloon cloths, vestings in wool, silk, and cotton, and
kersymeres called "patent Britannies," all of good
quality.

SCHELTE, J. H., Burmen (675, Prussia, p. 1087), for valentius and cashinere designs of good manufacture. Thendel, jun. (41, Bavaria, p. 1100), for specimens of light puntalson stuffs of cotton and wood, of excellent make, good taste, and moderate price.

WILLETT, E. NEFBEW, and Co., Norwich (310, p. 501), for paramattas and bombazines of excellent quality.

B.—Shawer. General Ecouries. Kasemin Shawes from the East, and Imitations

From the limited nature of a litepert of this kind, a complete billency of the shead mannfacture will not be complete billency of the shead mannfacture will not be the importance of this besuffield fibrite, and of lix valuable that the shead of the seed of the shead of lix valuable that the shead of the seed of the shead of the same remarks upon its present position, and sport the examples yearing it will have not to be the method and benefited foliate of the Viday of Kadimik, where the executions of a sport of the viday of Kadimik, where the execution of the same three these how and is well, entrellig presentable to annotative the hose and is well, entrellig presentable custom those, considering the mixtures of the seems of matchinery employed an compared with these which are matchinery employed an compared with these which are

in the cyce of the most experienced.
The superintry of the woollen fabrics of Kashmir is to
be found recorded in many anciest custom works. In
be found recorded in many anciest custom works. In
place at the policies of Gonte-bullinia, the related of the
Pauda princes, about the period of two humalized years
before Chrat; it is stated." "that the people of Kancheis
(the morthern districts currounding Kashmir) brought
wood, and embeddered with gold, being, in fact, sharris

and brocodes Again, in the Ayeen Akbery, being the institutes of the Emperor Jilaledsteen Mohamed Akbur, sixth in descent from Timur (Tamerlane the Great), proclaimed emperor in 1556, we find the following interesting necount of shawls :- "His Majesty has ordered four kinds of shawls to be made: 1st. Toos affee (grey affee), which is the wool of an animal of this name whose natural colour, in general, is grey, inclining to red, though some are perfectly white; and these shawls are incomparable for lightness, warmth, and softness. Formerly they were made of the wool in its natural state, but his Majesty has had some of them dyed, and it is surprising that they will not take a red colour. 2nd, Sufed alcheh (white alcha), which they also call terclular. The natural colours of the wool are white or black, and they weave three sorts, white, black, and grey. Formerly, there were not above three or four different colours for shawls, but His Majesty has made them of various haes. 3rd, Zerdozy and others,; which are of His Majesty's inven-4th. From being short pieces, he had them made long enough for jamels (gown-pieces). The shawls are classed according to the day, month, year, price, column, and weight; and this manner of classing is called missel. The mushrifs, after examination, mark the quality of each apon paper affixed to its corner. All those brought into the palace on the day Ormand of the mouth Ferirdia (10th March) are preferred to those received afterwards, of the same floeness, weight, and colour, and each is written down in order. Every day there are received into store the following kinds, and from this account of

one day may be formed an iden of what is done in the

Foreserfy, shawls were but rarely brought from Krabmin, and those who had them melt to wer them over the shoulder in four fields (vide ancient sculpturm), so that they haded for a long time. It is Majery has no that they haded for a long time. It is Majery has the other, which is a considerable addition to their beauty. By the attention of Illi Majery the insumfacture in Keslmir is in a very flourishing state, and in Leafest there are upwash of a thousand musificative of Leafest there are upwash of a thousand musificative of with the vary of silk and the word of wood, and this hild is called neares. Of both kinds are made term

bans, &c." With this account before us, it is reasonable to suppose that varieties of every kind were introduced about this period; and the evident encouragement given to these inprovements doubtless tended much to the progress of this trade, while these showls continued to be a favourite article of dress, during the Mahommedan dynastics in particular. After their decline, it is probable that the troubled state of Upper ludin, and the general turbulence of the mountain character, had its effect in retarding the progress of a trade involving the labour of so many hands; but its absolute necessity as an article of wearing suppose to every well-dressed native of India, Persia, and parts of Turkey, effectually prevented the manufacture from fulling into decay, even at the worst of times. It was open said that there were upwards of 30,000 looms at work; but Strachev, who visited the country in 1809, gives whole produce was estimated of 35 lacs of rupees, but Mooreroft, who was there in 1822-23, says it had deelined to half that sum. A renewed vigour has been instilled into it within the last thirty years by the constantly increasing demands of the Paropean markets; and the present improved state of coverament, of social rights and intercourse, in that part of India, will of course add greatly to the energies of a persevering and pains-taking people, and will most probably give curly proof that its resources have never been fully developed. The valley itself is now in the hands of Golab Singh, a chief who fully appreciates the value of the trade; but many of his measures are oppressive to the manufacturer, and some of the best makers are finding it to their advantage to settle in the neighbouring elties, under the British Government, where they are able in perfect freedom to push their trade to any extent. Unritzer and Labore are already showing rapid progress in this trade, and there is no reason why their productions should not equal in all respects those of Kashmir; while the demand for Europe is actively promoted by European agents residing there, for the express porpose of encouraging perfection in design, colour, and texture. The activity of the present trade may be estimated from the following returns, procured from the firm of Kipley and Brown, the leading

brokers in this trade:-

	Emports.	Deliveries.	Expects,
In 1942	2,451	2,740	2,218
1843	2,726	2.92	2.28
1814	4.957	4,127	2.707
1843	7.281	5,411	3,860
1216	3,703	5,429	3,400
1547	3,989	4.374	3,045
18140	2,30	1,:04	1,484
14170	1.183	3,311	2,413
1850	6,142	5,733	4.242

We find publications in France, "sur la fabrication des châles," which give the date of about 1800 as the period

^{*} Felv vol. II., p. 140, † Tole vol. II., p. 165, † Zerdozze, pobl-leaved; goolubtun, rose body; keshevelek, worked; kulgha, plos-shaped; Bandhemim, spotted; cheek, like chintz; elicheh (guor.); peradar, with a nap. § Toos, grey; sefed, white: latteren, red-polden; naren-

[§] Too, grey; sefed, white; laboreen, rel-guiden; nare-joe, orance; bernay, rice-coloured (a laday, a traw-coloured; polyunibels, rese-cution; sendely, smale-wood; bolamee, a latonal a regional reservation; sender, smale-wood; bolamee, a latonal a regional reservation; server, reservation; server, side kin, light; a life, pariet u bit after or spice; fested, server, period, a litricial wood; prodikters, spotted; nersylereen, speaked; a commy, kty-colour; guodates, rece; kulghy;

pine-shaped; also, matered; systemy, diver-coloured; servey, liver-coloured; nemerody, cascind; bracks, violet; faithfully, rinceduce redour.

* Treadles in Lurepe and in India. † Up to May.

of the first introduction into France of the ta-te for this article of dress, and of their first importation from Egypt, where undoubtedly they had found their way from the custern emporium, chiefly through Persia. In Empland, however, the fashion had been earlier introduced by those connected with the East India Company's trade, and they were included in the periodical sales of prohibited goods, held at the East India House as early as 1750. In 1787, we find they were admitted by our Custom-house, up-ur payment of an od roberes thaty of 274 per cent, which duty has since been thus changed, by various acts and - £81 2 11 per cent.

and Alderman Watson, of that town, succeeded in wearing the first Justina style of shawl we believe ever made in Europe. The process was too slow and unprofitable to

induce them to contione their operations; but Mr. John

Harvey, of the same town, followed up the enterprise with Piedment silk warp and fine worsted shoot, the designs eing worked in by a process of darning by the hood. No great progress, however, appears to have been made in this tedious and expensive process, and not till 1805 was an entire shawl produced from the loon in Norwich. In Paisley and in Edinburgh they took up the monufacture about the same time, but the former town has alone retained it, making India imitations now of real Kashmir wool thread, at very low prices, to a large In 1802 a commencement was made in Paris; and it is related that the enormous expense of 60,000 frances, expended in setting the loan prepared for the purpose, induced the immortal Jacquard to invent his wonderful process of working intricate designs with facility. 1819 great success had been reached upon looms h la Tire, with Kasimir wool imported for the purpose, and spun with great skill in France. Not earlier, however, than 1834 was the present process, called sponline, which is the exact initation of the Kashuirean, so introduced for working intricate designs that one man, with a Jacquard loom, can produce the excellence now attained in In fact, we find the true Indian shawl there produced, but perfected by the addition of nuclinary, and sold at about a quarter of the cost in India, their range of prices being, for squares of full size, 25 to 600 france, and for long shawls of full size 50 to 150st frances: 4,000,000 frames is given as about the value of the total production of these fulries in France at the present time; that of Scotland cannot so easily be estimated, but it is very large, though the shawls are chiefly of a cheaper description, ranging from 7s. 6d, to 3d, per square, and 1d. to 15d, for long slawly. We have dwelt thus at length upon the productions of France and England because of the greater development of the manufactures in these

in the eyes of those who can afford to pay it. The fines descriptions cannot be purchased in the valley under 300 to 1,500 rupees for square, and 450 to 2,000 rupees for long. Particular Remarks. We find the following number of contributors of the descriptions called "woven," se printed," "cubroidered," and "tortans: "-

at command, and such ingenious and industrious artizans,

they may soon vie, in cheapness at any rate, with either

of their predecessors in the trade. There is a peculiarity

in the character of a real Kashmir shawl, as well in originality of design as in solidity and darability, which, notwith-

standing the energous difference of cost, will retain its value

			J	Worrs.	Printed.	Embeoi- Gered.	Tartane
France	_	_	-	15	7	4	6
Algiers	_	-	-	1	-	-	-
Belgium	_	-	_	-	1	-	1
Austria	_	-	_	10	1 1	3	5
Hamburg	_	_	_	-	i i	-	-
Zollverein	-	-	=	7	2 3	3	2
Kursia -	_	-	_	7	3	-	
Turkey -	_	-	_	-	-	1	-
General	_	_	-	95	-	-	3 - 1
Spain -	_	-	_	-	-	-	-
Portugal	_	-	-	2	1	1	-
India -	_	_	_	5	1		Ξ
thins -	_	-	_		-	2	_
England	-	_	_	12	23	10	29
Egypt -	_	-	_	'ĭ		-	-
hreece -	_	_	_	-	1 :	1 1	Ē
Barbery	=	-		-	-	i	-
Persia -	_	-	_	-		1 i i	-
Manilla	_	=		-	1 -	-	
Notin Seet	-	=	_	-	1 =	-	1
I ulted Sta	=	-			1 -	1 -	2
Van Diem		1		112	1 =	1 =	ī
t am Diction	- 5	***(1)(1)				_	

Among whom we proceed to notice those who are most worthy of remark.

1. WOVEN SHAWLS.

The HONOURABLE THE East India Contant has contributed to this Exhibition such a costly and gorgeous display of the very best specimens of every descri of mnumfactures within their dominious, each in its kind so choice and perfect, and of a taste so original, as to afford example to all Europe, that as exhibitors of the most distinguished character we cannot but recommend that their deplay should be suitably recognised by Her Muissta's Commissioners

There are many articles which do not strictly come under the cognizance of our Class, but it has been conidered preferable to combine as much as possible the Report upon this collection of fabrics, rather than scatter e notices upon each different substance among many

We proceed to notice particularly,- -

From Kashmir, a square shawl of perfect design and tissue; two long, fine white ones, of beautiful texture, and others (p. 915), presented by Мананалан Golan Sasan; some pieces of superior shawl challs, called kid cloth, and Purrepus; this is looped in the west at the lnck.

From Indore, shawls and embroideries, and other articles, by Maharajan Rao Scindean (pp. 915 and 916). From Pattenlia, shawls, scarfs, and rich tissues, by the RAJAN OF PUTTEAULA.

From Loodinia, shawls for cheapness of price From Beurres, splendid brocaded shawls and scarfs, from Badoo Deo Nabayn.

From Ahmedahad, the same description of goods. From Moorshedshud, the same, with some gold prints, From Indore, the same. From Madras and Bengal, beantiful embroidered mus-

countries, where it had been first introduced; but we find lin scarfs and shawls, of remarkable texture and elegant that within the last five years Austria, the States of the Zollverein, and Belgium have been setting their looms From Bengul, a very curious white muslin shawl-scarf, upon similar produce; and with such excellent material

worked with gold, in which the turning of the shuttle shows extraordinary skill, From Deca, two shawls, embroidered with gold and

silver needlework; executed for Her Majesty. Some elegant searfs, embroidered with coloured silks of Sherry; oriental tect From Delhi, some splendid specimens of needlework

From Abmedahad, a curious specimen of chall of gold, worked by hand; exhibited by Mr. Charles Copland. From Kashmir, a aplendid shawl, worked in many colones with gold and silver; exhibited by the PENIN SELAR AND OBENITAL STEAM COMPANY. A very hand A very handsome long shawl, called an Alvandar; exhibited by Mr. JOHN GRAHAM.

It would be endless to point out all the excellencies which this portion of the Exhibition puts forth. The called the correct list of them, for all of them are worthy of notice, and will, no doubt, afford to manufacturers of

all nations a means of finding that they have still something to learn. CLARBURY and Son, Norwich (284, Classes X11, and XV

p. 500), are exhibitors of the very first-class shawls of a similar style and perfection. They also present poplins, paramattas, and a variety of beautiful fabrics of the highest order. The fabrics of this firm are remarkable for their perfection of manufacture, and good taste in design, for their variety and novelty, and for all those qualities which characterize first-rate manufacturers; but a member of the firm being apon this Jury, their productions are not under our review for particular distinction GAUSSEN and Co., I Rue de la Banque, Paris (1242. France, p. 1237), have furnished a selection of very beautiful shawls of ludian wool, got up in the most perfect and classic style. Their manufacture is of the highest class; but the leading member of the firm being upon our Jury, they are out of the pale of competition,

Moroax, Jonx, and Co., Paisley, Scotland (299, Choses XII. and XV., p. 500), have contributed a fine collection of showls of the highest character for design and monufacture. They are dyers of their own yarn, and dressers of their own produce, and are in all respects namufacturers of the very first repute; but the senior member being upon this Jury, their goods are not under consi-

deration for any Prize distinction.
WERDER and HAIRS, Loudou (277, Classes XII, and XV., p. 499), have exhibited a great variety of printed showle of excellent taste. Mr. Hairs being, however, an Associate Juror, their goods do not come under Prize consideration.

Com-il Model,

DENEIROUSE, E., BOISGLAVY, and Co., 16, Rue des Fosses Montmartre, Paris (1182, France, p. 1234), for a long white shawl, made precisely upon the same prinlong white shaws, mane prevery upon the come pan-ciple as thuse of Kashuir, and distinguished by the elm-racter of "snouline." This shawl is of peculiarly fine texture and design, combining natural flowers, in all their various tints, with the style peculiar to India: it is per-fect in all respects. There is also a long white, of a new and original design; it is remarkable for the introduction of a new process, adapted to the Jacquard Ioom, by which, with the usual colours, a great variety of tints may be made by combinations of different threads in the welt. This is a new and important discovery, which, added to the excellence of their manufacture, in all rest tles these exhibitors to the recommendation of the Coux-CIL MEDAL, and this award was confirmed.

The Jury award Prize Medals to the following Exhibitors:-

BERGER, JOSEPH, and Sun, Vienna (209, Austria, p. 1022), for a highly creditable collection of almois of elaborate style, a long ane in particular with variouscoloured compartments, and a square of Kashniir wool worked with gold, are deserving of great merit for good taste and colouring; others of entire wool are highly creditable for their moderate cost,

BLAKELY, E. T., Norwich (285, Classes XH. and XV., p. 500), for a square showl of purple ground with many omportments, of various colours, in which gold is introduced, perfect of this particular school. The Barrege scarfs are of superior quality and novel taste. His goods are of the highest merit.

HLISS, WILLIAM, Chipping-Norton, Oxfordshire (270, Classes XII. and XV., p. 429.; for a variety of shawls, made from different materials, and of great merit for the adaptution of new articles for to-sac, such especially as vicada, which is here shown to great advantage; he is an enterprising manufacturer of great merit.

Boas, Ilnorusus, Paris (68, France, p. 1174), for shawls of a very particular style, and of extraordinary composition; we notice in particular a long white of curious design and colouring, which possesses much eri-

ginality, and is well assunfactured. Their shawls are of Indian wool yers, and deserving of a high degree of

Dantson and Co., 6 Ree des Capucins, Lyons (1167, France, p. 1233), for a collection of fine wool shawls of good style and make, and at very moderate prices

Decase and Co., 1 Rue St. Petits Peres, Paris (1592, France, p. 1263), for great general excellence. This firm manufactures the largest quantity of fine shawls in France, and has exhibited the greatest variety of rich specimens in this Exhibition. They are of superior unker and design. We particularly call attention to a long white shawl, of extraordinary manipulation, manufac-tured entirely of Indian wool yarn, and the finest ever made, having 320 shoots to the inch. Another long white, of new and original aspect: the inner border is formed by double grounds, shaded of different tiats, gradunting from the durkest to the lightest; the colours, being clear and distinct, show the design in all its perfec-Gold and silver threads are used both in warp and weft, to increase the number and brilliancy of the tiuts. There is also a square, with different compartments of various colours and ground, of very perfect design. We considered that the Council Medal should be awarded to this Exhibitor; but this recognizedation was not confirmed by the Council of Chairmen. The productions of this house are of the very highest order of perfection, combining excellence in material, manufacture, colour,

and design, with much originality Forms and Heremison, Paisley (291, Classes XI). and XV., p. 500), for cheapuess of amoutacture and ge-

aeral excellence. GARSSEN, FARGETON, and Co., 2 Place des Victoires Paris (1243, France, p. 1237), for a variety of shawls of ludin wool, with very elaborate effects, and of superior assunfacture. We notice particularly a long white on minufacture. We notice particularly a long white on two grounds, in which there is excellent harmony in colourney and design; again a square white of very rich style and enceful manupulation. In all there is great

GRILLET and Co., 11 Place Croix-Paquet, Lyons (1259, France, p. 1237\, for two long showls of very elaborate worthy of particular notice for novelty and harmony; their known superiority of manipulation gives rise to regret that they have not exhibited a greater variety HEDGUT, F., and Son, 13 Rue du Mail. Paris (162)

Prance, p. 1255), for sluwls woven from Indian wool yarn of the very first class, being a classic and humo-nious imitation of the Indian style. There is a lung one with ground of four colours, very successful in its colouring; a square number colour is very time to its Indian origin; and altogether this firm is decidedly worthy of merit for its cureful products.

KERR, HORART, Phisley, Scotland, and of the firm of Kerr and Scott, London (200), Classes XII, and XV., p. 5600), for remarkably fine specimens of every description of shawl, in all textures, all of which are stanged with the character of superiority, and the highest degree of skill in manufacture. We considered his goods to be precurrent in design, novelty, variety, and texture, and accordingly recommended him for the Council Medal, which the Council of Chairmen did not, however, grant, LION BROTHERS, and Co., 9 Place des Petits Peres, Paris (1327, France, p. 1239), for a handsome collection of shawls, of elaborate design and excellent make; a long white is well worthy of notice. There are two squares of peculiar style, in which the white and yellow effects are produced by gold and silver thread. Their manuare is of distinguished merit.

Mentas, A. and V., Government of Risson (281, Euroia, p. 1375), for a long white slaw) made of face wool, complexous for its heautiful texture, and for a landsome border of modern thoral design, quite original, which presents the same effect on each side of the show), the centre being sewed in according to the Indian manner. It is a novel and extraordinary production of high merit, and though scarcely to be considered an object of trade, it may lead to one of importance hereafter

ROBERTSON, J. and J., Paisley (301, Classes XII. and

XV., p. 500), for changess of manufacture and general | 2. Smanls or Ranige, Chare, Gauze, Silk, and other excellence.

TOWLER, CAMPIN, and Co., Norwich (309, Classes XII and XV., p. 501), for a very choice collecton of long shawls, of different compositions of spins silk and wood. They are of claborate and original designs, showing superior skill in workmanship, and the highest degree of ment a manufactorer can attain. Every improvement is here adopted without abandoning the distinguished character of the original Norwich style. We tind also printed shawls on a grenadine gause of great merit, and a square with silk worked on cashmere ground, very beautiful, All their productions show great perfection in a school peculiar to this town, and always to be admired, and they are of the highest degree of merit. We therefore recom mended a Conneil Medal to these exhibitors; but it was

not conceded by the Conneil of Chairmen. ZEINEL, J. and J., and C. BLUMEL, Vicuna (320, Austria, p. 1022), for a collection of shawls, among which a long white of woollen warp, and another with four compartments of elaborate French designs in good taste, made of Cashmere wook, are worthy of particular remark for excellence of manufacture. Others of more moderate cost are also deserving of great merit, showing much perfection in the working of their woollen thread.

The Jury make Honourable Mention of the following Exhibitors:-

BONFILS, SOUTHAZ, and Co., 3 Ray des Fossés Mentmattee, Paris (1094, France, p. 1230), for specimens of shawls of excellent design and min offerture; we point in porticular to a long one with pink ground and orange compartments: a very successful constitution, and pos-

sersing much novelty, Chambellas, G., and Co., 8 Rue des Foorés Mont-martro, Paris (1140, France, p. 1232), for a collection of shawls of superior manufacture from Indian wood yarts;

in particular a long one of excellent design, and a square in four compartments, are well worthy of notice CHINARD, CHARLES, 9 Rue de Cléry, Paris (89, France p. 1175), for a collection of shawls of very good make and careful combination of colours; particularly a new style of square adapted for annuncr fashion, differing from the

Ordinary method of wearing.

Harry, Jony, and Soy (58, Classes XII. and XV. p. 488), for some peculiarly soft fannel shawl-, me ats' hair, the produce of stock reared by H.R.H. Prince

Albert in Windsor Park. HAYDTER, SERASTIAN, Vienna (311, Austria, p. 1022). for moderate-priced goods, and very erestitable specimens of long shawls of good effect, at from 40s, to 45s., and a

black square at 24., which are decidedly cheap.

MARY and WEILERT, Berlin (113, Prassis, p. 1654). for a collection of long and square shawls on spun silk warp, with wool and mixture weft; of good design and y effective, and of moderate prices

OFDENHOFF and HARTENG, Herlin (134, Prussin p. 1055), for several harness shawls, as well as tartaus, o good taste and manufacture; their colours are few but

eff-ctive, and prices very moderate, Ptn-Bayaso, Ronbais (682, France, p. 1211), for a collection of damask worsted shawls, of peculiarly soft texture and excellent make: when their moderate cost is considered we cannot but give him much credit. (Prize

Mechl awarded in Class XII.) REINHOLD, W., Vicuna (315, Austria, p. 1022), for a variety of long and square shawls of very good taste in colour and design, and for effective goods at n low price,

Riss, Joseph, Vienna (316, Austria, p. 1022), for simula of a low quality, presenting them solely for merit as to eheapness. Roxnenger, Jones and Annew, Paisley (296, Clauses X11. and XV., p. 500), for specimens of woven showls,

of good designs; also shawls made on spun silk warp, in which an ingenious advantage is taken of short reeding in design, which reduces the expense of production SARIN, REBEYRE, Lyons, for a good assortment of erasearfs, square and long shawls, of good colour

and design, chiefly suited to a large consumption at low prices.

DESCRIPTIONS. General Benser by

The mpid progress in the manufacture of showls, and the increasing taste and demand for this style of garment, has led to the introduction of many kinds of lighter falcies, in either wood, sak, goets hair, or the various combinations of these with other materials, such as cotton, spun silk, &c.

These descriptions are generally traded in under the following demonituations

Crapes, made of sell, in initiation of Chinese fibries; chiefly manufactured at Norwich and Lyons. made in the Pyreness, by the pensantry of a place so named; remarkable for their lightness, elasticity, and strougt

Another sort, with silk warp, and with a check of silk; a new introduction for increasing the effect of printing. Greundines, made of silk of a peculiar twi-t, while ives lumbuess and durability, but at the expense of

Levastines and Albanians, made of silk and span silk, in imitation of the scarfs from various parts of the Medi-

Chemile, a novel application of silk, sometimes with

Chird, a printed warp before weaving, The trade in these articles has already in a few years

become noot important, giving employment to an immerce number of artisans in various branches besides these of spinning and weaving, such as designers, carvers, chemi-In the perfection of these goods, France has taken the

lead, and to her early encouragement of schools of design, and well-known national taste, may be attributed the tone and fosition also has given to all Europe ; but her work is re expensive than that of England, and large quantities of these goods are brought over to be printed here at tho lower cost, which the greater division of labour and the more extended development of the trade has accomphylical.

In these printed articles, Austria shows evidences of ou active endeavour to produce imitations of the designs of In the exhibition by the States of the Zollverein we also perceive the foundation of a future trade in these fabrics.

Particular Remarks. The Jury award Prize Medals to the following Exhibi-

tors in this department: Chocorres, Frank, Paris (1148, France, p. 1233), for reat excellence in the printing of light showls. For a great excent ree in the praining of light shows. For a long time foreman to his brother, he has nequired much of his perfection. We point especially to a long white showl of elaborate design, the entting and printing of which prove him to be a manufacturer of great merit. CHOCGEREL, LOTIS, Labricht, pear St. Denis (90, France, p. 1175), for a collection of printed shawls, on barege, enchemire d'écosse, and other finey goods, of great excellence in design, harmony of colours, and perfection of printing, which is conspicuous in the great clearness of his white grounds, the whole being of the very highest merit. Medal nwarded in Class XVIII.

Ganx and Mclypor, Glasgow (279, Classes XII, and XV., p. 499), for the economical execution of the printed shawls exhibited by Messra. Keith, Shoohridge, and Co. KEITH, SHOOREIDGE, and Co., 124, Wood Street, London (279, Classes XII. and XV., p. 499), for a large col-lection of printed shawls, searfs, and mufflers, of excellent design and execution. They are deserving of merit for the goods they have made up on their own designs. But to Glen and McIndoe, Glascow, their printers, we consider much credit to be due, for the execution of the detail, which for colour and neutness is very remarkable.

SWAPSLAND, C., Crayford, Kent (283, Classes XII. and XV., p. 590), for goods that prove him to be n printer of the very first class. We point especially to an elaboration.

rate design on a barège ground, which has required 550 blocks to complete the pattern. The colouring is bright and clear; the execution perfect. At his extensive works the art of printing on wool has been carried to great ex-

THIRRY-MEZO, Mulhouse (1506, France, p. 1248), for a large collection of shawls, square and long. The designs are of classic style, clearly and neatly executed, and the sharpness of outline well preserved. The goods are cheap,

nul of decided merit. Towlea, Campin, and Co. (286, p. 500), and E. T. BLAKELY, Norwich (285, p. 500), are both maunfact and exhibitors of first-class printed goods, but have reecived their awards of merit under the head of woven

The Jury make Honograble Mention of the following

Exhibitors :-DEPOULLY BROTHERS, BOLVAUX, and Co., Paris (1586, France, p. 1232), for a good selection of burdge shawls, printed with taste and accuracy. The colours and compo-sition do much credit to M. Boivaux, the designer.

Gonzenov, LEON, Purtenux (1252, France, p. 1237), for a few specimens of shawls printed on fancy burdge,

with dark grounds of great perfection in clearness and precision. He is a printer of the first class; but having a larger collection of dresses than of shawls, he will be more particularly noticed elsewhere.

JAMESON and BANKS, Honey-lane Market, Cheupsid London (278, Classes XII. and XV., p. 499), for a large collection of superior shawls on various grounds, some with novel floral designs, executed in the most perfect manner, and printed by the first men in the art; such as Swaisland, Littler, and David Etnas and Co.

LAWSON, J., and Co., Calculouis Print Works, Paisley (294, Classes XII. and XV., p. 500), for excellent speci-mens of printing, of good effective and clear designs, which are moderate in price.

Lewis and Allersin, Regent Street, London (276, Classes XII. and XV., p. 439, for a design of their own composition of peculiar Indian style, very classic and effective; printed on several grounds by Swaisland in a superior manner.

LITTLER, MARY ASS, Merton Abbey, Surrey (282, Classes XII. and XV., p. 500), for shawls of Indian style, designed and executed by herself, showing great executed.

lence in the art of printing. Medal awarded in Class 3. SHAWLS, EMBROTHERED WITH WOOL, SILE, TERRAR, GOLD, SILVER, &C.

Graced Branche. There is no doubt of the origin of this description of manufacture being traceable to eastern nations, where, in truth, we still find the most perfect workmanship and the greatest variety of design, with perfection of colouring, There, magnestionably, all uses of the embroidery-needle have been learned. The web of Penelope was no new thing in her time to the nations farther cast. The Is nelites were enjoined to have the door of the tent of their first tabernacie a " hanging of blue and purple, and senshet and fine twined lines, wronght with needlework."

Debrail, in her song of triumph, 1296 years n.c., sings of the "pery of divers colours of needlework, of divers colours of needlework on foll: \$\delta \cdot can be needed of the natiquity of enducodery.

exquisite work of this kind, ausarpassed by that of any other antion. We recret that nothing has been sent from Japan, where it is understood that embroidery is carried that Russin has derived her exerdence; the specimens colored on this occasion not being shawls, will, we trust, be noticed in their proper Class. India stands pre-eminent in the exhibition of embroidered shawls, whether in coloured wool or sitk, upon Kashmirs, cloths, or in gold and silver brocades; in short, in almost every variety of form or description.

* Exelus, chap xxvi , v. 36. † Judges, chap. v., v. 33.

Persia is not fairly represented on this occasion, for she has artisans of the highest ment; witness the beauty of her carpets, a species of embroidery in the manner of their manipulation; and she could have sent some excellent shawle, scarfs, and roomals.

Turkey has given a very handsome display of the excellence of her manufactures, and of the richness of her taste in embroidery of every kind; but her shows do not evince equal talent or originality, being mostly copies of Indian designs

Greece exhibits only some gauge searfs, worked with tinsel. She does not appear to maintain the character she formerly held for this kind of work.

Egypt shows no originality in this fabric; her silk and gold scarfs are not of a fine character, and are of the same description as those of Turkey.

In Paris, Paisley, and Vienna the embronlery of showls and scarfs on various materials is carried to great perfection; but the demand for such goods is not very great, the process being naturally expensive.

Particular Leworks.

Terler.-The Government of Constantinople have placed on view a valuable collection of embroidered scarfs and roomals (handkerchiefs), of superior taste and fabrication, fully maintaining the renown of Levantine manufactures. The shawls are searedy equal in character for excellence. There are some kumeabs, made at Damascus, worthy of remark; also some Albanian searfs, of cotton cloth mixed with silk and timed, made at the Imperial factory; not without merit, considering the difficulties attending the

introduction of machinery into that country. Altogether, the collection is a valuable exhibition of the progress of manufactures in Turkey, and worthy of the most Honourable Mention Labra - The East India Company's collection has already had special notice. We however point particularly to the gorgeously-brocaded square shawls, and the long red shawls embroidered with gold and pearls; to the mislin searfs embroidered with gold thread and beetles' wings.

It would be tedious to mention the various excellencies, as all are of the very highest order of merit. The Jury award Prize Medals to the following Exhi-

bitors :-Foulques and Co., Paris (1603, France, p. 1253), for net shawls embroidered with silk, rich, elegant in design, of sovel character, well executed, and quite worthy of the Prize Medal. (Medal awarded in Cluss XIX.) GRAHAM, JOHN, Ludgate Street, Loudon, curbroidered

crape shawls of peculiar excellence in texture, colour and design. They are probably the finest specimens ever becought from Chima, and of the highest possible merit. We hold the Evhibitor to be worthy of the Prize Medal

as the jurporter Laroura, H. F., Vienra (387, Austria, p. 1029), for subconderies on several textures, most of which show great skill in that art, and a perfect adaptation of material to colour and design.

WHITEHILL, M., and Co., Paisley (287, Classes XII, and XV., p. 500), for superior merino shawls embroidered with silk, of which the taste and execution are conspicuous, proving them to be manufacturers of high

The Jury make Honourable Mention of the following Exhibitors :-

We have from China some specimers of the most HENRY, EMFNEZER, and Sons, Glasgow (13, Class X1 p. 480), for a good selection of embroidered merines, of good taste and execution.

Mair, Joun, Son, and Co., Glasgow (59, Class XI. p. 4823, for a good selection of embroidered merinos of good taste and exerntion. (Medal awarded in Class XIX. SIEBERT, FREDERICK, Vienna (271, Austria, p. 1020), for well-executed embrooderies.

4. TARTAN PLAIDS, SHAWLE, SCADES, General Bemarks.

This poeuliar manufacture is of very pocient date, and many learned researches have been made to endeavour to trace its introduction into the British isles, and into Scotland in particular, where it has so long remained the well-known national costume, giving a name to its peruliar style that is universally adopted in every part of the world where the manufacture is produced or traded in. Great deficulty has been found in the derivation of the word Tartan: it does not appear in Gaetic, nor was it used in the Highlands, where the word Breachen was its equivalent, until the sixteenth century. The ancient bank invariably used the word Brauch or Breaclan in Scotland, Hryean in Wales, and Brencan in Ireland, where the dress prevailed from very early times. A woollen fabric of this description appears to be clearly traced from the northern tribes of Europe, very far east. In Russin. and among the Calmacks, it is common to this day; in Burmali, the chopiered design, although mostly in silk is the common dress of the country. There are strong evidences of its having been of Seythian wear; it may be fauciful to trace Tartau to Tarnarie origin, but it is curious to find the Arabic word Becton meaning "partycoloured." Livy describes the party-coloured woollen cloths of the Gauls, Germans, and Goths. Pliny, again, states that the dress of the Gauls was woven in squares of party-coloured fine wool. Dio, writing in the third century, describes the Britons in cloths of divers colours, which were called by their bards "Breach," or "Brea-chan." There is no record of their having been the distinctive dress of the clans of Scotland before the sixteenth century; but in a chartulary of Alerdeen, in 1269, the canons of the Church forbid the clergy to wear the party-coloured garments under the name of Type tries. This word was brought into use from Normania in the eleventh century, and may very probably be the origin of the word Tartan, for it is frequently used in reference to these woollen cloths of many colours. In the fifteenth century the records of the Royal Wardrobe give an item of expenditure, describing the rolours of these Tyretimes. In 1570 an aurient Scottish manuscript gives n list of the colours of the plaids of the dif-ferent claus. In 1747 the wearing of this distinctive dress was prohibited by Act of Parliament, and the grey shepherds' mands were nade instead. This Act was, however, repealed in 1782, but the fashion was not netively revived until very lately. The visit of George IV. to Seofland, in 1822, gave the first impulse to this revival, and in the neighbourhood of Stirling fancy plaid shawls began to be made. In 1828 clau Tartan shawls, anawis began to be unuse. In least the latest latest land and square, became very popular. The Galashiels weavers took up the trade very actively, and from that period the consumption has each year been greatly on the increase. Paisley opened extensive manufactories about eight years ago, which now throw off a vast quantity. The example of that town was quickly followed by France, Belgium, many parts of Germany, Amstria, and Bohemin; and in 1849 a very extensive concern was opened in Massachusetts, North America, for the production of this fabric from native wool, which has given evidence of excellence that will compare with any other country. We find also a specimen from Canada; but in this article it will probably be long before Scutland can be surpassed in design, fabric, or cheapuess.

Mongan, John, and Co., Paisley (299, Classes XII. and XV., p. 80), have a very handsome collection of tartans of very superior make; but, as already stated, Council Medal, which we trust will be confirmed.

they are not under consideration for distinction in consequence of Mr. Morgan being a member of the Jury. The Jury award Prize Medals to the following Exhi-

bitors in this department :-

Cases, William, 62 Queen Street, Glasgow (202, Chases XII. and XV., p. 500), for tartans of fine Iulian word, of superior make, the colours excellent, and the

Kean and Scott, 31 and 32 St. Paul's Churchyard, London (275, Chasses XII, and XV., p. 499), for a variety of tartans of the very test description, manufactured by Robert Kerr, the beauty of whose fabrica has already

been fully appreciated by this Jury.

LAWRENCE, STONE, and Co., Boston, United States
(464, United States, p. 1464), for n few tartans of excellent manufacture. fine in texture and bright in colonys. They are made from native wool, and show much excellence as the produce of a manufactory only three years at work, but estimated to turn out this year 5,000,000 pieces.

This concern, from its rising importance, is considered to be of decided merit, LEYS, R. and G., Galashiels, Scotland (192, Classes X11. and XV., p. 4955, present such perfect specimens of their manufacture that we cannot but consider them as nukers of the highest merit, and fully entitled to the

Prize Medal. PATON, J. and D., Tillicoultry, Scotland (466, Classes XII. and XV., p. 50t), for a collection of tarinas remark-able for their fineness and softness of texture, for the

excellence and variety of their colours, and perfection of Naxorason, R. and A., and Co., Galushicle, Scotland (196, Classes XII. and XV., p. 495), for an excellent collection of tartans; their mands, or shepherds' checks, are

particularly worthy of notice. Vax Dea Beren, J. C., Dasseldorf (Prussia, 494, p. 1079), for a collection of fancy turnan, with ends bro-ended, of peculiar style. The taste and excention are both superior; and, with reference to moderate price, this manufacture is considered to possess a decided merit.

The Jary make Honourable Mention of the following Exhibitors:

HARRIAUS, J. C., Soxs, Elberfeld (567, Prusia, p. 1082), for a good collection of medium-priced tarians, well made and of good colonis. They are extensive manufacturers. HOLMS, WILLIAM, and PROTRERS, 7 St. Mirron's Street,

Paisley (288, Casses XII. and XV., p. 500), for a con plete collection of clan tartaus, sixty-two in number, got up with great care, of excellent colours Wilson and Sox, Bannockhurn (468, Classes XII. and

XV., p. 501), for a collection of clan tartais, fifty-eight in number, of good colours and strong manufacture.

In presenting this our Report upon Class XV., we have, in the faithful execution of our trust, musnimously decided that among the beautiful and elaborately-mode textures which have come under our examination such perfection of various kinds of merit has been found, that according to our interpretation of the instructions of the Council of Chairmen we could not do otherwise than recommend those Exhibitors who have presented a combination of such different merits as are maquestionably pre-eminent in their class, and therefore entitled to the

WILLIAM PRINSEP, REPORTER.

CLASS XVI.

REPORT ON LEATHER, INCLUDING SADDLERY AND HARNESS, SKINS, FURS, FEATHERS, AND HAIR.

[The figures after the Names (between parenthetes) refer to the Exhibitors' Numbers and to the Payes in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.

Jury.

Out, the Hon, Grosser, Aware, Calvinez, 25 Hill Breed, Herbier Square,
Land Nemerica, Ford State Control of the State of Highest Invasion,
Land Nemerica, Ford State Office of Hill Breed, Herbier Square,
Land Breed, State Office of Hill Breed, Hill Breed, Hill Breed, Hondison,
Land Breed, Hong, and Honghon, Aveiling While, Breenshop, Leider Manuferture,
Joseph Frankine Francia, France Hender of the Chandre of Commerce,
Joseph Frankine Francia, France Hender of the Chandre of Commerce
Joseph Frankine Francia, Francis Hender of the Chandre of Commerce
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Joseph Francis, Francis Commerce
Joseph Francis, Francis Commerce
Joseph Francis, Francis Commerce
Joseph Francis Commerce

Associate.

Geonge Kiup, 257 Oxford Street; Suddler and Flarness Maker.

The Jury, for convenience and certainty in examina-tion, have distributed the articles exhibited in this Class adapted for furr. Subjected is a table of the imports and execute of alice under the following heads:-Teral Imported. Consumed Skins and manufactured fors.

Feathers for ornamental purposes, Artilleial hair.			England.	Importe.	England.
Wosen hair for farniture.	Kacoon -	_	 525,000	523,000	None.
Rough, tanned, and sole leather,	Beaver -	_	 60,000	t2,000	48,000
Curried leather.	Chinchilla	_	 85,000	30,000	55,000
Varnished leather.	Bear	-	 9,500	8,000	1,500
Morocco and dyed sheetskin leather,	Fisher -	-	 11,000	11,000	None.
Alum and gloving leather.	Fox, Red -	-	 50,000	50,000	None.
Oil or channols leather.	" Cross	-	 4,500	4,500	None.
	n Silver	-	 1,000	1,000	None.
Dved sheepskins for rugs.	White	-	 1,500	500	1,600
Vellum and parelment,	Grey	-	 20,000	18,600	2,900
Saddlery and harness,	rny -	-	 55,000	50,000	5,000
Portmantenus.	Martin -	-	 120,000	15,00	105,000
	Mink	-	 245,000	75,000	170,000
e manufacture of the skim of mimals into the va-	Musquash -	-		150,000	850,000
useful articles to which they are applicable, has	Otter	-	 17,500	17,500	None.
at all times an important branch of industry, and is	Fur, Seal -	-	 15,100	12,500	
ated to hold the foorth place among the manufac-	Welf	-	 15,000	15,000	Nooe.
of England in respect to the value of the produce	Marim, None			5,00	

Rabbit.

Skunk Sea Otter -

Wolverine

and the number of persons employed. The hides, skins, sud furs upon which this labour is Kellecki employed, are mostly the produce of our own country,

but besides the homo supply, immense quastities are imported from North and South America, Europe, and the are applicable for furs, and 6,000,000 are adapted for as descriptions of leather.

The following statement shows the number of unmanufactured hides and skins annually imported into Great Britain for tanning and leather dressing, a large portion of which are re-exported in the raw state:-

Hides and kly	25	-	-	-	_	2,550,600
Calf skint -	-	-	-	-	_	270,000
Horse bides	-	-	_	-	-	225,000
Scal skins -	-	-	-	-	_	503,000
Goat skins	-	-	-	_	-	464,030
Sheep skins	_	_	-	-	-	210,000
Lamb skins	-	-	-	-	-	1,430,000
Kid skins -	_	-	-	-	-	45,033
Deer skins	-	-	-	-	-	90,000
						-
To	tal	-	-	-	-	5,883,000

The temperate and tropical countries supply the pecu-Har descriptions of hides and skins which are best adapted for leather, while the northern and arctic regions abound in races of beautiful animals which are thickly covered with fine hair or fur, whose skins are extremely valuable as articles of clothing.

53, 410 200 53,210

1.20 1,200

100

Noor.

187, 104 me.

To prepare the skins from the raw state, and reader them fit for organizatial dress, is the first process of the for drysser. In this country it is the usual practice to trample them in closed tubs with a little salt butter, luraing them over and over for several hours; by this means the skins are made into soft and pliable leather. The next operation is to rub them on the flesh side over a blast iron to remove loose pieces of integuments, and to reduce the substance, after which it is necessary to cleanse the far and skin completely from the grease; for this purpose, it is again trampled with sawdust (usually from malingany), which being braten out, and repeated several times, conduces to make the fire glossy and clean, and to fit it for the cutter to fashion into any shape that may be required.

The fur of most anionals is in its greatest perfection at the approach of winter, and before the animal has attained its greatest age. It is the object of the furrier, by dyeing the inferior skins, to imitate the more perfect specimens. Some difficulty has attended this process, as the nature of the skin will admit of the dyes being used only in a cold state, but the method which has been practised in Paris and London has been so far successful, that the remanence of the colour in the dyed sable is frequently and of equal durability to that of skins of the natural colour. Considerable excellence has been attained also io dveing tabbit and inferior furs of those colours which are more suitable to the novailing taste.

The several contributions of furs in the Exhibition, taken as a whole, form a complete collection of all the skins known to be used for ornament or dress; those of the Hepson's Hay Contany, and the CENTRAL CON-MITTER OF NOVA SCOTIA, are advaned with some of the choicest skins knowe to commerce; but our notice would be very incomplete if we postted to mention the remarkably beautiful and extensive collection of skins, and speeimens of taxidermy, furnished to the Exhibition by several members of the nobility and other gentlemen, under the superintendence of Messrs, Nictional & Son, of Oxford Street. We have also to notice the valuable articles exhibited by the same firm, on which the Jury ocade the following minute, 9th July, 1851:-

[The Jury having elosely examined the extensive and interesting collection of fars exhibited by Me-rs. Nicholay and Son, Her Majesty's furriers (301), as well as the large assortment of manufactured articles, of raceilent design and workmanship, resolve;-that they enosider them worthy of especial notice, and have pleasure in recording their judgment that the collection would fully entitle Messrs, Nicholay and Sou to a Prize Medal, quence of one of the firm being a member of this Jury.] We proceed to give a brief account of the animals that

are captured for their fur, the skins of which are exhihited in various parts of the Building, commencing with-The Russian Sable (Modele and for the This rich and beautiful skin has long been esteened one of the most valuable and useful fors that have been brought to our country. About 25,000 are assuably collected in the Russian territories, of which only a small number is im-ported into England. The fur is brown, with a me gree snots on the head. The darker varieties are the most highly valued, a single skiu being frequently sold for 9%, though the average value does not exceed 2% or 3% Antaralists. are not agreed whether to consider the animal form which the skin is procured as a distinct species. Some are of opinion that the Russian sable, the stone and pine martens, as well as the Hudson's Bay saide, are but one species, on which the differences of food and climate have produced some slight variations in form and colour. To the furrier, however, the Russian sable is easily distinguishable, from the length and fulness, as well as the darker colour of the fur. The use of this choice variety is necessarily limited to the wealthy, on account of its high value. In the reign of Henry VIII, by a law which sought to regulate the expenses of the different classes, and to distinguish them by peculiarity of costume, the use of the sable was confined to the nobility above the rank of viscount.

Hudson's Bay Salde (Most le Couelouis).—The sable skins next in repute to the Russian are those imported by the Hudson's Bay Company, of which no less than 120,000 are annually brought into this country. natural colour of the skins is much lighter than the prevailing taste, it is the practice to dve many of them a darker colour, and the furs thus treated are scarcely inferior to the natural sable.

habitations of mao, and presing on birds and the smaller animals. They are distinguished from the stone marten by the yellow colour of the throat; other parts of the skin are brown. When dyed, they have a similar appearance to the best sable.

Stone Marten (Mustela su como),-This marten is generally found in mountainous and stony places, though a frequent visitor to farm-yards and bomesteads. It is generally distributed through most European countries. The nuder fur is a bluish white, with the top bairs a dark lessus. The throat of this variety is usually of a pure white, by which character it is generally distin-guished. The Freuch minufacturers excel in dyeing

this for, from which circumstance it is frequently called Freuch salde. It is also dyed in this country, the excellent qualities of the skin adapting it to a great variety of purposes to which furs are applied,

Fisher, -There are about \$1,000 of these skins annually hrought to this conotry from North America; they are larger than the sables, and the fur is longer and fuller, The tail is long, round, and full, gradually tapering to a point, and quite black; a few years since it formed the common ornament to a national can your by the Jew merchants of Poland, and at that time was worth

from 6s, to 9s., but its present value does not exceed 6d. Mink (Models visus) .- There were 245,000 skips of this little animal brought to this country last year from the processions of the Hudson's Day Company and North America. The for resembles the sable in colour, but is

considerably shorter and more glossy. It is a very durable and media fur, and is expected in large quantities Ermine : Mortela erasinor .- This animal is similar in form and habit to the common wensel of this country;

but in Silecia, Russia, and Norway, from whence the skins are imported, the little animal, during winter, beskus are majorited, the little animal, during winter, be-cence as white as the snow, regions it inhabits, and is extremed as the whitest for known, though its summer does is a dinay brown. The tail of the skin, of which the lower lanf's jet black, is generally introduced as an ornament to the purely white far. It is worn on state occasions, and in the rejor of Edward III., its use was reatricted to the royal family. Fitch or Polecat (Mustela polocius),... These rkins are

produced throughout Europe, and in no place of better quality than in our own country. The ground of the fur is a rich yellow, while the top hair is a jet black. This fur is nt present very little used in this country, but is much worn in America. It is very durable, but the

difficult to counteract North American Skunk (Mephitis Assertions),-The

skins known under this name are imported by the Hudson's Fay Company. The animal from which they are taken is allied to the polecat of Enrope, and, from the fortor it emits when attacked, which has been known to affect persons with sickness at 100 yards distance, has received the soubriquet of "Enfant du Diable." It has a soft block fur, with two white stripes running from the head to the tail, which is short and hoshy. The skins, though imported into England in small tumbers, are usually re-exported to the continent of Europe. Kolinsky : Mestela Scherica), .- The Kolinski or Tartar

sable is of a bright yellow colour, and is sometimes used for ladies' dress in its natural state, but it is more frequently dyed brown to imitate other sable, to which it beers a strong resemblance. It is remarkable for the uniformity of its evicine, having no spot or difference of shade in any part of the ludy. The tail, which is of the same colour, is exclusively used for the best artists'

Musquash, or Musk Rat (Fiber 2Delhiess), ... The animal known moder this punce is found in great munifers North America, frequenting swamps and rivers, and, like the beaver, building its habitations of mud with great ingenuity. Dr. lichardson states, that it has three litters taken for the aulmal from which the musk of commerce is procured, which is a native of Tiber. About one million skins are brought to this country annually; the fur resembles that of the beaver, and is used by hat manufacturers. The skins are also dived he the furrier.

and manufactured into many chang and useful articles.

Natria, or Coypeu (Mypotamas capus).—This redent
quadruped is an expert assimmer, and frequents the neighbautrood of water, where it lives in barrows; it is mainler
than the beaver, and consideraby larger than the missmusab, but but a regenthance to both these animals into

bourboad of water, where it lives in burrows; it is smaller than the beaver, and considerably larger than the musquash, but has a resemblance to both these animale in its natural habits, and is the qualities of the fur. Until lately this fur was very much used by hat mannafecturers, and as many as 600,000 skins have been annu-

facturers, and as nany as 630,000 dkins have been annaly imported from Bueno Ayres and Chili, in which countries the animal abounds. Owing to the wars that continue to be carried on between the different states of Buenos Ayres, and the consequent withdrawal of the trappers from their accessioned occupations, the important of the control of the contr

of the hamster are annually collected in central Germany, where the animal abousday; it has a pore, short, and carne far, and is almost exclusively used for clouds hinge by the Girveia, it he colour of the beak is a reddis-levens, the colour of the six is a reddis-levens, and the colour about 9 inches in length, and lives noder ground, forming several parturants for storing grain agranted rens in sow hybernaciams. It is so industrious and providest, that when the peasants go 'hamster nowling' in the vinter, they possess themselves not only of the aline but of the exceed two bashley gain, where is and frequently to

Perwitaky.—The skin of this animal is beautifully marked like tortoiseshell, and is brought from the scatteneatern territories of Asiatic Russin; the far is short, giving little warmth, and is chiefly made into cloaklinings, and used by the Russians.

Beyer (Lutter foreviews — Beyer him are imported by the Hisbook hig Company in less quantities than formerly; the use of the far in our hat manufactured as a considerable depreciation has taken place in their value. In order to present the desirable depreciation has taken place in their value. In order to prepare the skin for that appropriation the course hairs are removed, and the surface is very evenly cut by an ingenious machine, somewhat similar to that the course hairs are removed, and the surface is very evenly cut by an ingenious machine, somewhat similar to that be a surface of the course
and chopmens. The white wool from the under part of the beaver still obtains a high price, and is largely exported to France, where it is manufactured into disdies boants. There is an obsolt that the beaver was formerly an inhabitant of the British Isley, and Pennant remarks that two or three waters in the principality of Wales still bear the name of Lluy yr aftage, or the Reaver's Lake.

Ditter [Left], volyová, Letra Ganalousio;—The large mpply of other skins used by the Rousian and Chinese in derived principally from North America. The quality of the first in most respects similar to the entre of the British Hele, of which there are about 550 skins collected manuly. This animal has frequently been transc, dan from the extreme apility in the water, has been rendered from the extreme apility in the water, has been rendered from the extreme apility in the water, has been rendered from the extreme apility in the water, has been rendered from the extreme apility in the water, has been rendered from the extreme apility in the water. The hard the second from the extreme apility is the state of the property of the European, being about 5 feet from the nose to the sips of the titl a smaller variety abounds in the Eur Indies, the

Enropean, being about 5 feet from the nose to the tip of the tail 1.8 smaller variety abounds in the East Indies, the fur of which is very short. Sen Otter (Lohlydra marina).—The sea otter has a very thick, soft, woolly far, and is most highly prized by the Russians and Chinere, to whom most of the skins are

tincs, sort, worty mr, and a most nighty prized by the Russians and Chiesee, to whom most of the akins are exported. In its habits it is allied to the seal, but has never been met with is large numbers. It is found in the North Pacific, from Kamschatka to the Yellow Sea on the Astatic cousts, and from Allaska to California, on the Austrican coast.

The annual production is about 1,000 skins, of which

I by annual production is about 1,000 sains, or which

100 are imported into this country by the Hudson's Bay

Company.

Scal (Place).—There are numerous varieties of these animals, some of which are found on the western coasts of Scotland, Ireland, and Wales. They frequent, in immeuse numbers, the coasts of Newfoundland, Greenland, and Labrador, and the importations into this country frequently exceed 500,000 in one season. The young seals of some species increase in size with great rapidity. and it is asserted by the seal fashers that they double their bulk in eight days. The greater portion are tanned and examelied with black varnish for Indice' shoes; other descriptions are well adapted for fur, especially the seal of the South Seas and the north-west coast of America Before they can be used as a fur, it is necessary to remove the very coarse hairs which cover a beautifully fine and silky fur. The roots of these hairs are deeply seated in the substance of the thick pelt, while the fur is strongly attached to the upper surface of the skin. By shaving the pelt to half its natural substance the roots of the coarse hairs are cut through, and they easily fall out; but the same effect is produced by a natural process of fermentation, which cusues when the skins are properly prepared and allowed to reason together. The soft curry fur of the seal is now rarely used in its natural state, but is dyed a deep Vandyke brown, and has the appearance of the richest velvet. Fox .- Of foxes' skins brought to this constry there are

many varieties; the black and after flows (Virgo Jains, see a consider) by much acretic regions are the new visual accordancy by much acretic regions are the mean visual properties. They are precised for the Department of the Plansian market, their judgity princip under the visual by the Tainstan and red flows: 1 (virgo Jainsy visual by the Tainstan and red flows: 1 (virgo Jainsy visual by the countries for ladies' dresses. The white flows or the countries for ladies' dresses. The white flows (Virgo manerous, and imprincip la troop over the frozen ear at the approach of the rigorous seeson. They are easily caught, faften laring beev taken from over tay 1 to far

Webevine (fale Intern)—This naimal, which is only met with in North America, Novers, and Swedes, is now generally considered by nodogata as identical with the phinton of dat writers. It is extremely mischlessons to round a line of trape extending furly or fifty miles, merely to come at the built. The first in generally dark nut-hown, passing, in the depth of winter, almost into black, the first contract of the property of the

Bar (Cross).—There are several descriptions of burs, also made by the effect. The skin of the block bear of feet of the contraction of the contrac

Hare.—The weel ar under far of the European grey hare (Lepus timidus) is extensively used for manufacturing felt hats, both in Europe and Aucrien. A few of these are dressed for the purpose of being worn as a protection

to the chest. The white hare of Russia and the polar regions (Lepse glaci-ids) was formerly much worn in its pure white state as a lining for ladies' cloaks, and as a rulustitute for the white fox, but the skin being exceedingly tender, its use for this purpose has been discontinued. The white hare is also frequently dyed; it looks exceedingly rich, but it is also frequently dyed; it looks exceedingly rich, but is

not very darable.
Rabbit (Lepus conicelus).—The English rabbit, both in

its wild and domestic state, affords a very plentiful supply of useful fur. When dressed and dyed in imitation of other skins, it is manufactured into a great variety of elwan and nseful articles for the middle classes. wool has recently been manufactured into a peculiar cloth adapted for fadies' use, but by far the greater unmber of skins are still used for hatters' purposes. The English silver-grey rabbit was originally a breed peculiar to Lincolnshire, where great attention was paid to it; but warrens have since been formed in various parts of the country. Skins of this variety are continually exported to China and Russia, where they are much esteemed, and mand a comparatively high price. The Hudson's Bay rabbit is beautiful in the length and texture of its for, but the skio is so fragile, and the for so liable to fall off with slight wear, that it has little value as an article of dress. The white Polish rabbit is a breed peculiar to that country; its skin is often made into linings for ladies' cloaks, and being the cheapest and most useful for

for that purpose, the animal is imported in great numbers Squirrel (Scarous culqueis),-This attractive little unimal abounds in most countries, especially in Siberia and the sorth of Europe. It is from the Russian dominions that we derive our principal supply of the skins of this agile ereature, which exceeds in number that of any of the furproducing animals. It is said that 15,000,000 are every year captured in Russia, our supply from thence exceeding 3,000,000 annually. The fur of the squirrel, of which there are several varieties, is light, warm, and durable; some of the lighter colours are dyed in imitation of sable. The colour of the Siberiun squirrels varies from a pearl grey to a dark blue grey: the under parts, which are white, are frequently cut out and made into cloak-linings, remarkable for their lightness; the tails are magnifactured into boas for foreign markets; they are also extensively

used in the manufacture of artists' pencils.

Chiuchilla (Chiuchilla huistee) - There are two chief varieties of chinchilla, the produce of South America: those from Lium are short in the fur, and inferior in quality to those from Bucnos Ayres and Aries; the culour is a silvery grey, Arica producing the darkest and best-coloured skins. The general appearance of the animal places it between the squirrel and the rabbit: in its natural abodes it has the agility of the former, and resembles the rabbit in living in holes and burrows. The extreme softness and delicacy of the far adapt it only for ladies' use. Though much admired and frequently worm in this country, it is more extensively consumed in France, Germany, and Russia.

Raccon (Process loter),- The raccon is an inhabitant of North America: the skins are imported into this country in immense numbers; but meeting with no demand for nur home trade, are re-exported by merchants who purchase them at the periodical sales. They are used enase them at the periodical rates. They are used throughout Germany and Russia for lining shules and coats, and, being of a durable nature and moderate in price, are esteemed as one of the most useful fors

Common Badger (Meles vulgaris); American Badger (Meles Laboutherica).—The skin of the European badger, from the wiry nature of its hair, is generally used for the numufacture of superior kinds of shaving brushes; but the skins exported from North America have a soft, fine fur, which renders them suitable for many purposes for which the larger furs are used.

Cat .- In Holland the cat (Felis descrition) is bred for its fur; it is fed an fish, and carefully tended until the for arrives at its greatest perfection; large numbers are also collected in England and many other countries. The wild cat (Felia cates) is much larger and longer in its fur, and is met with in extensive forests, particularly in Hun gary; the column is brownish grey, mottled, and spotted with black. The softness and durability of the fur render it very suitable for cloak-liaines, and it is also made into wrappers for open carriages and railway travelling. Canada Lynx (Felis Conodonis); Lynx Cat (Felis Rofa).—The fur of the lynx is long, soft, and of a greyish

brown spots; the belly is white, silky, and not nofrequently spotted with binch. The change of fashion has quently spotted with black. The country of same for some time disearded it from this country; but it is

dved, prepared, and exported in considerable quantities for the American market, where it is much valued and admired. It is generally used for clonks, linings, and facings, for which purposes it is very appropriate, being exceedingly soft and light.

Furs are subject to injury by several species of moths, whose justinets lead them to deposit their eggs at the roots of the fine hair of animals.

Limmus mentions five species that prey upon cloth and furs, of which Tinea pellimella, T, restonella, and T. worm batched than it cats its path through the fur, and continues increasingly destructive until it arrives at its full growth, and forms itself a silken covering, from which in a short time it again emerges a perfect anoth.

Another cause of the decay of furs is the moisture to which they are frequently exposed; the delicate structure of the fine under-fur cannot be preserved when any dampness is allowed to remain in the skin. This fact is well known to the leuther manufacturer, who, having wetted his skins, allows them to remain in a damp cellar for n few days for the purpose of removing the hair, which is pulled out with the greatest facility after remaining only one week in a moist condition, It follows from these observations that to preserve furs it is necessary to keep them dry, and to protect them from moths; if exposed to damp or rain, they must be dried at a moderate distance from the fire; and when put by for the summer should be combed and beaten with a small cane, and very carefully secured in a dry brown paper or box into which moths cannot enter. During the summer they should be examined once a month to be again benten and aired, if the situation in which they have been placed be at all damp. With these precautions, the most valuable furs may be preserved uninjured for many years.

The Jury award Prize Medals to the following Exhibitors in this department :-

BEVINTONS and Monais, King William Street, Loudon (532, p. 535), for a collection of good and well-mannfactured furs and skins, both antural and dyed, of stone marten, banm nearen, Kolinsky, suble, and ermine.

Clans R. Romary, and Soss, Chenpaide, Loadon (307, p. 534), for a well-assorted collection of manufactured

furs in ermine, mink, musquash, grobe, and seal. Tentral Committee, Nova Scotia (2, p. 970), for a boice collection of skins, the produce of Nova Scotia. fully described in Illustrated Catalogue, with the names attached to the specimens

DRAKE, R., Piccadilly, London (306, p. 534), for three beautiful muffs made from the choicest skins of

the Russian sable, the grebe, and miniver. Eccens, P., Moscow, Russin (not in Catalugue), for a for carpet, well designed, and of good workmanship GEVER, J., Pesth, Hungary (346, Austria, p. 1024), for a national clock called the Banda, made from Hungarian lamb skins; the tanned leather, which is richly em-

broidered, forms the exterior of the clock HUDSON'S BAY COMPANY, Fenchurch Street, London (301, pp. 529-534), for a choice collection of far skins, the produce of their possessions in North America, consisting of twenty-seven groups, which are fully described in the Illustrated Catalogue, with their scien-

tific names Kellice, Henry, 9, Butterland Street, Hoxton, London (not in Catalogue), for models of a miniature tigress and ents, displaying great ingennity nod excellence in design and workmanship, each hair of which is said to have been separately fixed by the hand. Könto, L., Berlin (139, Prussia, p. 1056), for a camaille

of superior workmanship, made eatirely from the tails of the mink Mayes, M. and S., Bow Lane, London (304, p. 534),

for a variety of manufactured articles made from the skins of the rabbit, and dyed in imitation of more costly furs, by which a cheap, wurse, and ornumental clothing is brought within the means of the working classes. RUSSIAN IMPERIAL CARINET, St. Petersburgh (not in Catalogue), for a pelisse lining made from the necks of

the silver fox, for a Russian suble lining, and for skins of the same animal, from Karuschatka. SNITH, GENZAGE, and SOSS, Walling Street, London (310a, p. 534s, for an assortment of good and well-manufactured furs under from Russian suble, North America factured furs under from Russian suble, North America

sable, chinebilla, ermine, and squirrel.

TURKEY, Ilia HIGHNESS THE SULTAN OF (1, Turkey, p. 1387), for a large and interesting collection of skins,

the produce of Turkey.

Wantiso, K. Copenhagen (7, Demmerk, p. 1505), for a fire capter, with staffel floors serving an footstook, in which the design and workmannish new in good toutce. The state of the state of the state of the state fully designed; also for a choice collection of other fars, the state of the state of the state of the state of the lining made entirely from misk talks, and for a similar article made from the paws of the fisher (Zwiete Camdown). Both specimens allow great skill in ammidiately. Both specimens allow great skill in ammi-

The Jory make Honourable Mention of the following Exhibitors:—

BOLDNER, S. (not in Catalogue), for a fur hearth-rag

presenting the Royal Arms of England.

Dick, A., 35 George Street, Edinburgh (211, p. 534),
for a well-manufactured hearth-rag of many pieces of fur

neatly and artistically arranged. Huxarson, J., Nostreal (107, Canada, p. 265), for sleigh robes and other fars, the produce of the colony. Lavazorou, Local Construct, per T. C. Arcuss (270, Class XXIX, p. 803), for specimens of the various skins imported into Liverpool, methodically arranged, and with their scientific names attached. (Awarded a Prize Medal by Jury of Class XXIX.)

Feathers.

The benotiful colouring and graceful forms of these ornaments have always attracted general admiration, which the closest inspection tends only to increase. Whether our attention is drawn to the soft delicacy of the down of birds, or to the mechanical structure of the pinion feathers, which combine the greater strength with lightness, they are equally interesting and in-

structive.

The kinds which are used for dress are those of the ostrich, the marabout stork, the rhea or American ostrich, the emn, the osprey, the egrette, the beron, the natrenga, the hirds of Paradise, the swan, turkey, peacock, argus

the hints of Finelius, the was, turkry, peaceds, argu-The fastless of the nutries, of which were as evenal varieties, all waying in texture and quality according to the control of the control of the control of the Mayodor. Aleps, Alexandrian, and the Cupe of Good Haye, and have been used in all ages as orinaments of the wave much and by our onlikity in the rings of Henry were much and by our onlikity in the rings of Henry were much and by our onlikity in the rings of Henry were much and by our onlikity in the rings of Henry were much and by our onlikity in the rings of Henry haled acrois further have been used for imany parts by black acrois further have been used for imany parts by black acrois further have been used for imany parts by according to the Highland regions, and of fastless. The fastless hale according to the control of the control of the variety of the control of the control of the control of the variety of the control of the control of the control of the variety of the control of the control of the control of the variety of the control of the control of the control of the variety of the control of the control of the control of the variety of the control of the control of the control of the variety of the control of the control of the control of the variety of the control of the control of the control of the variety of the control of the control of the control of the variety of the control of the control of the control of the variety of the control of the control of the control of the variety of the control of the control of the control of the variety of the control of the control of the control of the variety of the control of the control of the control of the variety of the control of the control of the control of the variety of the control of

Next in request to the feathers of the estrick are those of the marshout stork, which are of two kinds, white and grey. These are imported into this country from Calentainties. They are very much admired for their beautiful texture and extreme lightness, and are used for bread-dresses, muffix and boax. The white kind have at times been so scarce us to be worth their weight in gold.

The feathers of the rhea, or American outrich, are untilly imported from Bousos Ayres. They are used to a variety of purposes by the natives, who dy the thin is longht of the peasant girls in the dofferent colours, and form head-dresses and coverings for the body. The Bonay kinds are used for military exhausting of tritled to a raticles of direct.

plumes in South America and in Europe, and the long brown feathers of the wing are made into brooms and dusting brushes.

A very graceful planne is made from the feathers of the ema, which are much prized on the Continent, and worn there both of their natural colour and dyed. The feathers of the captry and the egrette, which are found in various parts of the globe, are chiefly used for military costames by bussear regiments; those of the smaller egrette, which are the most graceful, are worn by

The feathers of the Indian heron and the antrenga are much prized on account of their scarcity, and are frequently worn by castero princes.

Birds of Paradise, which are imported from the Manillas, have in all ages been in great request as ornaments both for men and women, and were formerly very rare. They are favourite decorations for the Turkish turbun, and it

are favourite decorations for the Turkish turbon, and it will be remembered that they were worn by the Nepaulese princes when in this country.

The feathers of the common cock are also used for

ladies' riding hits and for military planes. The greater part are imported from llandurg. The down of the tarkey, the swan, and the goose, is made into planes, muffs, and tippets; and from the feathers of the libs, wreaths and trimmings are formed, which are much andmired for the brilliancy of their colours.

The manufacture of feathers gives employment to a great number of females, and is principally confined to England and France, although of late manufactories have been established at New York for goods suitable for that country.

The Jury award a Prize Medal to the undermentioned firm:—

ADCOCK and Co., 3 Princes Street, Cavendish Square,

London (323a, p. 534), for an admirable collection of the most beautiful kinds of feathers, manufactured and dyed for ornamental purposes.

The Jury desire to make Honourable Mention of the following Exhibitors:—

BOOTE, J. P., Cork, and 80 Hatton Garden, London

(112, p. 533), for various articles of ladics' dress made from turkey-down and feathers. Fostras, Sox, and Dractas, 16 Wigmore Street London (74, Class XXIX., p. 795), for a handsome muft and loss of marshout feathers.

HENOC, 1 Rue St. Sanveur, Paris (261, France, p. 1189), for screens and feather-brooms made of ostrich, penceck, and other feathers.

Penceces, and court's restories.
L'Hirtzatra, E., 86 Rice St. Martin, Paris (1925, France, p. 1239), for various kinds of feathers for organization process, head-dessex, clouks, screens, &c. Lonor, A. A., 50 Rice Burg L'Abbé, Paris (1929, France, p. 1240), for plannes of feathers and acreeus of

rious kinds

needle-women.

Panorr, Pettr, and Co., Ree de la Bourse, Paris 1852, France, p. 1223), for two rars and magaifecus Persian heron plumes and other fancy feathers for dres, Charadela Prite Medal by Jury of Class XXIX.) TOLILY, Grooce, Besley Hall, Naffordshire (184, Class XX, p. 586), for tippets, clouks, victorises, and muffs made from geose-down and feathers: a manufacture catalished with the view of giving a new employment to

Artificial Hair.

The material for this inde, which gives occupation to a large number of manufecturers and worksine, is preserved from the north of France, Belgium, and Germany, and sense of good quality is occurateally brought from Irednad. The lighter-coloured halr, which bears the highest radie, is the preduction of Germany; the darket shades are imported from France. The wholesale prive means are of much higher value. A local of half, nothe is longed of the possant girls in the districts before master, when from 1 is 1 of a 16, nad in smalled.

The Jury, after carefully examining all the specimens contributed by various Exhibitors, have selected the following, of which to make Honourable Mention, as the most snitsble recognition of the general equality in style and excellence displayed in these productions:— HOUCHET, C., 74a New Hond Street (246, p. 527), for

ceimeus of the new crochet-work in wig making, on skin and on net BROWNE, F., 47 Fencharch Street, London (245, p. 527),

for head-dresses of ornamental hair Carles, H. R., 45 New Bond Street, London (251, p. 528), for wigs and head-dresses. Regent Street, London (259,

Cause, D. A., 267 Regent Str p. 528), for perukes and head-dresses CROISAT, J., 76 Ruc de Richelien (1574, France, p. 1252), for perukes without toupies, produced by ma-

chinery. Iropoak and Haanpy, 217, Regent Street, London (253, p. 528), for wigs, perukes, and other works in

Rnna:v, W., Richmond, Surrey (262, p. 528), for ladies' head-dresses THIRITERIE, 4 Rue Vide Gousset, Paris (695, France,

p. 1212), for perukes and ladies' fronts.
TYZACK, W. V., Norwich (264, p. 528), for specimens of manufacture io false hair WINTER, W., 205 Oxford Street, London (249, p. 528).

for wies and head-dresses. The Jury are much indebted to Mr. NESSITT, Wigmore Street, to Mr. JENNINGS, Quadrant, and to Mr. DALLING. Old Bond Street, for their valuable assistance in the

examination of the various manufactures in artificial Word Hair for Familtone and other purposes.

Hair used for weaving consists of the long hair from liorses' tails. It is procured principally from South America and from Russia. All the black and grey hair is dyed for the manufacture of black hair-cloth for covering furniture. White only can be dyed so as to produce what are called fancy coloors, such as green, claret, crim-son, scarlet, &c., and great care is required in the process, which, however, when well managed, prodoces good permanent colours.

The quality of the cloth, as well as the brilliancy and permanency of the colons, depend also in a great degree on the nature of the warp, which may be either of cotton, linen, or worsted. Coloored halr-cloth (principally ma-nufactured at Worcester, Sheffield, and Paris) has been extensively used in the fitting up of steam-vessels, and for covering chairs, sofas, railway carriages, &c. Some of the lighter colours have also been used for boys caps,

slippers, &c. In the manufacture of hair-cloth, the weaver uses a In the manuscure or many-room, the waves uses a sort of look-abuttle, which he passes between the threads of the warp, or shed, towards his left hand; the assistant, nr "server," places a single hair over the end of the look, and the waver draws it through the warp. This operation is a tedious one, and the hairs being necessarily placed in singly, prevents the application of machinery which is so advantageously used in fabrics where the

shoot or west consists of a continuous thread In this department, the Jury award Prize Medals to the following Exhibitors :-

DELACOUR, H. P., 47 Rne Vieille du Temple, Paris (472, France, p. 1290), for horsehair and "vegetable silk" damask.

FORRER, A., 136 Regent Street, London (99, Class XX111., pp. 689-90), for ornaments worked in hair and gold. HAUSSENS-IIAP, B., Velvorde, Brussels (257, Belgium p. 1159), for horse-hair fibre stuffing for furniture, and

other manufactures in hair, LAVCOCK and Sons, Sheffield (330, p. 535), for horse-

LAYCOCK and SONS, Sheffield (330, p. 55a), for norse-hair damask, &c., of superior manufacture.

LEKONYRA and Co., 1 Rue du Cog St. Honoré, Paris
(300, France, p. 1223), for ornamental hair-work.

WEBM, E., Worcester (243, p. 527), for coloured haireloth and cloth composed of silk and hair; silos for eloth and cloth composed of silk and hair; also for specimens of which are met with both in the English and horse-hair carpets, woren in the same manner as Brussels Foreign sections of the Exhibition.

carpets. In all these articles great excellence of manufacture has been attained.

WISDON, RUSSELL, and WHITMAN, Cleveland, Ohio, America (205, United States, p. 1450), for superior spe-cimens of carled hair for furniture.

An exhibition of the various descriptions of leather hrought from every country, affords an apportunity of comparing the peculiar qualities and excellencies of each, which must be highly instructive both to manufacturers and artizans. Many of the improvements in this branch of trade have been introduced from other countries, where they have originated in causes purely local: thos. Russian leather, so much esteemed for its scent, is tanned with the cheapest bark of the country, and softened with an oil extracted from the bark of the hireh tree, also abandantly produced; the combination of these materials gives the scent and qualities so highly valued in Russian leather. The peculiar softness in French curried leather

is io part attribotable to using the bark of the evergreen oak, with which the better descriptions are tanned; the sole leather of England, which is not surpassed by any of its class, is dependent, to some extent, npon the superior oak bark that abounds in our island. The bark of the oak tends to give firmness and solidity, while other sorts are remarkable for the softness they

impart to the leather; and each material used in tanning gives some distinct quality in respect to colour, seent, toughness, or capability of resisting moisture and decay. Experience shows that the tanning principle in different combinations is found in the bark and leaves of many

trees; and it is to be expected that an extended compa-rison of the various descriptions of leather, for the first time brought together, will be the means of suggesting many improvements Chemistry has hitherto done less in this branch of

manufactore than might have been expected. Though numerous experiments have been tried, and many patents provement, no marked progress, to show that better results have been ubtained than by the old methods of tanning.

Very much has, however, been effected by mechanical means during the last 50 years. The steam-engine has leather-dressers and tanuers. It is used in grinding bark, for softening foreign hides, and in giving motion to many machines for washing, glazing, and finishing leather. But the most important results have arisen from the invention of very ingenious machinery for splitting hides and These machines completely separate the opper

from the under surface, leaving each part of the same superficial dimensions as the original hide. This is effected by means of a long sharp knife, kept in rapid motion about the sixteenth of an inch from the edge of a amooth bar of iron, over which the skin is drawn by a revolving cylinder. By another machine the skin is pressed between two revolving rollers, and presented, as it emerges, to the edge of a long straight knife, which is nicely adjusted between the upper and under surface of the skin, and kept in motion backward and forward to facilitate the operation of splitting. These machines are now common in most of the leather manufactories of England, and in some of the most important establishmeuts on the Continent.

ments on the Continent.

The hydraulic press is found to be a very useful anxillary for expressing the grease from sheep skios; it enables the leather manufacturer to dye more brilliant. colours, which cannot be well done while any grease remains in the pores of the skin. By these appliances the tanners and leather-dressers are enabled to produce a more per-fect and a cheaper article. The improved facilities of transport, the abolition of excise duties, and the greater freedom of our commercial relations with other countries,

have all tended to the same desirable result. We proceed to give a short account of several descrip tions of skins used for tanning and leather-dressing

Horse Hid

Here hides are brought into this country in large numbers; the principal supply is from South America, from whence 180,000 were imported last year. The hone was unknown in South America previous to the bear was unknown in South America previous to the wind over the flat plains of that country, and is cought for the value of in label and hair. There asks are manifely appropriate for lader above, either as cordions or by a machine described in another part of this Bepart. The price of these bailed was not considerably; at the prevent limit the value is very low, not exceeding to do.

Ox and Con Hides, and Calf Skins.

On and one hides are produced in very large number of the control
Hippopotamus Hides.

About 100 of these hides have been anusally imported into London from South Africa; they have been transed in oak bark, in which state they make exceedingly thick and compact leather: no very suitable application has yet been found for them.

Deer Skins,

Deer skins produced in this country are manufactured into oil or chamois leather, and appropriated for glores, hreeches, boots, and hraces. A very large number are annually collected in North America, and manufactured in the United States. A small portion of these skins are used in this country and in Germany. The hair of the deer is said to be the best material for stuffing addles.

Hog Skin

English Steep and Lamb Stins.

The immone supply of English skeep alans afficies competition to many large entailmances, in which they are insendenced and variously coloured sinake to an insendenced and variously coloured sinake to the coloured sinake and the coloured sinake and the coloured sinake. The coloured sinake are supplied to the coloured sinake and the coloured

hids it gold to the little, while the ferror is entirely acquired. In proportion to the fineress of the word, the compentess and value of the poil are depreciated. The snaply of sheep and thus he is manually produced in Loudon and its 'visinity exceed a salition and a half'; a transity with the same of the lower half is a same timed with a smarter in the lower half in manufactured into purchasest and channois leather. Of lamb skins, the grain or apper sarrice is frequently made into white leather for juing over the suppress of themselves the cluster for linking gloves.

Cape of Good Hope Sheep Skins,

A twy distinct variety of sheep akis is imported from the Caper (Good Biege; the work is then read course, the Caper (Good Biege; the work is then read course, sheep has a tail of extraordinary thickness, frequently as the cape as the case of the animal, and banded with far. Important the cape of the cape of the cape of the saintain is still preferred by some flock-ansetra in consequence of the superior quality of the nate, the large quence of the superior quality of the nate, the large dependence of the superior quality of the nate, the large that the cape of the cape of the cape of the cape of the the sheep, which appears to be preferredly indicated to the sheep, which appears to be preferredly indicated to the classes. A similar sheep with with both tails into imported from Superior, but not his the word is of fine the Cape sheep akis in found to be caped quality of moments in the cape of the cape of the cape of the moments in the cape of the cape of the cape of the moments in the cape of the cape of the cape of the moments in the cape of the cape of the cape of the moments in the cape of the cape of the cape of the moments in the cape of the cape of the cape of the moments in the cape of the cape of the cape of the moments in the cape of the cape of the cape of the moments in the cape of
Foreign and English Lamb Skins for Gloves,

In Italy, Spain, and the south of France, it is the error to this the heart as that the land a much ording provide of the growth to the land the land of the growth of gro

Seiss Goat Skins

The post is reared in considerable numbers in Sevinerland, Inly, and the south of France, for the valuable milk which it supplies. The akins are preserved with of the supplies of the supplies of the supplies of the of making stan superceoke lether. These from Sevinerable bear the highest value, on seconat of the period the other parts of the akins, which enables the moreous colours. The texture of great-skins is very strong, and more durable that the skep; from which circumstance they are well adapted for covering relativests and lining Sevineration and the valley of the likes, imported from Sevineration and the valley of the likes, imported from

Cape Goat Skins.

Skins of the Cape goat are much thicker than any other kind, and are applied to purposes where great strength and substance are required. The body of the animal is as large as the fallow deer. Many of the skins are exported to Gernany, where they are imanfactured into leather for the common dresses of the peasantry.

Monodore and East Indian Goat Skins,

Mogadore gost skins are distinguished by the great length of the hair, which, when aborn from the skin, is carled and manufactured for stuffing chair-seats and mattresses. The skin is rather inferior in quality, and usually made into black morocco, which, from the eireum of our first supplies having been derived from Spain, still retains the name of black Spanish leather. East India goat skins are small in size and extremely

short in the bair: they are appropriated for ladies' shoes, and occasionally dyed for covering chair-sents.

Kill Stine

Kid skins are collected in the south of France, Germany, Switzerland, Italy, and Ireland. French skins are the most perfect, and of the finest quality; those from Ireland, of which there are 60,000 skins annually exported, are also highly valued. East Indian kid skins are adapted for light above, but are occasionally made into gloves. As soon as the kid begins to feed on berbare. the fineness and delicacy of the skin are injured, and the skin becomes unspited for the best gloves; it is then used for shoes, braces, and binding-leather, for which purposes it is well adapted on account of its great strength and elasticity.

Scal Skins,

The sent has been already mentioned among the forproducing animals; the particular species whose skins are manufactured into leather are found in great numbers on the shores of North America, from Newfoundland to the Arctic Ocean. As many as \$600,000 have been caught in one season, and a large fleet of vessels is employed in this trade. The oil which the animal produces is the principal inducement to its capture; but the skin, which principal inducement to its capture; not use assats, sugar-is worth from 3s, to 4s, forms no inconsiderable sum when estimated upon the large numbers that are brought to this country. The seal, when young, has long, white, silky hair, which it sheds in a few weeks, and becomes covered with hair of a courser and darker colour. In the latter state it is best adapted to the purposes of the leather-dresser. When carefully manufactured, the skin has greater strength in proportion to its anbstance than any leather that is mountly worn. It is generally made into black enamelled leather for ladies shoes, and is much used for shoe-binding, where great strength is necessary. From experiments tried on seal, porpoise, and whale leather, that are exhibited in the Canada department, it appears probable that the skins of the marine mammalia have greater strength than those of landanimals.

Skins and furs in the undressed state are liable to be eaten through by the grub of a small beetle (Dermester eulpium). The eggs are generally deposited in some erevice about the head of the skin. These produce a swarm of hairy gruls, which feed upon the pelt, and grow to the size of small enterpillars. Instances have been known where the entire value of a foreign package of skins has been destroyed by these insects, and the of skins has been destroyed by these insects, and the annual loss occasioned by them in this country is com-puted to be from 2000/l, to 5000/l. They are found to be most destructive when skins are packed in midsummer or nutume, at which season the insect flies alread and deposits its eggs unperceived as the skins are drying in the air. The collections of skins packed in spring and winter are not liable to this injury. Camphor and tohacco-leaves have been tried against the depredations of this insect, and each has been attended with some success, but not so entirely as to recommend either of them as a complete preventive.

Rough Tanned and Sole Leither,

The number of exhibitors in this subdivision is 53, of

whom 15 are in the English department, 9 in the French, and 29 in other sections of the building. The sole leather in the English department has for the most part been tanned with oak bark, but we notice some varieties in the collection of Messrs, Bourcesz, Mon-TIMES, and Co., and in the Australian division, in both of which there are specimens that have been tanned with mimon bark. The Hon, Z. PRATT, of Prattsville, New York (102, United States, p. 1440), exhibits leather tanned with the bark of the bemlock tree: several exhibitors ave employed valonia as a principal ingredient. In the New Zoaland collection there are some remarkable va-

ricties; and in the Russian department we find specimens said to be cured with rye

Although many vegetable extracts have been discovered which are useful in tanning, inasmuch as they shorten the process and economize the cost of production, yet no material has yet been found which combines so many valuable qualities as oak bark for tanning sole leather; it fills more completely the pores of the hide, and prevents the great absorption of water to which leather tanned with other material is liable.

The simplest method of tanning sole leather, still practised in some of our colonies, is, to shave the hair from the hide with a sharp knife, and to steep the pelt in bark liquors for a year; by which time the gelatine of the hide has ebemically guited with the tannin, and the process is complete. In England it is customary to remove the hair by immersion in lime-water; if this process is carried beyond the proper point it dissolves too much the soluble gelatine, and renders the leather porous

Since the abolition of duties on tanned hides and skins, a considerable increase has taken place in the importation from foreign countries, with obvious advantages to the foreign manufacturer and English consumer. Both curried and varnished calf leather of excellent quality are brought from France, Germany, and Switzerland, and large numbers of curried boot-fronts. From Australia and the East Indies arrivals of tanned feather are more frequent, and supply at moderate prices the increasing wants of the community. In many cases the economy of tanning on the site of produce is considerable: the labour and tanning materials are both procurable at less cost; much is saved by the diminished freight of the mannfactured article; and the leather is less liable to damage by moth and worm, to which untanned skins are exposed in their passage to this country. As many beautiful and well-mannfactured feathers have

come under the notice of the Jury, which bave been exhibited by proprietors, or by those who have only to a small extent superintended the manufacture, the Jury have recognized the merit of these productions by ineluding the exhibitors with those manufacturers whom they consider entitled to Honourable Mention. The Jury award Prize Medals to the following Ex-

hibitors:

Cox. W. H. and Co., Russell Street, Bermondsey, Lor don (293, p. 529), for two foreign butts very well tanned, Cnawroan, H. M., Philadelphia (51, United States, p. 1436), for calf skins tanned in oak bark. DRAFFE, R. and H., Kenilworth (293, p. 529), for a markably heavy and well-tanned English bide, weighing

DUPORT, V., 16 Rue des Francs Bourgeois St. Marcel Paris (182, France, p. 1182-3), for three split hides of twice the usual length. The increase of surface is ingeniously obtained by a peculiar mode of splitting. A machine divides the hide into two surfaces, commencing

at the neck and continuing nearly to the opposite ex-tremity; where the splitting terminates the hide is neatly

trenity; where the spatting terminates the more is easily cut to preceive a uniform thickness, and when opened out extends from 17 to 18 feet.
Fixex and Co., Toulouse (210, France, p. 1183), for well-onsonifactured sole and harness leather.
HEFRIEN, JOHN and Thomas, Long Lane, Bermondeey (293, p. 529), for an English crop butt, of good substance and texture, and well tamed in every respect.

Laxonon Bnornkas, Menrag-sur-Loire (1639, France,

p. 1255), for well-tanned sole leather PELTEREAU, AUGUSTE, Chateau Regnault, Indre-et-Loire (677, France, p. 1211), for sole leather of excellent

quality, tanned by two methods.

PELTREAU, F., jun., Chatean Regnanit, Indre-et-Loire (949, France, p. 1225), for sole leather of excellent quality, tanned in oak bark; some of the specimens have been tanned without the usual application of lime

The Jury make Honourable Mention of the following Exhibitors:

BEAUCHAP DE BARÉ, A., Namur (262, Belgium, p. 1159), for tanned hides, applicable for soles and pump-buckets.

BOUTCHER, MORTIMORE, and Co. (293, p. 529), for tanned sole leather.

BUCKNALL, GEORGE (293, p. 293), for tanned hippo-potamus hides of renurkable thickness. BUSCHMANN, J. W., St. Vith (386, Prassia, p. 1072), for well-manufactured sole leather.

ESTIVANT BROTHERS, Givet, Ardennes (1214, France, p. 1235), for a Buenos Ayres hide, tanned in oak burk.

EVERSHED, Sussex (293, p. 529), for well-tanned light sole leather Harsen, J. de J., Waedenschwyl, Canton Zurich (172,

Switzerland, p. 1277), for a specimen of sole leather, tanned in oak bark. Hughus, T., Hull (16, p. 518), for specimens of the tanned hide of the walnus, and polishing wheela covered with the same; also for stuffed heads of the male and

female walrus, taken at the Davis' Straits fisheries. Kelsey, J. T., Lingfield, Sussen (266, p. 528), for a well-tanued crop hide, weighing 82 lbs. The process of tanning occupied two years.

Masson, CHARLES, Hoy (267, Belgium, p. 1152), for tauned sole lenther of good quality. Curried Leather,

Leather, having been first tanned and dried, requires to be reduced to an even substance, to be well extended, and made supple with fat or oil, before it is fit for the

upper part of boots. In the latter operations consists the art of the currier; and although much of the strength of the leather depends upon the previous treatment, still great attention and judgment are required to conduct this process perfectly. No article enters more generally into the consumption of the affinent and labouring classes; and it is evidently a subject of some importance to adopt those methods of currying which secure the greatest suppleness of leather, combined with durability.

The manufacturers of France have for many excelled in their mode of tanning and currying the finest descriptions of calf leather: those from the south of France (Bordeana calf), which are reported to have been tauned with the bark of the evergreen oak, are extremely soft and plinble, and their merits are obvious from the extensive sale they meet with in this country. The mode of tanning and currying pursoed by the English exhibitors is adapted to hear exposure to wet, and great improvement has taken place in the method of rendering magnetization in a taken piace in the instend of frindering the leather soft and casy to the wearer. The Swiss exhibiture have shown some very excellent leather of this class, for the upper parts of boots and shoes.

There are upwards of 70 exhibitions of entried leather,

of whom 20 are in the French division, 13 in the English, and the remaining 44 are distributed through every section of the Building.

The Jury award Prize Medals to the following Exhi-

Bossano, L. Church Street, Bermondsey, London (294, . 529), for curried calf leather of superior qualities, comp. 529), for curricu cast tentner of superior quality, binlug great strength with softness and pliability. COURTEPÉE-DUCHESKEY, 11 Rue du Renard, St. Sauveur, Paris (806, France, p. 1219), for hoot-fronts, very

pliable, and of good quality, principally manufactured from the celf skins of Paris. Cozena and Granters, Walsall, Staffordshire (283, p. 528), for tanned and curried teather, adapted for

dles, and for well-manufactured hog skins, DEFAUX-LACOUR, Guise, France (167, France, p. 1181),

for curried calf skins and well-tanned sole leather GUILLOT, J. A., 17 Rue du Boulai, Paris (534, France, p, 1204), boot-fronts of various kinds, very well manu-factured.

HEMSWORTH and LINLEY, West Smithfield, London (20, p. 519), for boot-fronts, and cordovan of excellent

quality and workmanship.

HERRENSCHEIDT, G. F. Strasbourg (538, France, p. 1204), for boot-fronts, and curried calf-skins, soft in

JETU, C. A., Quebec (109, Canada, p. 965), for enried porpoise leather, and samples of leather from the skin of the whale; the porpoise leather is of fine teature and con-

siderable toughness, and is remarkable as the first of the kind exhibited in this country. LAMBERT and Sox, Bermondsey New Road, London

(63, p. 521), for waxed calf skin boot-fronts, and cordovan, of good qualities and workmanship.

Prix, A., Jun., Nantes (1411, France, p 1243), for russet and black curried ealf leather, well manufac-

tured. Mencien, J. J., Lausanne (175, Switzerland, p. 1277), for curried calf leather, boot-fronts, and chamois leather,

well manufactured for the purposes to which they are applicable.

MERKLINGHAUS and WEX, Barmen (672, Pruss) p. 1987), for dressed hides manufactured for saddlery and harness.

Savousore, M., Moscow (232, Russia, p. 1374), for curried calf leather of good quality, und a few calf skins tanned and curried, with the hair attached as an imide

lining for the boot; extremely soft and pliable.
STOCKIL, W., 33 Long Lane, Permondsey, London (17)

p. 518), for specimens of boot-fronts, very well curried from the English leather. SCSER, H., Nantes, France (1022, France, p. 1227), for a good assortment of curried calf leather and foot-fronts. VENTUJOL and CHASSANG, 21 Rue des Gobelius (1384,

France, p. 1242), for boot-fronts manufactured from Bor-deaux calf skins, remarkable for peculiar softness, fineness of texture, and the great toughness of the material. The Jury make Honourable Mention of the following

Budgs, R. A., Rue dn Fer à Moulin, Paris (77, France,

p. 1175), for curried horse hides, suited to the upper part of boots and shoes. Buse, N., Swansea, Wales (4, p. 518), for curried calf leather, well manufactured.

FORTIER BEAULIEU, Rue de la Lunette (510, France, p. 1203), for eurried leather suitable for harness and saddlery. GHISLAIN-DUBOIS, Binche (469, Belgium, p. 1166), fur

cow hide curried for strap leather HOGARTY HROTHERS, Cork, Ireland (13, p. 518), for eurried calf leather and boot-fronts, very well manufactured

Massemin, C. L., Rue de la Reyne, Paris (1345, France, p. 1240), for calf leather adapted for boot-fronts. OBERCONE, IL., Trèves (383, Prussin, p. 1072), for curried leather, and for a well-tanned hide, a perfect imi-

tation of Russian leather PAILLART BROTHERS, Roe du Grand St. Michel, Paris (338, France, p. 1193), for calf and sheep leather manufactured for straps and rollers REULOS, A. J., 13 Rue Geoffroy St. Hilaire, Paris

(1454, France, p. 1244), for curried borse leather, adapted for boots and shoes. Soffier and Co., Lincoln's Inn Fields, London (51, p. 520), for an extensive assortment of good leather, ma-

nuffictured for coach and harness makers.

Tallet, V., Brussels (254, Belgium, p. 1159), for boot and shoe leather, well manufactured

Woop, W. and S., 32 Bow Street, London (25, p. 519) for a well-manufactured assortment of calf skins, curried and dyed in imitation of Morocco leather.

Varnished Leather

Varnished and enamelled leather has been brought to great perfection during the last 25 years, and increases in general demand as the improvements in its manufacture become generally known. Though the difficulty of making a bright varnish adhere to leather which is required to bend freely, and retain an unbroken surface, is considerable, it has been successfully overcome by the one of boiled linseed oil, mixed with vegetable black and Prussian blue to deepen the colour. This composition (the consistence of a thick paste) is rubbed on to the surface of the leather by hand, and dried in a stove heated to 150 and 170 degrees Fah'. The operation is repeated from three to seven times, according to the anture of the leather, and when the varnish is thoroughly dry, it is facturers.

found to adhere very firmly, and to bear considerable tension without fracture.

Many coloured pigments are mixed with the varnish,

stany coonered pagments are maked with the variance without materially altering its tenacity; by this means the most brilliant colours are produced, and the leather is readered more applicable for ornamental purposes. The number of Exhibitors in this branch of the leather

The number of Exhibitors in this branch of the leather trade is thirty-three, of whom nine are Germans, seven French, funr English, and thirteen from other countries.

Prize Medals are awarded to-

COURTOIS, E., 12 Faubourg Montmartre (1571, France, p. 1252), for black and coloured varnished calf hides, brilliant on the surface, and well manufactured. Dr.v.p.Dr., J., 18 Boulevard de Charonne (813, France, p. 1219), for a large assortment of well-manufactured calf and cow hides, adapted for shoremakers and coach-manufac-

Dixos and Witting, Bermondey, London (200, p. 529), for an assortment of varnished and enamelled his not splits, adapted for conclumaters, &c. In this collection the practicability of splitting three surfaces from one hide, is shown by the exhibition of the three parts separately tamed and varnished.

rately tanned and varnished.

Dozan and REINHARD, Worms (33, Hesse, p. 1128), for a good assortment of varnished calf leather for shoe-makers.

GAPTIER, J., 4 Faubonry Montmartre, Paris (1244, France, p. 1237), for black and coloured varnished calf leather, on which the cuamel is brilliant, and the leather sufficiently pliable.

HEINTZ and FREUDENBERG, Baden (382, Prussia, p. 1072), for black varnished calf leather, on which the enamel is strong and brilliant.

HEYL, C., Worms (32, Hesse, p. 1127), for varnished calf leather of excellent quality. HOUSTER, A. and Co., 46 Kue du Fer k Moulin, Paris (127), France, p. 1238; for a superior assortment of black and coloured varnished calf leather.

black and coloured varnished calf leather.

Jones, jun., Brussels (306, Belginm, p. 1160), for a
white varnished hide of superior quality, and for wellmanufactured curried leather.

MAYER, MICHER, and DRYINGER, Mayence (36, Hesse, p. 1123), for jupaned and varnished hides, and calf leather, and for morocces, roans, and skivers, dyed in great variety of colour. These Exhibitors also show currical leather for harvess, and other purposes. Each description of leather has been well manufactured.

Nvsr and Co., 132 Fashourg du Temple, Paris (1373, France, p. [142), for black varnished calf leather, manufactured very perfectly for boots and shoes. The varnish is brilliant, and sufficiently strong and elastic to bear the bend and strain to which it is liable.

OASTLER and PAINER, Bermondsey, London (286, p. 529), for a large assortment of enamelled and varnished leather for conchmakers, and for a very well tanned crop hatt.

The Jury make Hononrable Meution of the following Exhibitors:—
Hall, Sydney, New South Wales (not in Catalogue),

for enamelled kangaroo skins, manufactured for boots and shoes. MAYER, IONAS Munich (46, Bavaria, p. 1100), for varnished calf and very good enamelled coach hides.

MINOPRIO and Hottureners (37, Hesse, p. 1128), for varished calf and coloured japanned hide. Rorn, C. W., Frankfort (9, p. 1122), for varnished

Vignat's, L. J., Barcelona (249a, Spain, p. 1344-45), for varnished calf leather, suitably manufactured for boots and shoes.

calf leather.

Morocco and Dyed Sheep-akin Leather, 4c.

Morocco and dyed sheep-skin leathers are represented by thirty-one Exhibitors from Paris, London, Leeds, Mayeace, Barcelona, Tonis, and Tarkey. This description of leather is tanned with the leaves of the sumuch tree (Elva covision), imported into this country from the Island of Sicily. Great excellence has been attained in

the manufacture, both in the brilliancy and variety of solours, especially when it is considered that neither strong acid, nor great heat, can be applied without danger of destroying the fibre of the leather.

The specimens of moreceo from Turkey, Tunis, and Egypt, show the manufacture in its origin, and no alteration appears to have taken place in the mode of dycing, det, since the period when wostern Europe was indebted to them for this manufacture. The red morece of Turkey and Egypt is brilliant and permanent, and though well suited for their particular use, is not adapted for external consumer.

The Jury award Prize Medals to the following Exhlbitors:-

HATVET BROTHERS and Co., 16 Rec Manconseil, Paris (415, France, p. 518), for an assortment of moroces, roan, and calf leather, finished with great regularity, and in a variety of beautiful colours. The cochineal red and the various shades of green morocco, are remarkable for the fulness of colour. The black morocco is also of good

Enteraire and Goznoza, Strasbourg (1212, France, p. 1235), for a good assortment of coloured and black moreco, well dved and manufactured.

Wilson, Walker, and Co. Leeds (11, p. 518), for a very large assortment of coloured sheep, morocco, and east leather, well manufactured, and adapted, from their price, for general consumption.

The Jury make Honourable Mention of the following Exhibitors:-

DAVID, C., 12 Rne Manconseil (812, France, p. 1219), f for a beautiful collection of dyed morocco, for bookbinding.

DELISLE and Co., Gresoble (1181, France, p. 1234), far specimens of sheep and morocco leather, printed in permanent colours, for farmiture, &c. DEED, J. S., Little Newport Street, London (10, p.

518), for a good assortment of moreoco leather, for farniture and bookbinding.

East and Sox, Bermonder, London (34, p. 519), for dyed and embossed sheep leather, in initiation of Urrebt velvet. This appears to be a good appropriation of leather which is imperfect in the grain, and is manufactured ther which is imperfect in the grain, and is manufactured

with skill and good taste.

Gronge CLEMENT, 102 Dean Street, Westminster (32, p. 319), for good specimens of morneco and Russian leather, adapted for farmiture and bookbinding.

Gronge, Joseppe, 81 Dean Street, Westminster (289,

p. 529), for specimens of leather, beautifully gilded, embossed, and painted. Geraud Brothiums, Paris (850, France, p. 1220), for dwed morocco and sheep leather, in brilliant and perma-

dyed morocco and sheep leather, in hrilliant and permanent colours.

Letwicks and Grobox, Skinner Street, London (53, p. 580), for well-manufactured morocco leather and dyed

Rose, Salvados, Barcelona (249n, Spain, p. 1345), for an assortment of morocco leather, dyed in a variety of colours, for shoes; and for well-manufactured black morocco.

Alon and Gloring Leather.

sheep-skin rugs.

Alum, or white, leather is manufactured principally for the purposes of the glove-maker, and is represented in the Exhibition by twenty contributors.

the Exhibition by twenty contributors.

The common method of making this description of leather is to immerse the prepared skin in a solution of alum and salt, in equal proportions; but where elasticity

and softness are required, as for kid gloves, very much care and attention or necessary. The skih, having been first softned in line-water, has to be many times washed, have been supported in the state of the state of the theory of the state of the state of the state of the theory of the state of the state of the state of the theory and its late died, whether over a most bloats the theory and the state of the state of the state of the volks of eggs, it is ready to receive from the dyer the beautiful colors, to well known to the public, in the manufactured article of gloves. It has been estimated glove-leader manufactured of Trans and England.

A few specimens of the excellent kid leather of France are exhibited by M. ACVEN, of PITS: these akins are mannhetured at Annousy, a town about fifty miles south of Lyous. The great superiority of the manufacture of the kid skim from every quarter of the globe are sent thicket to be converted into gloring leather. Though the supply is derived principally from the adjacent provious of France, from Indy, Switzerlan, and Grennay, ver freshed and the East Indice have of lart pears contrileated the supply of the control of the property of manufactured there is not less than 400,000.00

and the control of remark sho, that a very large partice of the lands shine, missible for gloring lamber, are sent from many countries to be manufactured at Vervit, in Somerectairr, and the adjacent neighborshood. It is not unusual to see in that place the lamber shine of lady, Ayres, and the Cape of Good Hope. The citasset and the peculiarities of witer, which are so admirably adapted for kill etather density in France, or unusual to the proper manufacture of land hairs, which require a more which are not with in England.

The following Exhibitors have been awarded Prize

Barbander, J. P., Rue du Fer à Moulin, Paris (756, France), for an assortment of dyed goat, sheep, calf, and kid leuther, in variety of colours. The because colour of this manufacturer is excellent and durable; and the softness of the alomed calf leuther reuders it admirably adapted for the upper part of boots. Conar, J. and J., Queen's Cannel, Somersetshire (314),

for Italiun lamh skins, dressed and dyed in a variety of colours, fur gloves. Lolagnies, —, 6 Rue St. Hippolite, Paris (1330, France), for specimens of kid, lamh, calf, and sheep

France), for specimens of kid, lamb, calf, and sheep leather, suitably manufactored for gloves.

The Jury make Honourable Mention of the following

BOULONE, P., Prague (334, Austria, p. 1023), for kid and lamh-skiu leather, dressed for gloves, is which the smoothness and strength of the grain have been well preserved.

Lexamenso GLOVE MANUTACTORY (4, p. 1130), for brune and hlack kill enther, sud for specimens of dyed kid and lamb leather, for gloves. MATRAT and Sooks, Rainders (10, Denmark, p. 1356), for very well-dressed leather, both for white and taucoloured gloves.

coloured gloves.

RANNORR, J. L. and Son, Altenhurg (741, Prussia, p. 1091), for an assortment of 1smh leather, dyed a variety of colours, for gloves.

Oil or Chanois Leather.

There are fourteen Exhibitors of chamois leather, of whom four are English manufacturers, two French, and eight of other countries.

The peculiar quality given to leather by the process of the uil or chamois leather manufacturer is extreme softness, which renders it a suitable article for glores, and many other uses where this quality is required.

It is manufactured by the continued application of cod-

oil to the skin, alternately with a process of beating in failing milks, and exposing to the air for partial drys, in about ten repetitions of the oiling and drying process the skins are self-discript satement, and are allowed to the state of the state of the state of the state of the tion, after which they are valued in a rong milked to too, after which they are valued in a rong milked to So recently as the commencement of the present certrary sheep alars manufectured in this mode were extra try sheep alars manufectured in this mode were extra try sheep alars manufectured in this mode were extra gradually superseded their me, and the trute has constciently described in consequence.

The Jury award Prize Medals to the following Ex-

PULINAN, R. W. and J., 17 Greek Street, Soho, Londoo (285, p. 529), for an assortment of bock, doe, and channois leathers of every description, very perfectly manufactured, for a variety of normore.

manufactured, for a variety of purposes.

TEXTEX, junior, Niori (1033, France, p. 1228), for specimens of back, doe, and fava leather, and for some well-dressed chamous sheep leather, stained in a variety of colours for gloves.

The Jury make Honourable Mention of the following Exhibitors:-

LATBET and Co., glove manufacturers, Paris (296 France, p. 1191), for specimens of chanois leather, dyed in suitable colours for gloves. (Awarded a Prize Medal hy the Jury of Class XX.)

RANMALL and DICKR, Greek Street, Westminster (284, p. 529), for a well-annualisticutured assortiment of heak, doe and clasmois and gaiter leather. These Exhibitors show the application of clasmois leather in the pianoforte, where it is used to stop the prolonged vibration of the wires.

Dyed Sheep-skin Rugs, &c.

There are thirton Exhibitors of dyel rays manufactured from English they and Aurope on pain int. Though unpose to have been been as the continued to the contin

The Jury award Prize Medals to the following Exhibitors:—

BEVINCTONS and MORRIS, 67 King William Street,

Leadon (332, p. 535), for an assortment of sheep-skin rugs, in great variety of colours. These Exhibitors show bordered rugs of several designs, in good taste; and Angoura goot skins, manufectured in a similar manuer. CLASKE, C. and J., Glastonbury (48, p. 529), for sheepand lamb skin rugs, dyed and manufactured into a variety

of useful articles.

DEED, J. S., Little Newport Street, Westminster (10, p. 518), for Angorn gost and English sheep skin rugs dyed in many beautiful colours.

The Jury make Honourable Mention of the following Exhibitors:—

Roon, G. and Co., Bolton Borough, Glastonhury (49, p. 520), for hearth rugs made from dyed Angora goat skins, and for varieties of door-mats manufactured from English sheep and lamb skins.

Winson and Son, Bermondsey, London (14, p. 518), for a good assortment of dyed sheep skin rugs, skins for cavalry saddles, and several manufactured articles. 2 c 3

Fellow and Parchagat.

Parchment is propared from sheep skins by the simplest process. After the skin has been steeped in lines and water it is streethed in a frame, and by repeated working with hat water, and a several applications of whiting which are dried in the sun, the skin is entirely eleasated from the grease. It is brought to a fine surface by skitful labour with a round sharp knife, and when dry is the former.

Vellum is made from calf skins prepared in a similar manner.
This monufacture is represented by seven Exhibitors.

The Jury award Prize Medals to the following Exhibitors: -

BIRTHAULT, Isodam (56, France, p. 1)74), for a very complete and extensive assortment of parchament and vivilum, applicable for deeds, bookbinding, tambourines, and for the machinery of spinning-mills.

LEVER, J. and J., 13 Size Lane, London (24, p. 519), for specimens of veilum and parchament, manufactured

Leven, J. and J., 13 Size Lane, Lendon (24, p. 519), for specimens of veilum and parthment, manufactured for bookbinding, deeds, and tambourines. These Exhihitars show some well-dyed veilum, and other samples adapted for paintings.

The Jury make Honourable Mention of the following Exhibitors:—

Evans and Son, 10 Silver Street, London (18, p. 518), for specimens of well-manufactured parchment, and for

direction-labels, very completely made from the same material. SONDERMANN, W., Erfort (743, Prussia, p. 1091), for vellum and parchment of extreme whiteness, prepared for deeds, drum-heads, and for machine or cylinder

parchment.

Saddlery, Harness, and Portmanterns.

In reporting on suddlery, harmers, and portamaneaus, the Jury remark, that the general ebaracter of the articles is highly creditable to the Exhibitors, and show that considerable skill and ingensity are devoted to this department of industry. There are appeared of 190 Exhibitors in this subdivision.

From the nature of the manufacture it is less concess-

trated in particular focalities than most others. There is no twan of sair in England where one or more of the trade does not find ample occupation; and as the mann-factured article containaily falls into the hands of distant makers for repair, the knowledge and inventions of one mannfacturer are quickly circulated through a containable and the containable of the containa

The chief endeavoor of the instiller and harnest-emmineutre in to obtain strength, with lightness and conveferative in the chief and the chief and the chief and other naterials. Walsall, in Staffordshire, it the principal seat of the wholesale trade, where considerable quantities of suddlers and larmess are prepared for expenional control of the chief and the chief and the chief and payed in the numerous varieties of hits, of which there are very many sorts known to the size.

The necessity of judging of the suddlery of other countries by a very different standard from our own is evident; the form of suddle, for instance, that is well designed for our smooth roads and well-trained horses, would be very ineffected in the mountainous districts of Spain and South America.

The Jury have had their attention called to some portmantana, of very ingenious and elever construction, which, from the facilities they afford the traveller of rapid arrangement and convenience of access, will promote the comfort of a very numerous class of the

The Jury award Prize Medals to the following Ex-

thitors:—

BAKER, R. J., Boston (498, United States, p. 1465), for a light harness of superior materials and workmanskip.

BLACKWELL, S. and R., 256 Oxford Street (78, p. 521-2), for placeton harmens of patient black leather. The mountings are in good taste; the materials and workmanship are also of good quality.

BLYER, R., 4 Park Lanc, Westminster (90, p. 522), for a lody's saddle, we'll manufactured; and a hunting or

a may a saccay, well manufactured; and a hunting or park saddle, with improved elastic sent. Basex, II., Walsell, Staffordshire (58, p. 520), for two cases of bits, stirrous, and source, for the South American

eases of bits, stirrups, and spurs, for the South American market. Baows and Sox, Birmingham (65, p. 521), for specimens of saddle-trees, with windebone springs, galvanised

plates, &c., to prevent corrosion.

Cassrzza, A. B., 7 ltaker Street, Westminster (77, p. 521), for well-manufactured horsar and hunting saddles.

with pair of harness pads.

Coorge, M., York (50, p. 520), for a case of saddlery, containing articles of very superior workmanship: the

racing saddle, in particular, weighing only two pounds, is remarkable for its near manufacture.

CUPP, R. 18 Cockspur Street, Loudon (96, p. 525), for an embroidered velvet saddle, riding bridle, and harness,

an embroidered velvet saddle, riding bridle, and harness, manufactured with much taste and elegance. Earsynaw, H., 91 Wimpole Street, London (107, p. 1921) for a case of harmest section.

523), for a case of harness, containing blue morocco and other heidles, well manufactured. Hickey and Tell, Philadelphia (58, United States, p. 1437), for two portmantenes, well arranged and strongly

constructed.

KANE, G., Dublin (62, p. 521), for portmanteens and camp furniture, so ingeniously contrived, that most of the articles required to furnish an officer's apartment are

contained in a travelling chest.

Lacry and PHILLEY, Philodelphia [41, United States, p. 14335, for a case of harvess, in which the monntings are of solid silver; the materials are of excellent quality, and the workmanship very elaborate.

Lacrotria, La Jazus C., Brassels (256, Belgium, p.

Labounin Le Jauxe C., Brussels (256, Belgium, p. 1159), for saddlery and harness manufactured in excellent style, with good materials and workmanship.

Sylves and seek miner teas and work amount and one (80, p. 25 feeks). W. junior, 9 haves most rected of the best materials, and well adapted for its intended me. Last, 8, 256 Oxford Street, London (38, p. 519), for a well-contrived railway portmantenn, divided into four compartments, to facilitate the access to any articles con-

tained in it.

MIDDIANORE, W., 31 Holloway Head, Birmingham
(67, p. 521), for a lady's embroidered saddle, and another
with elastic seat; also for a new monthing rein for un-

with ensure sens; labo are a new measurement.

Inches norses, &e., the whole well manufactured.

Monnas, R., Montreal (113, Canada, p. 965), for a set of danble sleeph harness, of excellent material and work-manulip.

Passoner, W., 27 Little Windmill Street, Westminster.

(79, p. 523), for a set of single home harness: the style and workmanship are in every respect superior. POLLOCK, J., Glasgow (279, p. 528), for a very perfect set of Scotch harness.

Paas and Lamins, Paris (688, France, p. 1211), for a large and varied collection of saddlery and harness; many of the articles are elegantly designed, and the materials have been well selected.

Neance and Appexit, 185 Piccadilly, London (92, p.

522, for a large assortment of whips and canes, showing much taste in the manufacture, and superiority of workmanship.

Warrs, J. C., 29 Liverpool Street, London (86, p.

522), for silver-mounted herness with improved registered tng. A very neeful and ingenious invention.

The Jury desire to make Honourable Mention of the

following Exhibitors:

Anams, H., New York (476, United States, p. 1465),

for a portable saddle ingeniously contrived.

Asuroan, W. and G., Birmingham (64, p. 521), for specimens of whips of various designs, well manufactured.

Banton, E., Walsall (56, p. 520), for a case of bridles of good weekmanship and superior quality.

- Bell, C., 34 Wigmore Street, London (93, p. 523), for a lady's saddle and single barness.
- BYWATER, W. M., 99 Piccadilly, London (94, p. 523).
- for harness and improved Russian cavalry bridles. Coway, L., Barrhead, New Paisley (273, p. 528), for a very good set of Scotch cart harness of putent leather. Hurseon, S., Dublin (60, p. 520), for a bunting-saddle with elastic scat, and a side-saddle with safety stirrups. Hugues, R., Clifden Street, Finsbury, London (106,
- p. 523), for beraldic mountings for barness.
- p. 325), for oeraldic mountings for barness. MAXWELL and Co., 161 Piccadilly, London (52, p. 520), for socket spars in various stages of manufacture. PENNEY, J., 37 Union Servet, Middleset Hungital, London (91, p. 522), for a state pony bridle, designed by W. H. Rogers, made by W. Langdon.
 STEWARY, W., Toronto (134, Camdos, p. 966), for a set
- of single sleigh harness, made of varnished leather.
- The Jury desire to record their great obligations to the undernamed gentlemen :-

- Mr. Thomas Powell, leather factor, Lime-street
- Mr. William Hackblock, Rood lane. Mr. Frederick Dandleker, Hambectikon, Lake of Zurich,
- Mr. Martin Blackmure, Bread Street, London. Mr. E. W. Roberts, Page's Walk, Bermondsey. Mr. Alfred Bymer, Nassau Street, Westminster. Mr. M. Nicholls, Little Windmill Street, West-
- Mr. George Kent, Mornington Crescent, West-
- minster. Mr. George Kidd, Associate Juror, 257 Oxford-
- street All of whom have very freely given their valuable services in the examination of many of the Exhibitors' goods, on the merits of which they were peculiarly qualified to assist the Jury in forming a correct judgment.

J. A. NICHOLAY, J. B. BEVINGTON,

London, December, 1851.

CLASS XVII.

REPORT ON PAPER AND STATIONERY, PRINTING AND BOOKBINDING.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages lu the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.

Jury.

STLVAIN VAN DE WEYER, Chairmen, Beigium; Euroy Entraordinary and Minister Pienipotentiary from H. M. the King of the Belgiana. Thomas De La Ret, Popsy Chairmen, 84 Westbourne Terrace, Hyde Park: Ornamental Stationery

Mondfeturer.

CHARLES WINTETNOHAM, Reporter, Chlowick, and Took's Court, Chancery Lane; Printer.

A. Firans Diror, Joint Hiporter, France: Member of Central Jury, &c.*

Professor Histor, Zoliverei; Director of the Royal Polytechical Academy at Dresden.

Viscoun Manos, F.R.S., 44 Gravener Flace.

Histori Friess, Barnet, Vermon, Utolief States; residing at Morley's Hotal, London.

CHARLES VENABLES, Plomer Hill House, High Wycombe; retired Paper Manufacturer.

THE articles which the Jury had to examine were classified lu the following manner:

- A. Paper in the Raw State as it leaves the mill. H. Articles of Stationery. C. Pasteboards, Cards, &c.
- D. Paper and Scaleboard Bones (cartonnerie),
- E. Printing (not including Fine Art Printing).
 F. Bookbinding. The Jury met on the 17th of May, and continued their

labours till the 28th of July, when their awards were labours till the 28th of July, when their awards were finally settled and transmitted to the proper subtherities. They did not think it necessary to duride themseries into sub-committees; hat in adjudicating apon the speci-mens of printing intended for the use of the blind, they requested the assistance of George Summer, Eng., of the United States, and William Hughes, Eug., of [laughaw?] men kindly acceded.

The first duty of the Jury was to refer to the "Decisions regarding Juries," and afterwards to the "Instructions from the Council of Chairmen," in which, among other conditions, it is stated that " a classified list of the subjects contamons, it is stated that " examined must the subject to make the province of each Jury is prepared, and forms the limitation of each elass;" and that "those articles will be rewarded which fulfil in the highest degree the conditions specified in the Sectional List," namely:—

"Increased usefuluess, improved form, superior quality, or superior skill in workmanship, new use of known materials, use of new materials, new com-

bination of materials, beauty of design in form or colour, or both with reference to ntility, the cheapness with reference to production, and that the Report should describe the state of industry as shown in this Exhibition "

The Jury, in accordance with the foregoing instructions, oreeded to the examination of the different articles. proceeded to the examination of the asterest arraces. The classified list of subjects was found to be very defective, the classification only extending to English Exhibitors, and many articles were found to be misplaced in the classes to which they had been assigned. The Jury had thus to refer several articles to their proper classes, and to decide that maps did not come under their consideration, though several had, to the Official Catalogue, been inserted in Class XVII.; that the lithographic colour

 M. Didot, a Greek scholar, and an eminent typographer, engraver and typedomaler, printer to the Institute of France, and paper-manufacturer, having been appointed member of the Jury, his firm (of which he is the head partner) was excluded from competition. The Jury cannot, however, abution from seroesiant which behaves. * M. Didot, a Greek scholar, and an eminent typograhowever, abstalo from expressing their high appreciation of the important services, zeal, impartiality, and talcot displayed by M. Didot, both as Joiot Reporter and Juryman.

press, as well as all other machinery, came under the jurisdiction of Class VL, the Jury offering at the same time to give their assistance and opiniona individually or collectively, should any such assistance or opinions be desired; that they could take cognizance neither of literary merit, as had been required of them, nor of different philological systems of printing, as phonetic printing, pho-noty py, phonography, &c. &c.; and lastly, that several specimens of caligraphy and penmanship had erroneously sen sent to ther

With regard to the Foreign Department the Catalogue was still more imperfect; and the Jury had to search out the articles which appertained to their Class. It is greatly to be feared that, notwithstanding all the care taken by the Jury, there may be articles which have escaped their

It will be observed that the Jury, in strict conformity with the principles laid down by the Royal Commission, have only recommended one Conneil Medal, and that for have only recommended one Conneil Medal, and that for typography; not that they did not recognize the excellence and benefy of many of the specimens exhibited, and the skill and perfection which, in many points, the art of printing displayed, but because there did not appear to be may production so clearly bearing the character of noulig of incention or new application of a known principle as to justify such a recommendation, with the exception of the products of the Imperial Court and Government Printing Office of Vienna, which presented both moveity of invention and a number of new combinations in the art of typo-

graphy. o prize was awarded to publishers, as such, nutwith-

standing the merit of their publications. Until recently, bookselling had not been represented at the Exhibitions of Industry: the Instructions given to the Jury of the Great Industrial Exhibition of all Nations did not assign to it may distinct position; and, therefore, in the different countries the bookscilers have refrained from sending their publications, not deeming that their trade, connected more or less closely as it is with the sciences and with letters, could be looked upon as a branch of

Several booksellers of France, Germany, and Belgium have, however, thought that the creation of a book being the result of a combination of different industrial branches each as wood-engraving, metal-engraving, colouring, the choice of types, and of the various kinds of paper, &c.,
—the bookseller ought to be looked upon as the partial
creator of these industrial products, the first idea of which he had in many instances conceived

In awarding the Prize Medal, the Jury have, in each branch, observed the general principle of acknowledging the various kinds of excellence to be met with in each article under consideration, without entering into the question of relative merit.

Some articles, though having no cloims either to a Prite Medal or an Honozanthe Furnice, contained, nevertheires, some merit, which justified the Jary in noticing copinion space every article exhibited, noverthanding the cure they have taken in making a critical examination of the whole; that their Report has reference to the general state of the Paper Manufacture, Printing, and Bookhinding, as promet in various countries, and the contributions of any individual Exhibitor are seither contributions of any individual Exhibitor are seither conlination of the Report.

inflations of the Bigord. We erricles of the Clea, the product of which deeply interest all grades of society—contribute to them mend, inclinetaal, and needle critical contributes to them mend, inclinetaal, and needle critical contributes to them mend, incline the contributes of the stand hands—the way strictly in the Jury, had they been able to draw a faithful picture of the actual the most imprisons increases, to reserve their gerheid development, and to indicate their probable future growth the most imprisons increases, to reserve their gerheid development, and to indicate their probable future growth and the probable gr

sented at the Great Exhibition.

The Reporters express their thanks to their Chairman, M. VAN DE WEFER, for his assistance and contributions in the drawing np of the Report; also to their colleague, Mr. HESAN STEVENS, for the information he has given on the state of Type-Gonding and Paper Mannfeture in the United States, as well as for his article on "Printing for the Use of the Blind,"

The number of exhibitors of all nations in this Claus is the Claus in Commission (1) and Principles of Commission (1) all to Principles (1) of which (2) the principles of Commission (1) and Principles (1) and the Claus of States of Northern Germany; 23 to the Grand Debuy of Mades, and the Ward Provincies of the Commission (1) and the Claus of the Commission (1) and the Claus of the Commission (1) and the Claus of the Commission (1) and Principles (1) and the Commission (1) and Principles (1) and Princi

The Jury, in conclusion, curves their hope that the main of all matters, reliesed by the Exhibition of 1813, main of all matters, reliesed by the Exhibition of 1813, main of all matters, relieded by the Exhibition of 1813, occurrent to make the property. Property, is consistent and the section, and of type-graphy. Property, is consistent and position than in material concerns. Printers and books there, are in the control of the printers of th

The Custom-houses, now obliged to establish a search, frequently hostile, will relinquish the impediments to commerce and literature, and works will no longer be reprinted in haste, replete with errors, or mutilased according to the will of speculators, and in emulation of cach other.

Lastly, the certainty of a wider market will be an encouragement to writers of talent, and to publishers, who are frequently prevented from commencing great undertakings by the fear of secing their work immediately pirated. Universal co-operation is indispensably necessary to insorre the success of great literary and scientific

enterprises, which could not fail to flourish in a higher degree if the rights in literary property were recognized.

L PRINTING.

After an interval of four centuries, the date of the Creat Ethibition of the world's industry is coincident with the anniversary of that of the invention of printing. It seems at if all antions were assembled in the equilial tracers at the seems of the control of the control of the Press — the most powerful instrument of their elvistation. It is by the sid of printing that different autions have imprated to each other their thengbts and their feelings, and have received in some degree combined existence to the Ignorance and projection which feeler national warfars, and could never have presented this indusival

without this marvelous boid, they would have been selfwarfare, and could never have presented this shadinishle display of universal harmony and of generous enablation. When we consider the great conditions of manuscripts when we consider the great conditions of manuscripts and the benefits of which society was devoid before the discovery of printing, every friend of study and of exalted intellectual speculations should deem binariel fortunate and the properties of the study of the study of the study and the study of t

In every age, and in all countries, printing denotes the state of civilization, of which books are the reflex, and the history of the human mind is written in the progress of bibliography. Thus the first printed books of Ger-many were almost all devoted to theology and scholastic philosophy, while at Paris ancient literature occupied an equal rack with theology; thus also at Rome, where the remembrance of ancient literature maintained a still stronger empire, printing under the guidance of the Bishops of Aleria and Teramo, principally reproduced the master-pieces of classic times. In France, however, mader the influence of the chivalrous reign of Francis I, a great number of works upon chivalry soon appeared, and the desire of becoming acquointed with narratives so much in conformity with the prevailing taste, was one cause of the introduction of printing into England. Of the sixty-two works printed in London by Caxton, those upon theology do not amount to ten, the remainder being devoted to chivalry, to history more or less romantic, to Without exliterature, and to manners and customs. patinting upon this subject, we will confine ourselves to observing that at the period when the Pope founded at Rome the celebrated printing-office for the "Propagation Home the celebrated printing-effice for the "Propagation of the Faith", there was no corresponding activity on the subject in London; and that at the present day, whilst the great printing establishment of the "Propagands" remains innerive, England every year seeds borth to the world a million of Bibbes and New Testa-

Son after its first origin, the art of printing had orbitised a great degree of sperfection, and it was not till the second half of the last century, that eving to the efforts of librars, is Spain; of Bukerville and of Pollarer, in England; of the Fonlises and the Rindinsans, in Scolund; of Bodeni, in Italy; and of the Difect Inally, in Paris, any real progress can be pointed out. The types were better can all better can, be int an good at the property of th

a "I periodipate in the accomismon between the yeal former distribution and are not approved or developed and former distribution and approved or developed and former distribution and while I beet late billiony for an extracted from it. I for long out, or sens still many relevant in antidepting that which is by all reads for diverling, when antidepting that which is by all reads for diverling, when period from it. I for long out, or sens still many relevant in part and it and present a spriser of elimental electricity, so in the sense of the sense were extacted by the rapidity with which at each action of the lever, novel by the hand of the workman, all the pages which a whole sleet of pager was capable of contanting, were imperated at a single strake; but this rapidity, which coabled a workman to produce in one also more than a thousand transcrubers could write, could not long suffice to supply the constantly-increasing demands caused by the march of intellect.

About the beginning of the present contary, Charles, the third Earl Nandage, by the invention of the present the third Earl Nandage, by the invention of the present spread of the present improvement in the hyperpolate and near economical, had under a representation of the present improvement in the hyperpolate and showledge of English neglisters, and by the intelligence of the particular and a lowest contract of printing, in time of the plantary revolution in the art of printing, in time of the plantary that the printing of the printing

• Mr. Stower remarks, "That the common prevs is constructed on the true principles of mechanism. It does not, however (he silows), produce an alequate imprevsion from heavy works in small letter without great labour and attention. It was, therefore, a great acquisition to gain as accession of power with, at the same time, a diminattion of

"This valuable acquisition in the art of printing owes its invention to that enlightened and patriotic statesman, Earl Stanbope. The fron press, invented by this nobleman, is capable of ten times the force of the common press, with, perhaps, a tenth of the labour. In working upon this press nothing is left to the judgment of the pressums but the beating."

The Stanhope principle has been applied in all succeeding improvements of the common press, whether of iron or wood.

wood.

Alt, Tiple, A haring given up the presention of the set of All, Tiple, All, Silk as a prince of respectability in Louisin, engaged with East Stanbupe for the purpose of horizon in the content of the purpose of the content of

tical part of the operation.
After two years application, Mr. Wilson assessmed to
After two years application, Mr. Wilson assessmed to
hope, whom he styles "the Right Homorable Investor," had
overcome every difficulty, and this, accordingly, the
rably contrived, combining the most boastful simplicity
with the most densitie excessory, the open supertical properties of the state of the public for looking forward to the
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the polices of the trescrypt are (with the approximate)
the standard with the trescrypt are (with the approximate)

in Annuly, two, no vertery or it vian the approximate University of Cambridge, for their adoption and use in late printing of Blois, Tenaments, and Prayer Books, upon cretals torms and continues highly articles are controlled to the control of the control of the control of the printing of Blois, Tenaments, and the printing of the printing of the control of the control of the printing of the control of the control of the bowers, arising latered Mr. Wisson and the efficies of the Taiversity, the consists was devolved, and Mr. Wisson published this case in a stereotyped panaghtic, entitled, Andrew Wisson.

by Applegath's new system, that the highest degree of speed had been attained, did not experience prevent mankind from assigning a limit to the perfectibility of human investions, and to the insertuable designs of Providence.

Mr. Koesig's machines, pateuted in 1814, were far too

complicated and expensive, and the inking too imper-fect, for general adoption. They were superseded by Mr. Edward Cowper's machine, which he invested and patented in 1816. Almost all the large editions of modern works are printed by Cowper's machines, and the influence they have had on the publication of books of all kinds is far beyond any expectation entertained at the time the machine was invented. After it had been in use some time, it was stated in Court, by an emipont lawyer (now a noble Lord), that, "if it had not been for Mr. Cowper's machine, it would have been impossible to supply the demand for books:" this is not correct, for at that time the hand-press did supply the demand: but the striking and important fact is, that the marking erested a demand, and called into existence books which, but for it, would scarcely have been thought of. As the machine-work from type and wood-cuts was far better than the ordinary printing of the day, booksellers were induced to print extensive editions, because they saw the machine could accomplish all they required. One of the first booksellers who availed himself of this power was Mr. Charles Knight, who projected the "Penny Maga-zine," on a hint from Mr. N. D. Hill, Queen's Counsel. Each number, published weekly, consisted of eight pages of letterpress, illustrated with good wood-engravings The public was astonished at the chenpness and good quality of the work, but it was its immense sale which rendered it profitable; for some years it amounted to 180,000 copies weekly. Mr. Kuight, whose services in the cause of educational literature entitle him to the the cause of consumers increasive volute.

In this work. The Cowper machine has been the cause of the many pictorial illustrations which characterize so large a portion of modern publications. The "Saturday large a portion of modern publications. The "Saturda Magazine," "Chambers Journal," the "Magazin Pitto Magazine, "Lambers sourism, resque," in France, and numerous others, owe their existence to this printing machine. The principal of charge editions and large soics soon extended to establish works of a higher value. A remarkable instance of this was the edition of Sir Walter Scott's works, with notes, edited by himself: instead of the old price of 10s., they were sold at 5s, a volume, and the demand erented by this reduction of price was so great that, although the printer had a strong prejudice against machines, he was compelled to have them, the presses of his large establish-ment proving totally analie to perform the work, which amounted to apwards of 1,000 volumes per day for about two years. The Universities of Cambridge and Oxford have adopted Mr. Cowper's machines for printing vast mbers of Hibles, Prayer-books, &c. &c. A Hible. which formerly cost 3s., may now be had for is. Mr. Cowper recommended the Religious Tract Society to put aside their coarse woodents, to have superior wood engravings, and to print them with his machine. The Society adopted these suggestions, and the result is, that by sending forth well-printed books, it could now support by seeding forth well-printed books, it could now support interity their sale, without any aid from subscriptions. As no newspapers, "Thu Tisms," for instance, prints as the sewage of a very large video, often with a supple-ment, the aggregate smount is more than thirty zeros of printed urince per day—a quantity that could not possibly have been effected by hand-pressee. At the "Times" office there are four machines, inverted by Cowper and Applegath, printing from 4,500 to 5,000 impressions per hour; and two machines, lately invented by Mr. Applegath, printing Ten thousand copies per hour—a hand-press producing only 300 impressions per hoar. The great point obtained in these machines in the perfect distribution of the ink, and the power of cansuing the type to pass under the inking-rollers twice for newspaper work, or from four to eight times for book-

work, thus insuring the type being well loked. The effect was so striking, as to induce Mr. Cowper to apply tLe inking-roller* and table to the common press, and thin method has entirely superseded the old printing bulls, and completely abolished the imperfect tuking, technically called "monks and friars," so frequently seen in books printed by the old system. The effect of Mr. Cowper's ingenious invention is, that books are well, chenjdy, and quickly printed, an abundance of illustrations introduced. and the quality of printing improved all over the world; thus rendering literature accessible to millions.

PRINTING-AUSTRIA.

Printing, invented at Strasburg and at Mayence, and patronized by the Emperor Maximilian, who obtained masterpieces from it at its very commencement, appears in this Exhibition with a degree of splendour which has caused general surprise. No less encouraged in our day by its present sovereign, the Imperial Printing-office of by its present sovereign, the Imperial Printing-office of Austria has proved itself equal to its duties, and has accelerated the progress of the art by numerous experi-ments of all kinds. Xylography, engraving, type-found-ing, stereotyping whether by planter moulds or by means of gutta perha and the galvano-plantle process, electroor gut percent and the garden passes process, electro-metallurgy, by which fossil fishes and animals beried in the antedilavian era are reproduced upon paper; galva-nography, galvanotype, chymitype, all those new appli-cations of art and science which dimly foreshadow an nuknown future, are represented here; and lithography, that new sister of typography, also appears, with new adjuncts of chromotypy and chromo-lithography.

The beautiful and rich collection of Oriental types,

which we have counted more than a hundred different sorts, as well engraved as they are well cast, proves that in Austria learning is not less encouraged than the arts. By the side of so many objects relating to typography, we must admire the typographic plates, each measuring 540 square inches, formed by the galvanic process, and producing, in copper, letters of all languages, from which many millions of copies may be printed without any

appearance of wear and tear, M. Ilaas, of Prague (367, p. 1028), has distinguished himself by various efforts towards sustaining the long-established reputation of his house.

After the admirable display made by Austria, of numerons specimeus of well-executed typography in all languages, the Jury burdly feel themselves anthorized to express a wish that, among the great and increasing number of printers in that empire, a few had sent their productions, to show how far the art bus advanced with-out the support of the Government. The only Exhibitor in letter-press, besides M. Hans, was M. BATTAGIA, of Venice (366, p. 1028), who sent fair specimens of typoin simple and convenient binding. As pubgrapmy, in lishers, MM. bers, MM. MULLER (372, p. 1028), and NETMAN (373, 1028), of Vienna, exhibited books and albunas got up p. 1028), at vies with much care.

PRINTING-PRUSSIA.

Next to the Imperial Printing-office of Austria we notice that of M, DECKER, the printer to the Royal Aca-. Earl Stanhope, when he invented the Printing Press which will bear his name to posterity, coupled with his object an idea of inking the form on the press by means of a revolving cylinder, and in pursuit of this plan spared no expense in endeavouring to find a substance with which to cover his rollers. He had the skins of every nainful which ha thought likely to answer the purpose, dense by every possible precess, and tried many other substances, as cloth, slik, &c., without success. The nance-ssary seam down the whole length of the roller was the first impediment, and next the impossibility of keeping any skin or substance then known always so soft and plinble as to receive the light with an even cost, and communicate the same to the form with the regularity required. All the presses of bis early construction had at each each of the table a raised flanch, construction had at each end of the table a raised filanch, type high, for the purpose of applying his soliters; but the obstacles interposed by nature berself totally builted and + This may be judged of at the British Nassum, by the unique copy upon volum, printed by Kebonsperger about 13-l. It is a magnificent "Here of heures," the execution of which is even superior to that of the celebrated book of the Adventures of Teurdonck.

denay of Berliu (148, p. 1056). The large folio New Testament, the German translation by Luther, is a masterpiece of typographic art. The printing of it is perfect, the types are well cut and cust, the ink is black and brilliant, and the paper excellent. Great praise must also be accorded to the edition of the complete works of Frederick the Great, a literary and typographic moun-ment of great beauty, raised by Prussia to its hero. The five volumes in large quarto, already published, are worthy in every respect, by their typographic execution, of the importance of such a work.

M. Decker exhibited, amongst the specimens of types

from his foundry, some beautiful Oriental types, engraved in part with the co-operation of the Academy of Berlin. and also specimens of hrass rules, of great depth in the

engraving, and of very superior execution.

M. LARPHANN's ingenious invention (147, p. 1056) for printing in oil from a mass of solid colours, as a substitute for semifinid printing inks, has attracted the no-tice of the Jury, and they hope that when it has been

sufficiently improved, this may be a valuable adjunct to ornamental printing.

M. G. WESTERMANN, of Brunswick (749, p. 1091), but ** European Gallery," printed upon German Bible," in From Elberfeld, M. Barderken's "German Bible," in

From Electricas, N., DAEDERER 8 " Octions times, in folio (832, p. 1095), is a specimen of small and neat type printing. M. Harrel, of Berlin (284, p. 1065), exhibited bank-notes, and labels in gold and colours, possessing some merit.

PRINTING-SAXONY. M. HIRSCHFELD's, of Leipzic (180, p. 1113), and some

N. IHENTIFILD 8, of Leipnic (180, p. 1113), and some other typographic establishments, maintain printing in an honon-rable position in Germany.

The considerable number of publications printed in n single year by M. BROCKMATS (178, p. 1112), who is at the same time a printer, a type-founder, a bookseller, and publisher, at Lepsic, has attracted the notice of the Jury. All these publications are directed towards literary and scientific purposes, and each edition is very large. Although his printing arms less at the perfection of the art than at cheapness and correctness, we have nevertheless remarked a churming little volume entitled Lie Bezusberte Rose, by Schultze.

The books printed and published by MM. Viewen, of Brunswick (822, p. 1095), who are also type-founders and paper-makers, are not less worthy of remark for their aim at scientific asefuluess. The execution of them is without any attempt at fine printing, but is such as suits

without any attempt at nuc printing, but is well as this description of books.

M. Barte's work, "Minstels of Germany" (179, p. 1112), printed at Leipste, on parebonent, and the publications of M. Schnerner, of Frankfort (30, p. 1124), should also be mentioned. In general, the Jury have observed, in all the books exhibited in the German Department, great improvements in the paper, in the clearness and neatness of the

PRINTING-ITALY.

type, and the quality of the ink.

Printing, soon after its discovery, was carried to Rome by some German printers. The Popes Sixtns V., Leo X., and Clement XIV., founded the celebrated printing-office of the Vaticau, for the purpose of printing the works of the Holy Futhers and the Holy Scriptures, and of propagating the Catholic Faith. Their beautiful Oriental types give this printing-office an honourable standing, but its publications are few, and do not keep

pace with the progress of the times.

The Vendelins of Spires, and the Jensous, were early catalished in Venice. They introduced some happy modifications into the type by making them approach nearer to the benatiful letters of Moman inscriptions. The Aldi still further improved them, and invented the sloping types called italic. Their beautiful and crudite publications are remarkable even in the present day for their typographic execution,

At the end of the last century, and at the commencement of the present, Bodoni, a typographer of consummate abilt, who was at the same time the engerater and founder of the type which he so carefully periods, pulliabed lish beamful editions—true masterpaces—which perhaps actified too much to type-graphic hazary. Italy has sent but for type-graphic perductions to this Eabhlitten, neverbless the Jury laws creamfed with Abbey of Alucousha," abifully printed at Turin, by MM, Cannan adMar, 189, p. 1505. The type is very bountful, and each page is nerrounded by a fooder insicentury. The wood on equivalent pure to multiplical by century. The wood on equivalent pure sens multiplical by

Painting-Switzerland.

the galvanoplastic process.

Notwithstanding its flourishing trade in books, and the great number of printers established in the Cantons, Switzerland has not given the Jury an opportunity for judging of its progress in typography. PRINTERS—EXCLAND.

The first book printed by Caxton, after a long resi dence in the Low Countries, appeared in London in 1474; and it is worthy of note, that the first book in the English language was printed by him, not in England, but on the Continent, in 1471. Almost all those which he printed, and which he translated himself, to please the Princess Margaret, sister of King Edward the Fourth, and at the solicitation of the great lords and ladies of that time, were devoted to chivalry. His types, and those of his successors, Wynkyn de Worde and Pyrson, re a not very elegant imitation of the writing then used in are and very eignat institution of the writing then used in England. Up to the time of Backley, in 1733, the art of printing made. But becomes in the state of the printing inpanning to type-founding and printing, first gare to the art a real impulse. He spent several years and much of his fortune before he was able to produce types to his own satisfaction. In 1737 he insured bit first book— Virgl. in quarts. Between this date and 1763, he printed those charming editions of Milton, Addison, The Com-mou Prayer, The Bible, Juvenal and Persins, Horney, &c., which are still celebrated for their typographical beauty, and cause the name of Baskerville to be ranked among the most eminent men who have contributed to the improvement of the Art of Printing. The paper which he caused to be made was superior, and all his which he caused to be made was apperton, and an or-apparatus for printing, including his ink, premes, chases, punches, matrices, moulds, and types, were produced by himself, and were all great improvements. His process of drying and glazing his paper and ink, as soon as printed, by means of hot plates of copper, was expensive, and had some other faults; but the taste of the period was not then ripe for luxury in printing, and notwith-standing that he offered to print for the Loudon booksellers within five per cent, as low as the printers they employed, he complained that be was unable to get work employed, he complained that he was unable to get work from them. Accordingly, an 1767, we find him writing to his old friend Frankliu:—" After having obtained the reputation of excelling in the most useful art known to mankind, of which I have your testimony, is it not to the last degree provoking that I cannot get even head by it?" Then, as now, many persons would excourage had printing, because it was cheaper. His types, though rather lean for large books, were held in much estima-tion, and in 1779, four years after his death, were sold to a literary society in Paris for 3,700/., and were, in 1784, first employed in printing Beaumarchais celebrated edi-tion of Voltaire, in seventy volumes, a work at that day maurpassed in typographic luxury. Thus ended the first real attempt at improvement in England.

for real attempt of improvement is logical.

At the old of the meetry, Mr. William Bladt at a statement policy of the statement of the statement policy of the statement polic

who wished to raise in France a like monument to Racine, and printed a folio edition, unequalled for its typographical perfection.

At the commencement of the present century, the late Mr. Charles Whittingbam brought out the elegant editions which have rendered the Chiswick Press so celebrated. Until that time no one had printed wood engravings so perfectly, by the application of overlays a necessary for obtaining gradations in the tints. This success enconraped the angravers to give to woodcuts a fineness un-known in the times of Albert Durer, Wolgemuth, and other engravers, who were obliged to employ broad lines, the unevenness of the paper and the imperfections of the presses rendering the printing of fine lines impossible. At the present day, when speed is imperatively de-manded by the public, the means of satisfying this demand are everywhere numerous and powerful. This fact may be judged of in Loudon by the printing-office of Mesers, Clowes (printers of the Official Catalogues, and of the Reports by the Juries), in which two steam-engines pet in motion twenty-sia printing-machines; by that of Mr. Spottiswoode, the printer to the Queen, &c.; and by the printing-offices of "The Times," and other large London newspapers, which publish in the morning the London newspapers, which passess in the secondary the long debates in Pariament, so often continued intil late in the night. This rapidity of execution would have ap-peared fabulous in the last century; and it ought to be remarked that the speed does not, in England, in any way prevent the correctness of the work, which is in general remarkable, even in the immenso daily newspapers, This advantage must be attributed, in a great measure, to the maintenance of the ancient custom of the printers in England. Here it is required that there should be seven entire years' apprenticeship of every working printer, whether be is destined to be a compositor or a pressman, This beneficial custom, by means of which the workman becomes more skilful and more attached to his profession, is gradually re-establishing itself in all the countries in which, by reason of political commotions, it had fallen While in most other countries of Europe the patronage

of the Government agoest indisposable to the evasion or the development of a great number of binardos of or the development of a great number of binardos of the start and elector. England affords a striking listance of the other par expaids of bottom partners and developed the start and elector of the start and elector

Although neither of the great Universities of Oxford and Cambridge has taken any part in this Exhibition,

It is also possible that the system of lowering woodcuts was one of the means adopted by the engraves who were employed for the Chiswick Press, in order to facilitate good work. In 1944, the Trustees of the British Museum permitted caust to be taken of the original wood blocks engraved by Albert Durer, in 1510, of his Panic Christi, and an edition was printed in English, edited by Henry Cole, Esq. There cause use the processing the pr

Cole, Foy. These cols are very muca neveron.
It has been supported in missiplied as to the works of
Albert Baser and the colsequentles, for it was not the
from which improvious were then taken, after the sunce
of black acting for ealine printers of the present sky.
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It is a support of the present sky.
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lantistics, the British and Foreign Black beckery, founds
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supports, which has the new induction of any different
supports, which has the new induction of the Protestant
medicates. It is a Impediture, exclusive of the
medicates, the Impediture, exclusive of the
medicates, the Impediture, exclusive of the

the Jury must commemorate the high merit of the Clarendon Press in the one, and of the Pitt Press in the other. During a long series of years Oxford has been remarkable for the well-sustained heanty of its Greek and Latin publications, as well as of those in the English

Mr. PARKER (120, p. 544), the bookseller of the University of Oxford, has exhibited as a publisher, several works on medieval architecture, remarkable for their correctness, the beastiful execution of the wood engravings,

and the goodness of the paper. The Jury have strongly regretted, and this regret has been recorded on their minutes, that almost the whole of the printers of England have refrained from exhibiting the beantful productions of their presses, owing to the in-structions given to the Local Commissioners, which stated that printed books were inadmissible. However, some fine that princel books were insufanishlet. However, some flue specimens of good printing seen to have every in hymer chance, such as Mesers. Barnewer and Event beautions, and as Mesers. Barnewer and Event beaution to be a superior of the princel seed of the seed colour; the moulds were made expressly, the wires fluer and closer piaced, to imitate the old moulds. This is a Supplemental Volume to Pickering's Series of the Prayer, which shows all the changes made common Frayer, when shows an including much in the Ritnal from the Reformation to the Savoy Con-ference. "The Booke of Common Prayer, noted hy John Merbecke." This is a verbatim reprint, showing what parts of the service were chanted in the reign of Edward VI.; the notes are black on red ledger lines; the paper the same quality and make as the Victoria positors, cannot but prove interesting:-

Prayer-Book, but in water-leaf, that is, without size. Also the first six books of Enelid, with the diagrams and symbols printed in colours, which are used instead of tetters, for the greater case of lenners: all these are from the press of Mr. WHITTHOHAM. Mr. BAGSTER'S (87, 543) well-printed and useful "Polyglot Bibles;" Mr. MACKENZIE'S (of Glasgow) (94, pp. 543, 544) good speeimens of Church Text, illuminated with red capitals: Messrs. REED and PARDON's neatly executed specimen of their founts; Mr. SMITH's specimens of Hercules Ellis's Poetry; Major BELL's (203, p. 552) well got-np Tables of Universal History, &c. &c. Two other works must of Universal History, &c. &c. Two other works must be mentioned, as being connected with the Great Ex-hibition—Mr. BaxTreLL's (169, p. 547) Hymn for all Nations, by Mr. Tupper, translated into thirty lan-guages, and Mr. Owrs's (180, p. 549) reprint of the speech of H. R. H. Prince Albert, at the Massion House Banqaet, also translated into several European and Oriental languages,

ental languages.

The same principle which prevented the English printers from exhibiting their works has deprived the benchishers of the opportunity of taking, at the Great Exhibition of all Nations, that high position to which their beautiful and carefully divided works would have worked to be a superior of the property of the pro for ever inseparable from the history of English literature; and thousands would again have seen with satisfaction, and shown with pride to foreigners, the nunaction, and snown with price to foreigners, the nu-merous, cheap, neatly printed, and beautifully Illustrated productions of Mr. Charles Knight, who in ministering to the intellectual wants and pleasures of the people, has given in the right direction an impetus which is still felt in all hranches of art and manufacture connected with

this Class. The following statistical Tables by Mr. Edward Edwards, Secretary of the London Society of Com-

Table showing the Rate of Waons per Week, and Number of Journeymen and Apparentees in 79 Towns in the

	PM	lil.	ANI	Ο Λ	ND WALL	38,	ENGLAND AND WALES-continued.						
Name o	of To	ws.			Rate of Wages.	Number of Joarneymen.	Number of Apprentices.	Name of Town.	Rate of Wages.	Number of Journeymen.	Number of Appentions.		
Betford - Berwick-on-T indford Frecon - Frighton			heas		Shillings. 24 24 24 21 to 24 18 to 24 18 to 25 23 23 24 to 25 25 26 to 24 27 to 40 28 to 24 38 to 24	9 9 64 12 10 18 8 5 30 20 20 27 7 7 10 3 116 31 11 29 7 7 24 10 10 10 10 10 10 10 10 10 10 10 10 10	9 5 49 20 115 25 4 4 50 100 22 118 2 2 111 114 14 150 118 7 6 6 15 6 15 6 15 6 15 6 15 6 15 6 15	Leight of Lewis Le	Shillings. 24 24 24 25 26 27 28 28 29 29 29 20 20 20 20 20 20 20 20 20 20 20 20 20	2 50 188 13 300 111 55 121 11 58 36 20 6 6 11 15 12 21 22 22 22 22 22 22 29 14 4 8 8 8 8 8 8 8 8 8 8 8 13 13 15 15 15 15 15 15 15 15 16 16 16 16 16 16 16 16 16 16 16 16 16	22 300 20 177 800 100 100 22 468 28 8 6 6 32 32 32 32 32 46 7 7 23 31 14 19 7 7 60 60 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		

In London thera are, besides the numbers stated, 800 men

SCOTLAND.

Table showing the Rate of Wages per Week and Number of Journeymen, &c .- continued.

SCOTLA	SCOTLAND.						In London theraure, besides the numbers stated, 800 mer and 350 beys who work exclusively at press.						
Name of Town,	Rate of Wages.	Number of Journey men.	Number of Apprention.	There 55 quar- and abo hoys; b- la the l weekly o	are printed in terly publicati at 100 of the at the quarter l'aited Kingd oces, 41 hl-wa	London, to monthlie lies are nom there okly ones	to weekly majoring, are of nostly do are 14 do and 40	y, 2.4 most ty of the hiefly com na by jou inily pape 23 weekly	weeklies speed b rneymer rs, 18 tri sournab				
Dundee	85illings, 20 to 21 25 25 20 20	40 5e8 250 6	35 329 150 6 18	Ireland.	6. Of these, s of England The ratio of in the trade m	employa ay he stat	ed to be	as follows	he 14,50				
Stirling	20	9	12			News Depart	paper iment.	Johbing, Publical	Bookwook tions, fee,				
,		954	550			Jeemey-	Boys,	Journey-	Boys				
IRELA	ND.			London	(daily press)	600	300	1,940	1,500				
Belfast	25 20 tn 26 30 to 3	63 58 380	100 32 270	England Scotland Ireland	and Wales -	1,490 500 600	1,200 350 450	1,070 1,000 900	800 850 850				
Galway	32s. 6d. 3 15 20 to 21	9 10	5 8			5,130	2,300	4,910	5,700				
Londooderry Omegh and Armegh Sligo	18 to 21 15 12 to 15	12 12 4	24 22 14	On the	London daily not countron	y press 46 need on th	0 men a is work	re employ					
		548	475	I. Lond	on average wa	ges of 2,3	50 memb	hars	Shillings per week 25				
RECAPITUL	ATION.		2000	821	outh Eastern wages of 165 louth Western	members		- from (15 to 24				
England and Wales	12 to 30 20 to 25 12s. to 3 32s. 6d. 5	3,090 1,507 954 548 6,439	1,500 1,929 550 475	5. The V	didland Distr Vestern Distr mbers Northern Dist	et, Irelan	wns), 93 1 (13 tow land (10	ns), 694	18 to 2: 13 to 2: 12 to 1:				
	Journeymen.	_	entievs.	Province	3,000 members of England	re at 25e. ; l, 2,500 m	per week	at 20s.]	3,750				
London	3,000	-	500	Province	e of Ireland, I	,500 men	bers, at	17s. 6d.	1.312 1				
Provinces of England and 3 Water	2,500	2	,000	Province per we	s of Scotland,	1,500 mes		15s. 6d.	1,162 1				
reland	1,500	1	,300		Total	Amount		1	8,725				
Total of persons	8,500	4,500	,00)	March I	ollowing list, 1852, shows								
				Newspap	HEPS:								
	1845	18	46	1817	1848	1819		1850					
The Times - Moraling Advertiser - Daily News - Service - Moraing Herald - Moraing Chroniclo - Moraing Post - Sun - Express	1,554,000 1,002,500 1,004,500	1,48 5,52 1,73 1,35 1,04 1,10	0,000 0,000 0,500 2,500 6,000 5,500 4,000 0,000	9,025,250 1,500,000 3,477,000 1,510,000 1,233,000 990,100 903,000 778,714	11,021,500 1,538,957 3,033,638 1,335,000 1,151,304 964,500 895,312 888,018	11,300, 1,528, 1,337, 1,147, 937, 905, 878, 964,	230 1, 300 1, 300 1, 500 300 300	,900,000 ,549,143 ,152,000 ,131,000 912,547 829,000 831,500 776,950					
Staularl	852,000 816,000	76	4,090	659,500	789,000 652,500	533,0	000	585,000 492,000					

an London the centre of the roots fraint, always compensy stands, the value of \$4.500 Mc; I woo handed and thirty monthly and quarterly magazines produce 500,000, yearly. The stamp-daty on new-yopers in 8145 was 527,6281, in 1850, sixty-five millions and three-quarters of peops comps, and eleven millions and three-quarters of half:

102 Irah paper comps, and eleven millions and three-quarters of half:

In Lordon, the centre of the book trade, south a 500 is peary stangs, we remed by 150 Lordon and 122 English with including new elidence, are published a certify, of provided a certify, of provided a perity of principle already perity. Now included and thirty unantity of pages stangs, and half a million of alleforeay stangs, and half a million of alleforeay stangs, and half a million of the provided provided and provi

Chromotypy, or Printing in Colours,

Hugo of Curpi is said to be the original projector of printing chino-concern, by surface block printing. In ordering chino-concern, by surface block printing. In our Printing in chine-concern, "as practiced by Albert Derre, Curpi, &e., was polisitisch. The elicite in his Derre, Curpi, &e., was polisitisch. The elicite in his properties of the printing in chine-concern, "as practiced by Albert berre is "yet a very contains always and the printing in the content printing in the printing in the content printing in the content printing in the content printing in the content printing in the printing in the content printing in the printing in the content printing in the printing in the printing in the content printing in the prin

M. J. M. Papillon, in his Traite Historique et Presipue de la Germen es Phil. 1746, gives altreviolus for anking the 16 Germen es Phil. 1746, gives altreviolus for anking printing in chiarco-occurs, and shows specimens of the different states of the impressions in the progress of the printing. Mr. Swage, in "Hints for Decountive Printprinting, Mr. Swage, in "Hints for Decountive Printprinting, His recipes for anking coloured his say, however, incorrect; and although merit is due to him for again calling the actualism of printing relative printing. His register of the printing for again calling the actualism of printing repulsed to the printing of the printing of the printing grant printing and the printing of the printing register of the printing of the printing register, and the printing of the printing register, and the printing of the printing register, and the printing redistribution of the printing retained as long against and the risk book was pair.

The greatest impulse given to colour surface printing in this country, was during the existence of the state lotteries, about 35 years ago. The late Robert Branston, wood-engraver, and the late James Vizetelly, then employed at Mesers. Gye and Baine's printing establish-ment, greatly promoted the demand for coloured and ornamental printing, the one by his skill as an artist, and the other by his constant endeavours to produce striking the other of his communications to produce a straining effects by means of colour printing; a great emulation for ornamental work being created by the lottery contractors, who yied with each other to render their lottery tractors, who vied with each other to render their lottery seebemes more and more attractive. Mr. James Whiting, sen, who was one of the principal printers for the Government contractors, also produced great novelties, and subsequently, in conjunction with the late Sir William Congreva and Mr. Branuton, established the extensive printing-office of Beaufort House for all descriptions of printing of the printing and particularly for protection against forgery. The case No. 123, Class XXX, exhibited by his son, Mr. Charles Whitton (p. 829), contained some beautiful specimens of relief engravings reudered more difficult to imitate by the sid of the rose engine; cameo embossing,* in which the surface of the die is inked; and compound plate printing,† at one im-pression, in two or several colours, by plates constructed to combine with wonderful accuracy at the moment of taking the impression, by cylinder steam machinery: these plates are similar to those so long in use at the Excise and Stamp Offices, and which are of such great durability, that the medicine label plates now in use have produced millions of impressions during the last 25 years, and are still in daily use at the Stamp Office. It was by the aid if this machinery that Mr. Norman, of Frankfort, and Mr. Henel, of Magdaburgh, were both enabled to

* Cameo embossing was re-introduced by the late Mr.

Branston.

7. Double-Culous Printings Plankins. — When Sig William Congreva was engaged in centriving a method of printing stamp in two colous, for the prevention of forgers, for the two colous, for the prevention of forgers, for the Doublin for the askinatory and JM. William, who afterwards became that greatleman's partner, ferented an apparatus, and made a deligit for a materiate for the above pumpers, greve, a model was made, ball size, at Menra. Doublin's work, namel: the direction of JM. Wilks, and in 1820 and set to work at SP William Congreve's residence in Ceell Towns, and afterwards about to the Manuan at Worleich.

introduce these principles of printing late their respective countries, the dies and plates being furnished by Mr. Whiting; those gealtener were not only greatly remuciate the production of the principles of the principles (Governments for the Introduction of what was the as new art to those countries. It would be difficult to find any other concerns are the alapsel for revery that all beam of the concerns and the conception of the principles of the mert by Mr. Whiting, sen. Ser William Congreve, and Mr. Brinston; and the case exhibited sufficiently detailed to the contribution of the contribution of the contribution. All the contributions are the contribution of the Mr. Brinston; and the case exhibited sufficiently debaniums, fully malestain is twell-extract reputation.

When the English state lotteries were asfolished, ornamental priming [26] growly into disses, and it was not mental priming [26] growly into disses, and it was not printing playing earls, that there was any revival, great fellities being given by the improved coloured inda which he introduced, and which are described in his pecifications. Since this period might and necessarie imperimental properties of the properties of the prosent properties of the proteed of the properties of the pr

Nothing can be more beautiful and more perfect in execution than the charming plates printed in coloura by Mr. Baxrac's process (172, p. 548); but the articles having been placed in the Class more especially relating to the Fine Arts, it is in that Class that an account of their merit must be snoght for

M. SILERDMANN (GT4, pp. 1194, 1195), of Stream burg, has exhibited productions, some of which are produced by the stream of the stream of the stream printed windows of the Straberg Chiledral, and some intuitions of manuscripts, encircled with coloured vignettee by surface printing. Others, again, are to be soldiers, of which a hundred and unterty thousand sheets are annually issued, and find a sale in France, Germany, and Fogland.

A geological map, coloured with time distinct tints; a table representing the effects of the contrast of colours, the employment of which has found a felicitous application in the work of M. Chevrent, Member of the Institute, and other prints executed by this process, prove that science, as well as the arts and commerce, will profit by this branch of industry. In addition to the Printers already mentioned, who, he

Casa XVII., exhabited printing in solures, the following both expendence with one special merity was sherved and epichesis on which no special merity was sherved with the control of the

Printing in Gold.

Diblin, in his Decameron (vol. 11, p. 410, states, that "Diblin is his becamera for the research to best "Discoverable plan is becamera for the research to best of gold, with illumination. His manner of operating in year arrest. The Society for the Enourament of Aris the condition, as in small, of his making the process the condition, as in small, of his making the process the condition, as in small, or his making the process the condition, and the condition, and the condition of the making the process of the condition, and the condition of the making the process of the condition, and the condition of the making the process of the condition of the condition of the making the product of the condition of the cond

of the extraordinary federics of their execution." The included adopted by W. Wittmaker is the findwing, for the findwise find the complete of the complete of the Harris (Lhas XXX, No. 244; who was employed on the No. The parts of composed in moraller type in the work. The parts is composed in moraller type in the of the size of the page, about half-an-inch in trickness, in order that the contract of the page, about half-an-inch in trickness, in and let, and places on the table of an emissary typephored on the irrep plant, and port but, and for plant of an include the contract of the page, then the page or evident in placed on their typeans in the usual way, having been the page of the page of the page, then the adjusted of the day placetries, which alleres to it in adjusted on the paid wheth they have the control of the page of the trip they was the control of the page of the page of the trip they was the page of the page of the page of the trip they was not been turned down, and the paid wheth the page of t

About twenty years as, M. Sauri introduced into Daland printing in pold from, copper-place. His precess was strongly as the proper place of the proper place in a was all the proper place in the proper place in a tent of rareage copper-place in la, and filling the place with it, to that it is with the fugure. The place has to with it, to that it is with the fugure. The place has to with the place of the place of the proper place is a very weak solition of purchas), and then with the plan of the way impression of first with a reg indeped in a very weak solition of purchas), much then with the plan of the way impression of the copper-place place in a weight and the place is the proper place place in a proper place were present interes with the protect free gainst a highlypolished work place, by which a beautiful brightness was exercit interes with the protect free gainst a highlypolished work place, by which a beautiful brightness was weeter in the protection of the protection of the where great preference in required, has been abundanced by most of the copper-place printers for the cheep and loss with place is and all, out ther rabbing the brunce on

the poper when just printed.

Printing in gold by letter-press soon followed the method of copper-plate gold printing. Messrs. Viscetely and Branstou were the first to apply it; and their visiting and address carls, printed by letter-press, from rose-engine plates, have never been surpassed for the bright-

ness and beauty of their execution

About the same period Mr. De Ia Bren, in coajuscions with the task Mr. Jaine, of furnedment blowers produced to the coalust of
union day significant in owe applied to numerous purposes in most construct. So flictioning in the best method of producing good and bright results by letter-perce printing, measuring good and bright results by letter-perce printing, and the significant in the significant percentages with the best huntst deman of hower analysts and reduce the with De Ia Body subdetice still it be offered to be significant to the significant percentage with the percentage with the significant percentage with the significant percentage with the significant percentage of the significant percentage with the significant

The following exhibitors of printing in gold and silver bronze, and in metal, displayed a variety of specimens, all possessing merit.

personnel with J. Mostrata, (p. 529), Mr. Kosonita, (p. 542), Mers. Provend Soc. (p. 537), and also Nester. [p. 542), Mers. Provend Soc. (p. 537), and also Nester. [p. 542), Mers. Prov. M. Alexandra, provend of partial grant fields. Fireter—M. Alexandra, the class 1 Visiting on Heidl. Fireter—M. Alexandra, the class 1 Visiting on the control of the class 1 Visiting of Heidler (p. 1311). Zelleverta—M. M. Kernarra, the Norman (p. 1311). Zelleverta—M. M. Kernarra, the Control of the C

PRINTING-FRANCE.

As early as 1470, printing was introduced into Paris by the influence of La Sorbonase; its progress was rapid. Rembold, the partner of Gering, Autoine Virard, Simon de Colines, Pigonochet, and others, carried the art of printing to a high degree of perfection. The typeraphical merit of the publications of Robert and of respects were it not surpassed by the high literary merit of those learned printers.

The Camsania, the Dekissors, the Counteilers, and the Barbons, maintained the good traditions of the survivery printers: and towards the end of the last century Ampriting of the Confection of the Proceed Cassies, called the Dusphin Collection. From the united labour of the Dusphin Collection. From the united labour of time of the Confection of the Proceed Cassies, called the Dusphin Collection. From the united labour of time of the Confection of the Confecti

Now, however, in most countries, by the effect of competition carried to its atmost times, the distinctive, original, and personal characteristic of the melect typical, and personal characteristic of the melect typical control of the division of labour does not permit them now, a formerly, to cat and cast the type themselves, to make their own ink, to superinteed the construction of their presses, or ink, to superinteed the construction of their presses, to show them bow they should be used; to a knowledge of these technicalities many of the necestar printers united of these technicalities many of the melectar printers united

extensive literary acquirements.

The concentrate all the ferrits and all his political span one only of the branches white combine to form the art of the processor of the branches white combine to form the art of the processor of the branches white combine to form the art of the processor of t

single branch of the art, the results are satisfactory.
The National Printing-office of France was founded in 1610 by Louis XIII., who there collected the punches cut by Garamond by order of Francis I., and confided these punches to the most realizest printers of his time, who were honoured with the title of Royal Printers. Under the preceding regions this printing-office had dis-

tinguished itself by large publications, such as the collection of Ordonnances of the Kings of France, that of the Pathers of the Church and of the Councils, and that of the Byzantine Historians, &c. At the fall of royalty it became a vast establishment, in which was concentrated all the printing of the Government departments, divided hitberto among private printing-offices. Napoleon confided the direction of it in 1809 to M. Marcel, who had accompanied the expedition to Egypt, and had founded a printing-office at Cairo. Making use of the types of the Propaganda of Rome, which had been removed to Paris, M. Marcel printed the Lord's Prayer in 150 language It was especially under the reign of Louis-Philippe that the printing-office, then a royal establishment, improved its means of execution, and caused a great number of Oriental types to be engraved under the special direction of the most learned Oriental scholars, such as MM. Burnouf, Mohl, Ilase, &c. All the types are remarkable for their beautiful execution, and for the happy combinations which, without impairing the purity of form of characters, has simplified their cutting and facilitated their composition. We may particularly instance the hieroglyphic character, composed of 2,400 punches, with which all the Egyptian inscriptions can be reproduced; and the Assyrian character, the decomposition of which has brought down to 100 the number of punches necessary to form its various combinations. The 150 foreign founts in the specimen-book of the National Printing-office offers an interesting subject of comparison with the rich collection of the Imperial Printing-office of

gold and in colours, in imitation of the drawings and vignettes of the elegant Oriental numancripts. It is to be desired that the National Printing-office of 100 to be desired that the National Printing-office of Office of Austria, and of the manafectures of Strees and the Goldelins in France, should successively increase in the store of foreign type, and devote itself more especially to very kind of experiment relating to typecially to very kind of experiment relating to typethe co-operation of learned mer and good artists, wen-

Austria. The Jury have particularly remarked the peretaste and perfect execution of the borders printed in

be honourable for a nation like the French.

The typographic execution, with reference to the typographic execution, with reference to the types, the harmony, the elearness, and the parity of the designa executed by MM. CHENAYARM and CLEMET, is perfect. Nothing can be more beautiful than the three volumes of the Oriental Collection sent by the National Printing-office. These are:

1st. The First Book of Kings. 2nd. The First Volume of the History of the Mongols. 3rd. The First Volume of the Bhagavata Parana.

The Jary have found the bookselfing business of Paris bonourshly represented in this Esthibition by MR, RENGEARD (p. 1194), BRILLERE (p. 1197), and GARNE (p. 1209), for the vicence and Hierance; by MR, LANCALORS and LECLERGE (p. 1190), and by M. PARNARRE (p. 1293), for cleantaceal overla; by MM, BANCE (p. 1293), for the Chantaceal vortex; by MM, BANCE (p. 1295), GEORG (p. 1196), and CHARLER TEXAS (p. 1295, b) indicated and celestrate Harvey, so untilarly halped to the visual of mechanical science; and, lastly, by Madame HEARD, for Works upon agriculture.

Amongst other works, the Jury have remarked the edition of Hippocrates, in Greek and French, forming seven octave volumes; and the first volume of the edition of the Greek Physicians, issued from the press of the National Printing-office. Mallalizar [p. 1197] is the publisher of these works, as also of the Anatomy of the Human Body, by Cravethier.

The "Complete Works of St. John Chrysteine, and St. Benk" with the Lain transition in parameters of St. Benk" with the Lain transition in parameters of St. Benk" with the Lain transition in parameters of St. Benk" with the Lain transition in parameters of the Lain transition in parameters of St. Augustine, published by M. Garwine Works of St. Augustine, published by M. Garwine Works of St. Augustine, published by M. Garwine St. Augustine, published by M. Garwine St. Augustine, published by M. John St. Augustine, published by M. John St. Augustine, and the Complete Residence of John St. Augustine, published by M. John St. Augustine, and John St. A

is 118%, executed at the National Printing-effect and in another class of works some books intended for exist in another, and the result of the second of th

⁸ Mr. Ilarria, so well known for his extraordinary production of fac-ionities of old books, retoration of decire leaves, for, has favoured the Jury with the following description of the means he employs. Ill in preciments were in Class XXX., and consequently out of the jurisdiction of the Jury of Class XXII. 2-

"In the history of machine there are for things so remutable, as that the press and the east have been the means of producting vertas of act which have nont controlled the production of the production are suspected from the present time, is fully proved by the privac given sides for early printed bodos or active tylastic. From this latter circumstance the collector has been induced to note the means of having merican and valuable works in typerquisy and painting completed by the clinities, and thus haddle in the production of the production of the protable in a few machines of the production of the prolate in the production of the production of the protable in a few machines of the production of the prolate of the production of the production of the protable in a few machines of the production of the protable in a few machines of the production of the protable in a few machines of the production of the protable in a few machines of the production of the protable in a few machines of the production of the protable in a few machines of the production of the production of the protable in a few machines of the production of the production of the protable in a few machines of the production of the production of the protable in a few machines of the production of the production of the production of the protable in a few machines of the production of

"The weaked the year 1815 take free free employed by another the conditioner of the present and I believe the first of Washing assistant bank of the early printers. As, perfected by the conditioner of the present and the present and the conditioner of the present in the first of the conditioner of the conditioner of the present in the liberty of Alleberg, Reportment are then the present in the liberty of Alleberg, Reportment are then the present in the liberty of Alleberg, Reportment are then the present in the liberty of Alleberg, Reportment are then the present in the liberty of Alleberg, and the liberty of Alleberg and the Alleberg

composition of the types being made by young girls; by MM. PLON BROTHERS (p. 1213), whose books, albums, vignette engravings, and woodcuts, are of great merit; hy M. Clave (pp. 1216, 1219), whose illustrated books are of first-rate workmanship, and whose woodcut impres-sions are truly beautiful; and for the provinces, hy MM. Mane † (p. 1192), who exhibit books neatly bound and fairly printed, at most extraordinarily-low prices; and fairty printed, at most extraordinarity-owe proces; by M. SLIBERMAN (pp. 1194, 1195), who has contributed to improve the art of surface-coloured printing; by M. DESROSTARS (p. 1219), who is a small provincial town has produced his "Ascient Aurergoe," &c. in a very creditable manner; and by M. Basnar (p. 1229), who exhibits illustrated volumes of the Scriptures.

PRINTING-SPAIN AND POSTUGAL.

The Jury would have been gratified to see displayed in The July would nave over grathers to see unpured in the Exhibition any typographical production executed in Spain,—the country which in 1772 produced at Madrid the superh edition of "Sallust," printed in such perfec-tion and on such beautiful paper by the King's printer, Josehim fbarra.

It is in Spain that the most ancient manufactories of

paper known in Europe were established.

The same feeling is to be expressed as regards Portugal, for the Jary cannot consider as a specimen of Portuguese printing the sample exhibited from Madsira, under the title of Amostra de Impressa, though every beginning, however small, ought to be encounaged. The printers of Lishon might have sent some well-known editions of their classics.

PRINTING-BELGICK AND THE NETHERLANDS. Printing was introduced into the Low Countries at the same time as into England. Martin d'Alost, in 1473, and the Brethren of In Fie Commune, at Brussels, published the retented of he be Commune, at Brunets, published their first works. The art of printing made rapid pro-gress in the skilful hands of Jonnes de Westphalis, in 1474, at Lonvain, and soon extended itself to Antwerp, Andensude, tihent, Bruges, Hasselt, &c. Towards the year 1534, the Plantins at Astwerp, and, in 1616, the year 1554, the Plantins at Antwerp, and, in 1010, the Elzevirs, first at Leyden and afterwards at Amsterdam, carried the typographic art to such a degree of perfection, that their publications are still sought after throughout the whole of Europe. The Wetsteins, the Biscuux, and the Moreti (who, being eamobled, received permissions to continue the art of printing without derogation to their nobility), were emplators and successors worthy of them. The political events of the seventeenth and eighteenth cenand positions trained a baneful influence on the progress of typography, which revived, particularly in Beigium, in 1815. The number of able printers increased considerably in both countries; and, store 1850, Beigium has witnessed with satisfaction the annual increase of original publicaons, notwithstanding the unfavourable position in which the publishers are placed from the competition of the orints of foreign works. Such, however, is the influence of the development of a national spirit, that during the last twenty years the Belgian press has issued a greater number of original works than in the 150 years which preceded the recognition of the independence of the

Amongst the printers of Belgium, where the mechanical part of the art is good, the town of Malines has long since part of the art is good, the town of Nalmes has long uncer made itself known by its Prayer and Littergie Books, successfully and economically printed in red and Mack— thanks to the incessant labours of M.P. T. Hanieq, Typo-graphy is also represented in the Exhibition by the well-printed Bibles and Testaments of M. Brians, of Ixelies (p. 1199); the illustrated books and woodcuts of M.

• By a singular coincidence these three were pupils of the typegraphic establishment of M. Firmin Didox. the property of the control of the control of the control of the of 1,500 volumes always ready, throughout the year they produce 15,000 volumes per day, averaging 200 pages each volume. They have 20 steam grillinds muchines, one ma-chine turning out 14 reams of printed work per hour. All the wood engraving is done in their establishment: they employ 1,200 persons.

TANAR, an art recently cultivated in Belgium; the TANAS, an art recently entitivated in Belgium; the Mussal of M. WIPTARL LEARNS, ON Numer [2, 1160]; the chop publications of M. K. Germans, at Tomasy the Belgium of the Company of the Company of the Company of the Statistical Tables of the Population and Agriculture of Belgium of M. LEASINE [9, 1150]; the Allows & Prosbosic of M. Pazarser [9, 1150]; the Allows & Prosbosic of M. Pazarser [9, 1150]; the cilians of the Statistical Tables of the Statistical Tables of the Statistical Statistical Tables of the Statistical Statistical Statistical Statistical Tables of the Netherlands have sent specimens of their productions. The sent and chapt filled on the Statistical Statist

ENGREDE JOHANNES and SON (p. 1146); the curious Journal of the Embassy of the Earl of Portland in France, printed by M. NOSHDENDORP, at the Hague (p. 1149); and the "Graduale Romanum," and "Antiphonarium Romanum," by M. Zwersaardt, of Amster-dam (p. 1149), have been remarked by the Jury.

We will also mention the continuation of the voluminous publication of the "Lives of the Saints," com-menced by Bollandus, and forming fifty-three volumes in folio. The first of these enormous volumes, printed in 1845, is entirely devoted to the Life of St. Theresa. It is satisfactory to know that this great enterprise, supported by the Belgian Government, is to be continued, as it equally embraces religion, history, and geography.

PRINTING-DENMARK.

The Jury have not been able to judge of the state of printing in Denmark, that country not having sent a single printed book. There was only an ingenious machine for composing the types after an entirely new system.

PRINTING-SWEDEN.

M. BROLING, the printer to the Bank of Sweden, exhihited specimens of printing bunk-notes by letter-press, of superior merit from their varied combinations, brightness of colour, good register, and the difficulty thrown in the way of forgery by the different processes employed.

PRINTING-RUSSIA

A single broadside sheet from St. Petersburgh exhibited specimens of several Russian and Oriental characters surrounding a vignette on wood, representing varieties of the Russian people. The whole is neatly printed.

PRINTING-GREECE.

It is to be regretted that the typographical productions of Greece were not exhibited amongst those of other civilized nations. A printing-office was established at Athens at the time of the independence of Greece. At this Exhibition, Greece has confined herself to inscribing upon her banuers, in large letters, the sentences

from her aucient poets as the harbinger of a better future:-Sapail yek váy alem leető ápton. Zahai di es ptívna ptívne

Eig Egum emulert'. 'Ayati F les Els Berries.

PRINTING-PERSIA. Enrope might have possessed the art of printing ever since the year of our Lord 1310, had she been acquainted with a work by Richid-ed-din, who, as far back as that period, had described the process of printing as known to the Chinese, in his Persian work entitled Djemma's etterrarikh,

Persia has sent to the Exhibition some beautiful mannscripts only, and some books printed in Europe; uever-theless, the typographic press is not unknown in that country, since a newspaper in the Persian language is published there.

PRINTING-EGYPT.

Whilst at the present day the ancient languages of Egypt are printed in Europe with hieroglyphic, Coptic, or Greek characters, it was interesting to see displayed in the Exhibition in London, 165 volumes of all rizes, printed in Arabe, in Turkish, and in Persian, at Cairo

(the ancient Memphis)." Amongst these books we have arked some which are enriched with arabesques, tastefully executed by means of typography. ratify executed by means or typography. In which are printed upon a peculiar paper, manufactured at Boulac, by the old vat process. The pulp appears to resemble that which is obtained in China and in India by the use of raw materials, such as the bamboo and the bansua tree. It may be that the ancient papyrus is now re-appearing in Egypt under this new form. Amongst the Arabian books, devoted almost entirely to military science, Áraban booka, devoted almost eatirely to ministry scenes, mediciaes, geography, and celeation, the Jury have remarked. The History of the Kieps of France contemporary Empire, and the Control of Malle Le Bras. The Treatist of Good Advice: On the Care of Little Children: The United with The Control of Malle Le Bras of the Control of the with a few engravings, also executed at Boulac.

PRINTING-UNITED STATES OF AMERICA. It is well known that there are some works printed in the United States which give a more favourable idea of the productions of America than those which have appeared at this Exhibition. The Americao printers have contented themselves with sending a number of newspapers, the printing of which is not remarkable. Even the lowness of price has nothing surprising in it, as there is no stamp duty, neither is there any tax npon paper.

Painting-Canada.

In the collection of articles exhibited by Canada, we have observed a specimen book containing a large number of beautiful types from the foundry of Mr. Palsonave (189, p. 968), at Montreal. He also exhibits some stereotype plates.

Perspress Appress

The Jury have examined, with real interest, several works printed in Van Diemen's Land, at Hobart Town, some of them by HENRY DOWLING (331-33, p. 999), such as the Tusmanian Kalendar and the Tasmanian Joursuch as the Tassonston Kalendar and the Tassonston Journal, in 800, and two large volumes, accompanied hy lithographs, likewise designed and printed in Australia; and the execution of which is astisfactoral Ordinances of the Goernov and Council of New South Woles, printed at

Sydney, in 1844, by William John Row (4, p. 999), with types cast at Sydney. It is to be regretted that, introduced as it now is even

to the confices of the earth, all the productions of the press have not been represented in this universal gathering; for printing is a gift almost as necessary to man as speech, for the manifestation of his thoughts.

New Process relating to Galvanoplustic, Galvanographic, Galvanoglyphic, and Chemitypic Printing. The Imperial Printing-office of Austria has exhibited

the whole collection of the new applications of the typothe whole concerns of the new applications of the typic graphical art, such as the galvanopisatic process, galvano-graphy, galvanoglyphy, and chemitypy, which, bringing their co-operation to the aid of typography, comble it to reproduce, in some degree, nature itself. It may therefore be said that these new branches are to typography what photography is to the art of drawing.

The Galegmondaric Process.—We have, for instance,

seen antedillavian fishes reproduced noou paper, at this Exhibition, with the exactness of nature itself. By means of successive layers of gutta perelta applied to the stone inclosing the petrified fish, a mould is obtained, which being afterwards submitted to the action of a galvanic battery, is quickly covered with coatings of copper, forming a plate spon which all the marks of the fish are reproduced in relief, and which, when printed at the typogra-phic press, gives a result upon the paper identical with the object itself,

M. HULOT (p. 1222), a mechanist and chemist attached

* At Boulac, a suburh of Cairo,

to the Mint of Paris, has exhibited some sheets, each of them containing three hundred heads intended for nostage stumps, which are impressed at one stroke, from a plate of brass of a single piece, containing these three hundred figures in relief. By a peculiar process, M. Iluloi suc-ceeds in identically reproducing, without the least con-traction, the original engraving, which is on steel, but which might be engraved on any other metal, or even on wood. It is by this same process that M. Hulot has re-produced, for the Bank of France, the notes engraved in

relief in such perfectioo by French artists, Galesus groups. — The Austrian Printing-office has shown us some remarkable results of this process. An artist covers a plate of silvered copper with different coats of a pasut composed of any oxide, such as that of iron hurnt terra sieuna, or black lead, ground with linseed oil. The substance of these coats is of necessity thick or thin, according to the intensity given to the lights and shades. The plate is then submitted to the action of the galvanic battery, from which another plate is obtained reproduc-ing an intaglio copy, with all the auevenness of the ori-ginal painting. This is an actual copper-plate, resemginal painting. This is an actual copper-plate, resem-bling an equatint, and obtained without the assistance of

the engraver. Galeansolyphy. - The experiments in galvanoglyphy nre no less interesting. Upon a plate of risc, conted with varnish, a drawing is etrhed; then, with a small composition roller, a cost of ink is spread upon this varnish and left to dry. The ink is deposited only on those parts where the varnish has not been broken through by the graver, and leaves the annken portion of the engraving free. When the first layer is dry, a second is applied free. When the first sper is dry, a second is applied, then a third, and so on, must it is considered that the parel is placed in the parket is placed in the galvanie fastrery, and another place is the result on which all the hollows of the engraving are reproduced in relief. This relief is more or less mixed as the result on which all the hollows of the engraving are reproduced in relief. This relief is more or less mixed as the result of the relief is the result of the relief in the relief in the relief is the relief in the relief in the relief in the relief in the relief is the relief in the re

from an engraving, the process of chemitypy is equally ingenious. A polished sine plate is covered with an etchingenious. A polished sine plate is covered with an etching ground; the design is etched with a point and bitten in with diluted aquafortis; the etching ground is then removed, and every particle of the acid well eleaned off.

For this purpose the hollows of the engraving are first washed with olive uil, then with water, and afterwards wiped, so that there may not remain the least trace of the acid. The plate, on which must be placed filings of fasible metal, is then heated by means of a spirit-lamp, or any convenient means, until the fusible metal has filled up all the engraving; and wheo cold it is scraped down to the level of the zinc plate, in such a manner that none of it remains except that which has entered into the hollow parts of the engraving. The plate of sinc, to which the fusible metal has become united, is then submitted to the action of a weak solution of muristic acid, and as of these two metals the one is negative, and the other posi-tive, the zinc alone is caten away by the acid, and the fusible metal which had entered into the hollows of the engraving, is left in ralief, and may then be printed from

hy means of the typographic press.

Passiconography.—This is a new process, invented by M. Gellor, of Paris (p. 1201), and coosists of a method of reproducing, hy means of the typographic press, any lithographie, autographie, or typographic proof, any drawing with erayon or stump, or any engraving upon wood or copper

Upon a plate of zinc, polished by means of pumice-stone, the artist executes the required design with lithographic crayon or ink, or transfers impressions from lithography, wood-engraving, or copper-plates. The surface is then inked over with a roller, so as to increase the thickness of the ink, which is afterwards consolidated by dusting finely-powdered rosin over the plate, by means of a pad of wadding: the rosin adberes only to the ink, and a pag or wassing: the rosm storers only to the life, and is readily removed from the other parts of the plate. Afterwards, for the purpose of obtaining a relief block, the plate is placed on the bottom of a shallow trough, contaioing very dilute sulpharic or hydrochlorie acid. By means of a rocking motion given to the box, which for that purpose is fastened to an axis, the acid is caused to pass slowly and continuously to and fro over the sarface of the plate. After the lapse of half ao hour, if it be a crayon drawing, the etching is completed, and a relief block is obtained, in which it is only necessary to remove the large whites by saw-piercing. In case, however, of the plate cootaining writteo matter, or many very fine lices, it is necessary to withdraw it from time to time, and again ink the surface with lithographie ink, and dust the powdered rosin, so that the edges may be protected as much as possible from the undermining action of the acid; these operations must be repeated until the neces-sary depth is obtained. Transfers may be made from very old impressions of wood-engravings by sponging them several times at the back with acidulated water, and then operating as is usual with lithographic transfers. Music Printing.—As early as 1490, music was printed by letter-press. The edition of the Paalms, printed at Mayence in 1490, had the music (plais chant) in two colours, the notes being in black and the ledger-lines io red. The shape of the ootes in this edition is different from the square notes subsequently adopted for sacred music. The notes of the music executed by Peter Hautin, an engraver, typefounder, and printer, were lozenge-shape, nd each note was cast separately with the ledger-lines. Peter Attaignant, of Paris, printed, in 1830, twenty-oine sougs with this description of music. In 1852, Adrian Leroy, musicise to Henry II. of France, and Robert Ballard, his brother-io-law and partner, obtained the title of King's printers for music. The types were engraved by William Le Bé, an eminent artist of that period, and were

on the same plan as those of Peter Hautin.

Io 1579, Aogelo Gardaoo printed in Venice, from music types, the "Madrigali à sei roci di Sabino." The process was the same as Peter Houtio's, but the exercision was very inferior. The opera of "Theirs," the music by Lulli, was printed by Ballard in 1688; the typographical execution was imperfect. The same work, io folio, was printed in 1720, by Beansenne, from eopper-plates, and was so superior to the music prioted from types, that the old method was abandooed for that of printing from en-graved plates. The exclusive privilege granted to Hallard was malotained in his family, without opposition, until 1639, when Sanlecque, another engraver in Paris, obtained letters patent from Louis XIII, of France for a ten tained letters patent from Louis XIII. of France or a ser-year's slot right of printing the pleis chest music by a new process of his invention. In consequence of this pateot, copper-plate music prioting superseded typogra-phic music printing as early as 1675. In 1746, M. Dornel, organist of the church of Ste. Generablev, Paris, entered organist of the church of Ste. Generiève, Paris, entered into partnership with M. Klebin, an engraver and type-founder, for the purpose of casting masic types io sand. By this kind at sterotyping the printing appeared to possess some advantages, but the plan was nbandoned. In 1764, M. Breitkopf, a type-founder and priotes at Leipnic, succeeded in casting music types. The electronal Princess of Dresden was so much pleased with his plan, that she gave him to priot the music of a drama of her own com-position, called "Il Trionfo della Fidelta." In this type music the notes were each composed of separate pieces; and in Germany, until theo, there had been only one piece for each note and ledger-line. The system of custing mosic with the cotes separately possessed some advan-tages, although the composition was tedious and the founts costly. At the same period MM. Enschédé, of Haarlem, caused M. Feischman, an eminent artist employed in their foundry, to engrave music types, the perfection of which has scarcely been surpassed; but the system which they adopted was too complicated for general ase. Io 1762, M. Rosart, of Brussels, being desirous of diminishing the number of pieces, cast a new foont of music with anly 300 separate sorts. M. Fournier, jun., further improved the casing of masie types by reducing the oumber of types to 160. At the sitting of the Royal Academy of rance in August, 1762, these improvements were ooticed

M. Reinhard, of Strasberg, obtained a patent for a new process of printing music; he printed the ledger-lines from a punch-cutter and type-founder, caused some improve-

surface engraved plates, and the potes from movemble types. The work was good, although the notes were of different tint from that of the ledger-lines, in consequence of the two prietings. About 1810, M. Olivier, a French engraver, produced beautiful proveable music types, hot engraver, produced beautiful novemble mass types, hot the mechanical difficulties of setting up rendered this plan nucless. In 1832, M. Daverger, of Paris, invented an improsious mode of casting the ootes separately from the ledger-lines. M. Daverger's plan was to compose a page of music without the ledger-lines, he then took a phater cast, and with the sid of a straight edge he railed lines in the plaster with a graver to the same level as the surface of the notes; he then cast stereotype plates, and thus obtained perfect music pages for surface printing. MM. ossamed percet mine pages to surface printing. MM.
Tamtersten and Cordel, papils of M. Duvreger, invented
another method of producing music; they set up the
music with moveable types combined with the ledger-lines;
they thus took plaster easts, and simply replaced in the
plaster the imperfections in the ledger-line joints, previous to stereotyping. Good specimens of this system were in the Great Exhibition

The music types of Mesers. Sinclars, of Edinburgh, did not possess any novelty, but their execution was

M. DERRIEV, of Paris (185, p. 1183), is the only exhihitor of music types showing any marked improve-ment. The notes were cast either in one or more pieces, so as to admit of the ledger-line crossing the cotes when they were required to be on the line. Each ledger-line was so one piece, and of the full width of the page, either in brass, zinc, or hard type metal. Music prieted from such types is a ocarer approach to impressions from engraved plates than any hitherto produced, yet it is doubt-ful whether by continued wear the interstices may not become visible, and render this system imperfect.

Notwithstanding the many attempts for the improve-ment of music types, several difficulties have yet to be surmonated before music printed by letter-press can equal that which is printed from cograved plates. Good work is produced by transfers of engraved music on lithograc stones, although the cost of printing is greater than by letter-press.

Punch-cutting and Type-founding. Io the earliest books prioted in Germany, the shape of the letters was at first Gothie; they were then rounded and became semi-Gothie. In Italy, under the infinence of the Roman ioscriptions, and of the beautiful manoscripts of antiquity, their form was completely changed, A Frenchman, Nicholas Jenson, engraver to the Royal Mint of France, was sent to Mayence, in 1462, hy Louis XI., to learn the secrets of the new-born art of printing. Civil commotions having prevented him from introducing this art into Prance, he engraved in Venice, for the printiog-office which he there established, the beautiful types of Roman characters which Garamond afterwards took for his models, and from which models it is scarcely possible to depart, without falling ioto extravagance or bad

Io England, Caxton adopted, for prioting his works apos chivalry, a style of letter in imitation of the hand-writing of that period. Autoine Verard printed his works o France at the same period, with types very similar, but better cut and better cast. Both seem to have been de-sirous of giving fac-similes of the manuscripts of their

The Roman characters adopted by the Aldi, and by the Stephani, caused the semi-gothic shapes to fall into dis-use; and it was the elder Aldus who loveoted the italie character, which was engraved by Francis of Bologua, after the beautiful writing of Petrarch. aner the beautini writing of Fetraco.

The Elzevirs employed for their works types cugraved by Garamond and Sanlecques.

Ibarra io Spain, Baskerville in England, and Enscheld

in Haarlem, modified the form of the types in accordance with the then prevailing taste. Of these the letters co-graved by Easchédé and Fleischmann, ot Haarlem, are ery remarkable specimens.

At the close of the last centery, the younger Fournier,

ments to be made in this art, which he has described in his Munal.

and state the state of the stat

and in the engraving. In 1823, M. Lonis John Pouchée took out patents for the three kingdoms for a machine for easting type, co sisting of a mould formed by a combination of steel lears with grooves and matrices, secured by a frame and a brace of iron upon a strong wooden bench, and a lever carrying a heavy rammer, to fall down into the mould, for the purpose of forcing a portion of the fluid type metal, which had been poured out of a ladle into the receptacla between the ends of the grooves (each groove forming the mould of a separate type), through small apertures into the grooves and matrices (placed at the opposite end of the grooves) where the body and face of the letter are By this apparatus about 200 types muy be cast at one operation, and the casting repeated twice in a minute, or even quicker. M. Pouchée, having cast a large quantity of type by this machine, offered the type for sale, and the printers refused to purchase unless at a reduced price; M. Pouchée preferred melting it. At the sale of M. Pouchée's type-founding effects, a quantity of this machine-cast type (which had escaped melting) was sold, and was ufterwards discovered to be machine-cast by a private mark on the side, and an after-cut nick. The machine was not offered for sale. But Mr. Reed, a printer in King Street, Covent Garden (related to Mr. Blake, of the firm of Blake and Stephenson, type-founders at Sheffield), was employed by the type-founders to negociate with M. Pouchée for the purchase of the machine, which was effected for about 100/. The machine was conveyed to Messrs, Caslon and Livermore's and destroyed, on which condition it was purchased. There was included in this purchase a valuable planing-machine, and cross-entting machine for cutting the grooves. It was the invention of M. H. Didat, to whom M. Ponchée paid 48,000 francs fur the patent right in England.

The Equilib punch-cutters, whilst retaining depancies their type, endourses to make them more durable, and prolups more legislis, by stronghening the fine stricks and prolups more legislis, by stronghening the fine stricks and the stricks of the strick of t

Mr. Whitingham, at the engention of Mr. Pickering, first reintrolescelled the old letters of Garmond and Jenson, and many of the London printers have since followed; some very beautiful work have a sleeply been printed with some severy beautiful work have a sleeply been printed with some severy beautiful work have been printed to be considered to be a sunfactories of paper, for in places of the beautiful paper called release, the evenues of which is perfect, the English papilies at the present day give the preference been module as much as at a period when the waving of we want to throughly indertexed.

Since the invention of casting types by Peter Schoeffer

a process which goes back as far as the origin of printing itself—this art has made little progress. It was only

at the commencement of the present century, that a slight improvement resulted from the use of the mould called the American mould, which renders the work of the founder somewhat more cosy. In 18% M. Framin Didot invented the sloping mould,

In 1804, M. Firmian Dided introcated the eloping mould, with a salient and returning angle, and by an ingueined with a salient and returning angle, and by an ingueined combinations, succeeded in institute [English hand-orling, which presented the greatest difficulty, and in completed to the compact of the present of the salient of the comtraction of the salient and the salient and the salient time terrover each letter visible, an obstacle which had till then presented the success of every statement of this dartered progress in the sort, and nest with great success in Europe. Copper-paint engraving and influençuely alone can vie with the perfection of the system.

can be with the perfection of this system; can be the state of the perfection of this system; convenied as companioning model, and afterwarist the annual which he muscal polyamityte—by means of which 1 to letters as usual polyamityte—by means of which 1 to letters as which requires great accountry and great ears, in ourbre to first model, which requires great accountry and great ears, in ourbre to give accountry and the advantage of the state
the merit and the difficulty of type-founding.*
We had an opportunity at the Exhibition, of seeing M.
Brockhans' mechanical mould, which he has employed
with networs for a long time in his own printing-office,
with networs for a long time in his own printing-office,
the platten of the mould acts horizontally, and in the
ther particular. The injection of the melted material is
accomplished in each by means of a piston working in
the metal pot, and driving the material hriskly into the

In 1844, M. Marcellin Legrand exhibited in Paris n series of 4,600 punches, and the same number of matrices, for the purpose of reproducing all the signs representing the words of the Chinese language. This system, which consists in adding to the piece representing the kry another piece which modifies it, has completely succeeded, for it has been adopted not only in America, but in China itself, and at the present minnent works are printed at Macao, and at Ning-Po, with the types engraved by M. Legrand. We have seen in the Exhibition the Gospels printed in China by the Presbyterian Missionary Society of America. M. Marcellin Legrand was the first to undertake singly this immense labour, by means of which Chinese writing is brought within the compass of European typegraphy. A printed table, in which each word is accompanied by a eipher, is now sufficient to indicate to the workman the cipher corresponding to the word. Each of the types is arranged in the case in numerical order, and buars upon its side a number corresponding with that of the table, thus facilitating the mounal labour, and preventing many There was also in the Exhibition, a page printed in the Chinese types engraved by M. Auguste Beyerhaus, of Berlin. By means—1st, of 1,200 punches and matrices espable of combination; 2ndly, of 2,400 characters, each engraved in a single piece; 3rdly, of 105 others, called perpendiculars, he composes 25,000 different characters. The characters in this system are always divided perpen-dienlarly, whilst in that adopted hy M. Marcellin Legrand some of the divisions are perpendicular and others hori-

 There may be other reasons; for it is well known that the invention patented in this country could be successfully worked. Mesers. Figgins, who purchased it, have altotained from putting it in practice, probably in deference to the journeymon type-founder. zontal. This system, judging of it by the printed pane displayed at the Exhibition, appears to be successful. In point of execution, it leaves nothing to be desired; and Mr. William Wells, an accomplished Chinese schular, residing in that country, has bestowed great praise upon M. Beyerhaus has also eugraved an Egyptian type, at the suggestion of M. Bunsen. The characters of it are open, whilst the two founts which the National Printing-office of France has had engraved are black (en sil-

The Imperial Printing-office of Austria, decomposing each part of a Chinese word into as many pieces as it contains strokes of the pen, reconstructs the words by means of these little pieces, which the compositor groups together so as to construct any Chinese word. The number of points and strokes is about 400, and they uppear to

be a most complete system of Chinese typography. Nearly all the languages of the world were typographically represented either in the specimens of the National Printing-office of Paris, in the numerous tables of the Imperial Press of Austria, in the Bibles printed in almost all languages by the Bible Society, in the specimens of general type-founding at Paris, in those of M. Decker of Berlin, or in those of the English founders, and especially in those of the late Mr. Watts of London, who has himself engraved an extensive series of Oriental types, which are an honour to his type-founding, and form the richest series of this kind existing in any private establishment,

Amongst all the types which express the gift of speech, the most numerous and complicated are those of the Chinese language, in which every idea and each word is represented by a different character. Owing to typography, there will soon be no single idiom which may not be saved from oblivion; for typography contributes to the preservation of languages as essentially as slid the press of Guttenberg to the preservation of books at the

me of its discover The Jury have, in this important branch of art, remarked the productions of the following contributors: Endant. Mesers. Carlox and Co. (78, p. 543), exhibited a great variety of beautiful types; Mesers. Duncan Sinclair and Son (92, p. 543), specimens of general excellence; Messrs. Figgins (124, p. 545), types of great excellence and beauty; a super-royal form ec taining 220,000 pieces of pearl type, locked up and showing the care bestowed in finishing, in order to insure correct justification; and a specimen of curious and newlycut Todor type, imitating the inscriptions from monu-ments and tombs; Nessrs. MILLER and BICHARD (150, P. 546), a specimen of ruby type, in which "Gray's Elegy" is printed, thirty-two verses in two columns, occupying 3½ inches in length; Messrs. Bestar and Co. (193, p. 550), a great variety of beantiful and original types, among which a complete series of Elizabethan, or church text, as well as the typographical ornaments taken from the remains of Nineveh and Etraria. The Jury also mention the specimens of Messrs. Fangraos BROTRERS (90, p. 543); of Messes, Stephenson, Blake and Co. (182, p. 549); and a curious fount of compli-cated type of the euneiform character, used in the Babylonian inscriptions, exhibited by Mesers. Hannson and Son (212, p. 552). Mesers. Kino's new music (22, p. 537) presents an improvement, the result of having very few kerned types. Mr. Arasyzono's illustrated music offers no peculiar character.

France,-M. DERRIET (p. 1183), the eminent punchcutter and type-founder, exhibited types and flourishes of first-rate merit, and music types with separate ledger-lines running the whole length of the line, in brass or other metal, a great improvement on the ordinary music other metal, a great improvement on the orthogy music types—M. Garthitizk's neath-ort and cast letters (234, p. 1187) deserve mention—MM. Lamonaxie and Co. (855, p. 1233), successors to Didot, have shown great skill in their printing types. M. Rocsosza (361, p. 1194) exhibits music composed with moreable types and matrices, in which there appears to be no marked novelty.

maintain the reputation of their old establishment for

good printing types and stereotype plates.

Germany. Besides the Exhibitory whose merits have already been noticed, M. Denselen, of Frankfort (5 Zolly... (24, p. 1122), exhibited types said to be of new metallic composition; M. Schelter, of Dresden (3 Zollv., 182, p. 1113), a variety of printing types; and M. HAENEL specimens of types, hrass types for bookbinders, electrotype matrices for casting large types, and electrotypes from woodeuts, all possessing merit.

Type-founding in the United States.

Before the separation of the American colonies from the mother-country, paper, printing-presses, and types were almost all imported from England. Caristopher Sower, who established a printing-office at Germantown, near Philadelphia, in 1735, was the first who cast his own types. In 1768, Mr. Mitchelsou attempted to set up a foundry in Boston, and the same year Mr. Buel another in Connecticut, but neither of them were successful, Soon after the close of the American War, however, Mr. John Baine, of Edinburgh, established a type-foundry at Philadelphia, and he was, it is believed, the first who rannacipins, and he was, it is believed, the first who regularly carried on the business of type-founding in the United States. But the importation of British type, and the small number of newspapers, still constituted difficulties in the way of success. Baine died in 1790, and his partner returned to Scotland. About this time Mr. Archibald Binny and Mr. James Ronaldson established another foundry at Philisdelphia, unconnected with any other husiness, and were eminently successful. In England, at this time, the assortments of type in the foundries were about twenty in number, of which the largest was the twelve-line pica, and the smallest the diamond, of 202 lines to a foot. The assortments of Means, Binny and Ronaldson at first embraced only the more essential fuunts, such as brevier, bourgeois, primer, small pics, pics, and two-line letters. At this period the increase of printing in the United States was most extraordinary. The number of newspapers in ten years from 1790 increased from 70 to 200, and the number of offices for miscellaneous printing exceeded 50. The printing business in these ten years increased probably threefold. There was, of course, a corresponding increase in the business of type-founding; and before long Mears. Binny and Ronaldson's assortment became as extensive as in the chief foundries of England. It is to them the world is indebted for the first real improvement in typefounding since the days of Peter Schoeffer, This imortant improvement was in the type-mould, by means of which a caster could cast 6,000 types in a day as easily as he could have accomplished 4,000 by the old process.

About the beginning of the present century the in-vention was introduced into Europe, and is now generally known as the American Mould. Measur. Binny and Romaldson's type was considered good at that time; with it Dobson printed the first American edition of the Excy-CLOP EDIA. in 21 large 4to, volumes, 1798-1863. About the year 1805, another type foundry was set up in Baltithe year 1800, amount type nomary was bet up to hand-more, by Samuel Sower and Co., which contained some of the months and matrices used by Christopher Sower mentioned above, who east his own type in German-town in 1740. They were chiefly for German letters. To these were now added a variety of excellent Roman and Italie types, and among others the diamond with a smaller face than had ever before been cast either in Europe or America. Nearly about the year 1805, Mesers.
White and Wing established a foundry at Hartford, in
Connectiont, where they devised and used a plan of their own for casting twenty or thirty letters at a time, and are said to have brought their invention to a useful slegree of perfection. On Mr. White's removal to New York, in 1811, when he established the first regular and extensive foundry in that eity, this invention seems to have been shandoned, and the old plan of casting by

Russia,—M. RÉVILLION (361, p. 1383) has abown good speciments of Greek, Oriental, and other types, Sardinia,—The Jury have remarked MM, Parina'a (47, p. 1304) small punches and types, Hidland—MM, Execut one and 6 (79, p. 1146)

^{*} M. Beyerhaus has made a smaller type, which is also very well executed.

single letters was pursued, as it is to this day. Thus see that in 1811 there were four foundries in the ited States. During the proceeding ten years the news-United States. papers increased from 200 to 360, of which 27 were daily papers. It is estimated there were at least 500 printing-offices in the country; indeed so great was the demand for type in 1811, that it advanced in price 25 per cent. on what it cost in 1806. In 1813, Messes, D. and G. Bruce established another foundry in New York, which soon became a stereotype foundry, of which we shall speak in another place. In 1818, and within a very few years after, type and stere-type foundries were set up in Boston, Cinciunati, Buffalo, St. Louis, Louisville, &c. The business soon became over-lone, and the price of type receded to the old standard of 1806, and caused many

In 1828, Mr. William M. Johnson took out a patent for the invention of a machine for casting type, by which he was enabled to give a sharper outline and better face to the letter by using a pump to force the liquid metal into the mould. This idea subsequently underwent many modifications and improvements by different individuals. Several patents for improvements in the machinery for easting printing types have been issued within the last ten years, so that at present all obstacles to this mode of producing types seem to have been surmounted, and this practice is now in general use-in large establishments ehiefly hy the aid of steam. By these improvements three times the quantity of type is produced by a caster in a day that was cast by Binny and Ronaldson's improved of them from the last mould, and five times the quantity that was produced by of the principal sorts.

the hand-mould half a century ago. On the first of June 1850, there were 2,800 newspapers in the United States. with an average circulation of 1,785 copies, giving the enormous aggregate of 422,500,000 copies printed anumally, There were 350 daily and 2,000 weekly pewspapers, The whole number of printing-offices is now not less than 4,000. Hence the demand for printing types is constantly and rapidly increasing. There has been a corresponding increase in type and stereotype foundries. There are now four foundries in Boston, seven in New York, three in Philadelphia, one in Boffalo, one in Albany, two in Connecticut, one in Baltimore, and one in St. Louis. These twenty establishments give employment to about 800 persons, and produce daily 4,400 pounds of type. By the recent improvements in machinery, type is at resent produced at a cheaper rate by 25 per cent. than . These twenty foundries supply not only the in 1841. in 1841. I nest twenty toundries supply not only the United States, and a great part of Canada, but export largely to the British, Spanish, and Danish West India Islands, Mexico, and South America. The exports of Islands, Mexico, and South America. The exports of printing-presses and types for the year ending June 1831, amounted to 71,601 dollars. The quality of the American type will, it is said, bear a favourable comparison with that of Europe, and it is cheaper. The metal used is a mixture of lead, antimony, and tin, in proportion to the kind of type required. The average of teal is 73 per

A statement of the prices of types for the last halfeentury may be interesting, we therefore give a table of them from the last Official Report, naming only some

	1601	1806	1811	1819	1927	1831	1841	1850	1850
Names of Boster	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dollars.	Dellura.	Dollars.	In English Cutrency
Pica	- 35	-44	-55	-44	•42	-36	-38	-30	a. d.
Pics		-48	*58	-48	-46	-38	*40	-32	1 : :
		45		145					1 5
Long Primer -	- 47	• 56	-66	-36	-50	*40	*42	*34	
Bourgeois -		-66	•76	-66	•58	*46	*46	- 37	1 6
Brevier	-67	- 76	- 86	.76	-70	*56	*54	-42	1 9
Minlon		1.03	1-13	1.00	*84	*70	-66	-48	2 0
Nonpareil -	1-12	1-40	1-75	1:40	1.30	*90	*84	-58	2 5
Agate					1-44	1-10	1:06	-72	2 11
Pearl			-	_	1.75	1.40	1.40	1.08	4 58
Diamond		_		-			. 40	1.60	6 74

The application of electrotyping to the formation of the durability of the types.* We are indebted to Mr. matrices is another improvement deserving mention, in:

Evaluat's Official Patent Office Reports for 1851 for most assumed as it saves much also the and tends to the reduction of of price. The process is probably the same as that employed in England and France, but in America it is much more extensively used, in consequence of uo law of registration being in existence there as in the former countries. It is found that the Patent and the Copyright Acts do not reach this case, as there is no date-murk on the type to identify it. The consequence is, that the moment any new or improved letter or ornament is produced either in Europe or even in the United States, it is at once electrotyped and reproduced by all the other founders. This seems unjust, although it tends to render

tounders. It is seems unjust, attended it details of cludes the types more naiform throughout the country. A patent has very recently been granted—10th Decem-ber 1850—to Mr. George Mathiot, for an ingenious device her 1830—10 Mr. George Mathiot, for an ingenious device for preventing the electrotype oast from adhering to the original plate. Many ways have been tried to obviste this difficulty, but the present is considered to be a decided improvement opon them. On the 20th of August 1850, a patent was granted to Mr. Luke Vander Van Newton for a new process of plating or conting the surface of metallic printing types, stereotype plates, and other printing plates, whether cast or engraved, with an additional cost of metal by means of galvanie electricity, This process of coating types with copper is asserted to be of great practical utility, and is said to add much to

of the facts stated.

Among the American exhibitors of types were Messra,
Honasr and Romss, of Boston (209, p. 1462); and Mr.

T. Toarr, of New York (304, p. 1462); the latter
exhibited combinations or logotypes, which he states
are unequalited for rapid composition, although it is well
known that in the "Times" wewspaper office they were disused many years since, as prescuting no advantages over separate or single types. Lord Stanhope also tried logotypes without greater success.

Stereotyping

is one of the means for making fac-similes in type-metal of pages of types, woodcots, &e., for surface printing.
At the commescement of printing, the idea of stereotype
must have occurred from seeing the reproductions in
relief of legends upon bells cast in the middle ages; it is resure or regentle upon term cast as the misdle ages; it is probable, however, that many attempts failed from the imperfect means used. As early as 1735, all the pages of Bibles in German and French, set up in movemble types, were kept standing by many printers. In the last century Samuel Luchtmans obtained plates by a process of clickage,

* Messrs. Orchard, Willis, and Co. of London, are the patentees for the United Kingdom, and for France, Belgium, and Holland.

from which he was enabled to print. About 1700, Valleyre printed in Paris some aimannes and pamphlets which he had obtained by casting. In 1725, Mr. William Ged, a goldsmith in Edinburgh, produced some stereotype plates from which he printed, in 1739, an edition of Sullint, but his process was little encouraged, and it was abandoned after his death, although those that opposed his method did not scruple to use his plates. In 1729, Mr. Ged entered into partnership with Messrs. James and Fenner, of London, for the purpose of carrying un the stereotype business. In 1782, Mr. Tilloch joined Messrs. Foults, of Edinburgh, for the same purpose. In 1784, M. Hoffman, of Alsace, France, succeeded in obtaining stereotype plates from monlds of clay mixed with gelatine. He printed a work entitled "Recherches His-toriques nor les Moures, par Chenter," in 3 vols. 8vo.; but the process was found imperfect, and was soon after-wards abandoned. In 1791, M. Cares, of Toul, a printer, warus ausanoneed. In 1791, M. Carex, of Toul, a printer, cunceived the plan of attaching to a heavy piece of wood suspended from a beam, a poge of moveable types, well-locked with servers, in a proper frame, with the face downwards, and letting it fall sharply on lead in a state of fusion, just when on the point of setting; he thus obtained not matrices, which were much as the contraction of the point of setting; he thus obtained good matrices, which were used to make relief stereotypes by attaching these matrices to the piece of wood as already described, and letting it fall on fasible metal when also just on the point of setting. Good plates were obtained; but it often happened that the types were melted when the lead was too hot, or bruised when too cold. This mode of stereotyping was therefore abandoned, and yet the plan of polytyping, carried on to this day, is not very dissimilar, although the use of more perfect machinery and different metal has much simplified the process, and readered it less destructive to the types

Profiting by these various attempts, M. Firmin Didot conceived the idea of easting types in very hard metal, composed of 30 parts of lend, 30 of antimony, 30 of tin, and 10 of copper. He gave to these types less beight that their solidity might be increased; then, by means of a fly-press, he pressed each page (composed of these hard types, strongly fastened together in an iron box) into a plate of pure lead. The plate or matrix of the page thus obtained was affixed to the under side of the banner of a stamping press, on the bed of which was placed in a paper case an alloy, still in a state of fusion, similar to that used for ordinary types, and at the moment when after having been rolled up into a pasty consistency in this paper case it was upon the point of setting, the matrix of the page attached to the stamping press descended upon the alloy, forming a page in relief, the clearness of which was perfect, as may be seen from the collection known by the name of the stereotype edition, composed of more than 200 volumes. At the same time that Firmin Didot succeeded by this process, M. Herhan, who at first had been bis partner, resorted to another method, which consisted in striking in copper a great number of matrices arranged in such a manuer as to admit of the pages being set up with these matrices as if they had been types, with this exception, however, that instead of being in relief, like the letters, the matrices were sunk. The page when composed was attached to the hammer of a stamping press and allowed to fall npon an alloy still in a state of fusion, and thus a whole page in relief was obtained by means of these hollow matrices. This expensive process was attended with more inconveniences than that of Firmin Didot. Both of them were superseded by the process invented by Lord Stanbope in 1800, who, resuming the first attempts at stereotyping, moulded in plaster or in alabaster, the pages composed with ordinary types, and obtained easts in relief by drying the moulds in a proper manner, and plunging them into a vessel filled with metal in a state of fusion.

Numerous attempts have since been made to substitute for plaster moulds the employment of sheets of paper with whiting placed between them, but the results appear inferior to the plaster moulds,

For vignettes, easts of bitumen answer very well, and stereotype plates of bitumen give good results. Annuag the products which particularly deserve to be

Sec., and plairs for printing in various colours; and also of Messrs, Manchin and Money, of London (128, p. 545), for their successful application of bitumen to the purpose of stereotype. This process, although new in England, seems to have been used in other countries for some time, and in the "Hlustration," by Mr. Plox, who Basker's specimes of casts (189, p. 550) from wood matrices are produced by a most ingenious process, of foreign invention. They are used extensively by calico-printers in Manchester and other places. The mode of obtaining these casts is as follows: a pattern of the size required is put on wood in the manner well known to pin and coppered pattern makers, care being taken that, in driving the pieces of copper in the wood block, they are furced to equal depth. Tin in a melted state is then poured on this pin or coppered pattern to the thickness of half an ineb, and when cold the pattern block is placed on the bed of a screw-press, constructed for the purpose, and beld fast by means of screws, whilst the part on which the tin has been poured, is affixed by clamps to the screw of the press, and by it drawn out from the pattern-block, the tin bolding in a solid mass the copper forming the pattern, and leaving the wood as a matrix, from which a number of plates can be obtained by casting with fusible metal. The easts exhibited by Mr. Bankes are very beautiful and perfect, and of greater depth than can be presutint and perfect, and of greater depth than can be obtained by any other known process. Mr. Mrita, of Glasgow (174, p. 546), had an electrotype from a page of diamond type, which appeared good. Mr. Crouston, of Paris (133, p. 1177), had some specimens of stereotype from paper mondis, which scens to be the same system as that patented by Mr. Kronhein some years ago, and which did not prover practicable. Mr. Evansa, of Philadelphia (88, p. 1438), also exhibited stereotypes and electrotypes of some merit. Printing Ink. The ink of the earliest printed works of the fifteenth

INSPECTION (780, pp. 1093, 1094), whose specimen of stereotype in cast iron, with the Hible printed from it,

shows a new application of that metal; of KNIGHT and HAWKES (107, p. 544), who exhibit good

atnry presents to our view every desirable quality. It is black, glossy, and the lapse of four centuries has demoustrated the fact that it has retained its primitive qualities up to the present day. It is not the same with later impressions, in the greater part of which the ink is more or less decomposed; nevertheless that which the Aldi, the Stephani, the Elzevirs, the Ibarras, the Bosonis, the Plantins, and all other printers who were scalous for typographical renowa, manufactured themselves, has retained all its primitive quality. At present the manufac-ture of ink is in many respects good, and the grinding, which cannot be too complete, has become more perfect by the application of improved machinery; but the ink is too often deteriorated by adulteration

It is especially to Mr. De La Rue that this manufacture owes some real improvements, as may be judged from his owes some real improvements, as may be judged from his specimens of printing in different colorars, both upon card and upon paper. The brightness of his colours is as remarkable as their variety, and his inks are capable of being glazed almost immediately after printing. The brightness of the printing in gold, executed by his process-tory of the printing in gold, are caused by his processat his manufactory, is very superior to others. At the same time it is doubtful whether the brightness of ver-milion ink is equal to the intensity of the red used in the printing of the fifteenth and sixteenth centuries.

As to the printing inks sent to the Exhibition, time is the only test capable of deciding their respective qualities and as, moreover, an lak suitable to one climate may not suit another, and lastly, as the ink must be differently modified according to the state of the atmosphere, always so variable, the Jury, on weighing these considerations, have deemed it their duty to refrain from giving any opinion upon this class of products, fraring that their indements might be set aside by time, which alone is able mentioned, are those of the RUBELAND DUCAL FOUNDRY to disclose the truth.

Composition Printing Rollers

At the commercement of 1819, M. Ganal, of Paris, who had been for a long time occupied in the manufacture of month glue, which consists of a mixture of sugar and glue, and Mr. A. Chegaray, overseer in Mr. Smith's printing establishment in Paris, made printers' rollers of this composition. They are stated to be more durable

than those made of treacle and gine.

In 1813, when Messrs Applegath and Cowper's print-

ing-machines came in more general use, the patent inking-tables and composition rollers were introduced to the hand-printers; but the prejudices of the pressmen against their use were earried to such an extreme, that it appeared almost impossible to succeed in introducing them. Mr. Harrild, however, whose knowledge of the printing business rendered him equal to the task, persevered in coneilinting the pressmen, and demonstrating to them how greatly the adoption of this beneficial invention would be for their advantage, till after displaying the most untiring euergy, his efforts were at last erowaed with success; and he had thus the satisfaction of not only benefiting the men themselves, but of also rendering an essential service to the printing business. He was rewarded by the large demand ereated for rollers, every pressman becoming as enger to put aside the use of balls pressman necoming as eager to put assure the second as he had been to oppose that of composition rollers. The manufactory which he subsequently established, and the perfection of his inking rollers, poves his sound knowledge of what was required. Means, Harriki's manufactory is now on an immense scale, and supplies the greater part of the printers in England with inking-rollers, which possess every requisite quality. Mr. Cowper, who is the inventor of inking-tables and hand-Cowper, who is the inventor of manig-tubres and assur-orblers, has never benefited by this valuable acquisition to the printing basiness, a fact which cannot but be re-gretted. Messrs, Hamatin (157, p. 244) exhibited in the Machinery Department, Class VI., inking composition rollers and bulls, and were the only exhibitors of this kind of rollers M. Lendenmann (Switzerland, 232, p. 1281), of Grub,

M. Lendenmann (Switzerland, 232, p. 1281), of Grub, Canton of Appenzell, Switzerland, was the only other

9 It is stated, on the authority of Mr. Harriki, that the composition was discovered by a Mr. Edward Dyna, printer and parish-clerk, of Mudely, near Weilington, Shrapshire, from the simple circumstance of a glue-pot being used, and not having a pelt ball ready. Dyna took a piece of giue in not having a pelt ball ready. Dyna took a piece of giue in a soft state, and inked a form with it. It is further stated that he added treache afterwards to keep it soft. Mr. Harriki blinned firstordered camposition balls in 1810.

cabibitor of printers' rollers, which he called "Swiss imitation caoutchour." The Jury had no means of practically ascertaining the morit of these rollers, but it must be stated that the fissures on their surface left anything but a favourable impression.

Printing for the Blind,

The Jury have nucleof with pleasure the large number of relabilities, The Signian Meanue, the Allievenia, and offer challenges, The Signian Meanue, the Allievenia and structure of the binds. It has been estimated that in the structure of the binds. It has been estimated that in the case of the significant of the structure of the progress of our say. A few years any penaltie, for the progress of our say. A few years any penaltie, for the progress of our say. A few years any penaltie, for the progress of our say. A few years any penaltie, for the progress of our say. A few years any penaltie, for the progress of our say. A few years any penaltie of the progress of the structure o

The invention of printing for the blind marks a new ern in the history of literature. The whole credit of this invention, so simple yet so marvellous in its results, be-longs to France. It was M. Valentine Hady who, in 1784, at Paris, produced the first book, printed with letters in relief, and soon after proved to the world that children might easily be taught to read with their flugers. It has been said by his biographer that he took his idea of emboased typography from seeing that Mademoisella Parodis, a blind planest of Vienna, who visited Paris that year, distinguished the keys of her instrument by the sense of touch, and also readily comprehended the nunps in relief which a short time before had been invented by M. Weisembourg of Mannheim. After employing letters of different forms and sizes, and experimenting with the blind as to the precise shape of the letter that could be the most readily distinguished by the touch, he at length fixed upon a character differing very slightly from the ordinary Roman letter, or perhaps a little approaching italies. There was the usual mixture of the upper and lower case, the capitals taking more of the script form than the small letters. He submitted his first efforts and experiments to the Academy of Sciences of Paris. A committee was appointed to examine them, consisting of the Due de la Rochefoneauld, M. Desmarets, M. Demours, and M. Vicq-d'Azir, and their favourable Report on the 18th of February, 1785, rendered his success a triumph. Great clar attended the public announcement of this invention. A new Institution was established, called the Institution Royale des Jennes Avengles, and M. Hany was placed at the head of it. Among the books which be embossed were a grammar, a catechism, and small portions of the Church service, and also several pieces of music. The printing of the music was inferior. The abbreviations which he introduced into his grammar, it has been said, did not afford sufficient advantages to counterbalance their inconvenience. His principal work, is entitled. Espesé de différents moyens vérifics par l'ex-périeuce pour les mettre en ciat de lire à l'aide du tact, d'imprimer des livres dans lesquels ils puissent preude de consaissances de langues, d'histoire, de géographie, de munique, etc.; d'exécuter différends travaux relatifs aux Imprime par les Entants Avengles. Paris, 1786, 4to. This celebrated essay was translated into Euglish by Dr. Blacklock, the blind poet, and in 1793 was published in London with his poems, in quarto. On the 26th of December 1786, twenty-four of M. Hany's pupils exhibited their attainments in reading, writing, arithmetic, music, and geography, before the King and the royal family, at Versailles, who were delighted with the wonderful results. For a while all went on prosperously, but M. Hafty's friends soon began to give him eredit for zeal rather than discretion in the management of his Institu-

tion, and consequently as the novelty were away their

admiration cooled, the funds fell off, and the Institution languished until it was put upon a government foundation. The blind really received but little advantage from an invention that at first promised so much. The fault, however, seems to have been not so much in the plan as in the execution of it. The books were bulky and expensive, and the letters, though beautiful to the eye, and elearly embossed, wanted that sharpness and permanence so essential to perfect tangibility; besides that, though the letters filled three spaces, they were too small to be well adapted to the sense of touch. Large editions of the few books printed were published, the idea having taken a strong hold of the public mind, so that though the evil was soon perceived, it was not easy to abandon the defective alphabet and assume a better, for that step involved the sacrifice of all the previous labour. Hence this noble lavention, except, perhaps within the walls of the Institution, seen sank into oblivion, and very fittle more was heard of it until 1814, when Ilaüy, having fallen into disrepute, was pensioned off on 2,000 francs a year, and Dr. Guillié, an active and enterprising gentleman, was made Directour-Gradeal in his place. Dr. Guitlie soon revived the printing, and having considerably modified the letters, commenced the publication of a series of elementary and other works, among which are the following (see Table No. L, p. 415).

The mechanical execution of these volumes was ex-ecedingly heavy. Most of them were ponderous folios and very expensive, still they formed for many years almost the only literature of the blind, not alone in France, but in other countries. We should not omit pur-France, but in other countries. We should not omit par-ticularly to mention the following book which has come under ont notice:—Notice Historique sur l'Instruction des Jesnes Avengles. Par M. Guillié, Directeur-Général de l'Institution Royale des Jeunes Acesoles de Paris. Paris, Imprimé par les Jennes Avengles, 1819, 4to, 52 pages, with 17 lines to a page. Two leaves are pasted together, so that it is read as if embossed on both sides of a sheet. This is the second edition, the first having been embossed in 1817, the third in 1820, and a fourth edition enlarged in 1821 On page 52 is a enrison specimen of printing in relief, in colour, so as to render the letters more easily read by the ove. This book was a valuable contribution to the library of the blind, hat still retains nearly all the objections that were made to Hauv's first books; it can only be read by those possessing a very delicate touch It is replete with information respecting the means then employed for the instruction of the blind in Paris; it roves, however, that the art of embossed typography and made but very little progress. It is singular that in this book no mention is made of the author's predecessor, Hany, to whom, we should not forget, the idea of fingerreading is due. Between the years 1821 and 1840 very little printing

was done by this Institution, except religious books, and music after the system of notation by letters and ciphers The annexed is a list of them see Table Nn. IL, p. 415). L'Institut des Jeunes Avengles de Paris, since its fonn dation in 1784, has at times been in a deplorable coudition, but about the year 1840 it underwent a thorough reorganization, and is now, under the nile management of M. Dufau, justly entitled to the front rank of iostitutions of this class in Europe, from its unclusees no less than its age. A rudieal reform in the printing depart-ment has been made: M. Dufan has devised a system of types consisting of capitals and lower-case Roman letters, and has greatly improved the character of the embossing. The French books are now well embossed, sharp, clear, and durable. They have also been so much reduced in bulk that they are offered at a moderate price. M. Dufan has proposed to print a standard library for the blind, to consist of 10 vols., in quarto, for elementary instruction, and 10 vols. for higher instruction. The first series is nearly completed, and this is the list (see Table No. III., p. 415).

p. 415). The accord series of this library, not yet printed, it is to be hoped will soon follow. For the above lists, and other interesting information respecting the Paris typo-graphy for the blind, the Jary is much indebted to a valuable pamplet published by M. J. Gandet, entitled

L'Institut des Jeunes Avengles de Paris, son Histoire et ses Procedes d'Enseignement, Paris, 1830, 8vo, pp. 115.
At Vienna an institution for the blind was established

in 1804, but the Jury is not aware of any printing having been executed in Austria before the year 1830 or 1831. About this date the intelligent publishers Trensinsky, of Vienna, embossed sheets with the Lord's Prayer in various languages, in Roman letters, and afterwards printed works for elementary instruction. The subject has been recently taken up by the Imperial Printing-office, and several volumes have been published, but the Jury are unable to give a bibliographical description of them

In 1806, M. Hauy was juvited to establish institutions for the blind at Berlin and St. Petersburgh. His system of instruction was adopted in each of these institutions and the books used were for a considerable time supplied from the press of Paris. Both of these institutions in a pecuniary point of view were unsuccessful to M. Hauv, and in 1808 he returned to Paris, and for a while resided in quiet with his brother the celebrated Abbe Hally

he Jury have not been able to trace the progress of the printing for the blind at Berlin or St. Petersburgh, but they learn that the amount of matter embossed in Germany until vary recently did not exceed half of the

New Testament. It was in Great Britain and in the United States that

the first improvements were made in embossed typo; generally have derived any considerable advantages from books. Before 1825 when M burgh, first began to turn his attention to the intellectual and moral education of the blind, it is believed that not a single blind person in any public institution of this country or America could rend by means of embossed charac-To Mr. Gall is due the credit of reviving this art. With the most commendable seal, patience, and perseverance, he canvassed the form of every letter until at length be adopted his angular alphabet. He seems, from length he adopted his anguinr aipmaces. He seems, his own Historical Sketch of the Origin and Progress of the Literature of the Blind, Edinburgh, 1834, 8vo. pp. 388, to have experimented long and patiently with a great variety of eristrary and Homan alphabets, with a view of finding one sufficiently simple and tangible for finger reading. On the 28th of September 1827, he published "A First Book for teaching the Art of Reading to the Blind; with a short statement of the principles of the art of printing as here applied to the sense of touch. Edin-burgh, published by James Gall." This is believed to be the first book printed for the blind in the Eaglish lan-guage. It is a small oblong octave volume, of uine pages, price sixpence, with four preliminary leaves in which the author sets forth his "principles." The embossing is in high relief, and though it presents rather a rude appearance from the fact of its having been printed from wooden types, yet it soon rendered the practicability of rending by the blind a matter of experience in Great Britain. Mr. Gall then issued sheets printed by metallie type, which were easily rend by the pupils in the asylum type, which were easily read by the pupils in the system at Edinburgh. Encouraged by his success, in March 1828, he issued his prospectus for the publication, by subscription, of the Coople by St. Johs, but it was not until about the middle of 1829 that he perfected his alphablet to his own austifaction. He tried three different founts of type:-first, the double english size; second, the founds of type:—Inst, the double engins size; second, the double pion; and third, the great prince; and, after printing and cancelling shoets in each of these three founts, be at length, in January 1832, finished the print-ing of his great work. The blind must ever feel indelsted to Mr. Gall for the zed and honest endeavour which he displayed in accomplishing what he thought would most benefit this unfortunate class. Notwithstanding the last sheet of his work was printed in January 1832, yet it was not till October 1834 that he was enabled to publish it, It is entitled, "The Gospel by St. John, for the Blind: with an Introduction, containing some Historical Notices regarding the Origin of a tangible Literature for their Use. By James Gall, Edinburgh: James Gall, 24 Niddry-street, 1834. In 4to." The Introduction, in common type, comprises 18 pages. The text, in emboused characters, consists of 141 pages, with 27 lines on a page

Table No.	L.					
THEE.	Number of Vols.	Nas.	Pate of Pub- lication.	Number of Pages.	Number of Square Centi- metres in a Page.	Price.
For 6 consister Augheter Moreone restrictle, August August Une Grammaire Latine aberige de cells de Llomond Moreone restrictle, August August Une Grammaire Latine aberige de cells de Llomond Moreone restrict de Adams Indiana Moreone creation de Adams Indiana Moreone Constant de Constante de Constante Moreone Constante de Constan	1 1 2 2 1 1 2 1 2 2 1 1 1 1 2 2 2	folio *** *** *** *** *** *** *** *** *** **	1817 1818 1818 1818 1819 1819 1819 1819	96 171 240 241 120 237 220 120 28 79 240 100 232	840 840 840 840 840 840 840 840 840 840	Published at 50 france a volume, 2
Taniz No.	II.					
TITLE	Number of Vels.	Size.	Date of Pub- lication.	Number of Pages."	Number of Square Inch-s in a Page.	Price.
Spires et Neugeles des Diemaches et Fiese Prieres de Maile se de les des des des des des des des des des d	2121 1 111 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1	folio. 400. folio. 400. folio. 400. folio. 400. 71 folio. 400. 71 folio. 71	1895-8 1825-1828 1829-18 1829-18 1837 1830-1830 1830-1830 1831 1833-1833 1834-1834 1834-1834 1834-1834 1838-1839 1839-1839 1839-1839 1839-1839-1839 1839-1839-1839-1839	}		Frater
Table No. 1	II.					
THE.	Number of Vols.	Size.	Date of Pub- lication.	Number of Pages.	Number of Square Conti- metres In a Page.	Price, Half- Bound, Cloth Eachs.
Grammaire Praopales, par MM. Noil et Chapsel, einspiliée] Compédiment du Cours de Grammaire Traite d'Arthrivièque Skiementaire, par M. Badour Traite d'Arthrivièque Skiementaire, par M. Badour Traite d'Arthrivièque Skiementaire, par M. Parlant de Badour Traite d'Arthrivièque Skiementaire, par M. Parlant de Badour Hibitaire Skiementaire Traite d'Arthrivièque Skiementaire Hibitaire de Prancer Hibitaire de Prancer Géométrie Skiementaire Géométrie Skiementaire Géométrie Skiementaire	1	4to.	1846 Net out 1845 Not out 1817 Net ent 1845 1847 Net out	144 146 114 159 146 108	476 476 476 476 476 476 476 476 476 476	France. 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

These four bistories were composed by M. Guadet upon a new plan, and are pseuliarly adapted to the use of beginners.

of 70 square inches. The leaves are not pasted together. The subscription price of the volume was one guinea, but it was subsequently sold for 6s. Gall was very sanguine of the entire success of his noble enterprise, and, proba-hly, had be chosen a less angular character, and one a little more resembling our common alphabet, as he has since done, he would soon have seen his books used in every institution in the conotry. His alphabet was the ebief objection raised to his system. His printing was clear, sharp, and permanent, and his books in every Guillie's. He published five or six other little elemen-tary books in 1834, at the time he issued his chief work; but his system seems not to have come into extensive use. It is to Mr. Gall, perhaps, more than to my other man that the interest in the education of the blind was nwakened thronghout Great Britain and America. Nor has he allowed his exertions to flag. In 1837, he published "The Epistle of Paul the Apostle to the Ephe-sians, printed for the Blind, on the largest type." The shape of the characters is similar to that upon which the Gospel of St. John was printed, but instead of being smooth the letters are fretted or serrated. It is a small octavo volume of 72 pages, 17 lines to a page; 230 copies were printed at the price of 1s. 6d. It is prioted in the lower-case letters without capitals. The Epistle to the Philippians was also printed, in octave, price 1s. 6d. The following year he again modified and improved his alphabet by hringing it back to a still greater resem-blance to the common alphabet, but unfortunately he yielded to the suggestion of the Society of Arts of Edinburgh by introducing the use of capital letters at the beginning of sections and proper names. His next book was "The Goopel according to St. Lake, printed on the common alphabet, for the use of the Dilad, and capable the British and Fereign Bilde Society, London. Printed by James Gall, 22 Niddry-street, Edinburgh." This is a well-printed volume of 15a pages, 25 those on a page of the Apostles were printed in the same sevrated letter in 15p pages, price 5a. Besides these books Mr. Gall printed a series of trusts for the billed for the London surprise that these excellent and well-printed books of beginning of sentences and proper names. His next book surprise that these excellent and well-printed books of Mr. Gall are not more generally used. With the excep-Mr. Gall are not more generally used. With the excep-tion of the school at Abbey Hill, near Edinburgh, it is believed they are adopted by no public Institution in Great Britain. It is still a question if the roughness of Great Initials. It is situs a question if the ronginess of the servated character possesses any advantage over the smooth, sharp embossing. Old and used books are frequently preferred by the hind to new and fresh ones. While Mr. Gall wast thus engaged at Edinburgh, the Rev. Mr. Taylor, of York, displayed an intelligent and active interest in the education of the blind. In 1828, he published the Diagrams of Euclid's Elements of Geometry in embossed or tangible form, in 8vo. This was done on Bristol board, but was found too expensive. His mode of embossing, we believe, was forcing the paper, by means of beavy pressure, into the deep cut lines of a copper plate. It was not successful. He published also a map of England and Wales. In 1836, he printed in raised characters "Selections of Pealm Tanes and Chants" in of Janginian and Waises, In 1888, no printed in range characters, "Selections of Pealm Tranes and Chantat" in characters, "Selections of Pealm Tranes and Chantat" in and of Nanman the Syrina; and the History of Joseph, The efforts of Mr. Alexander Hay, in the canse of em-bossed typography, deserve mention, although an entire fulture. He devised an alphabet of 32 entiritary charac-ters, which by certain combinations could represent the abbreviations and devable electres; so that in all, he had 38 anorevination find reduces exteres; so train in air, are not one characters. He procured types and other printing appa-ratus, and in 1826 or 1825, issued a prospection for pub-lishing the Gospet of St. Matthew, at 7s. 6d. The book was never published. The public interest in the hind became so great, that

was never panissed. The public interest in the hind became so great, that in 1832 the Society of Arts of Edinburgh offered a gold medal of the value of 26t, "for the best communication on a method of printing for the blind," and the result was that between the 9th of January 1832, and the 25th of February 1835, no less than 19 different alphabets

were submitted, of which 16 were in a purely arbitrary character. The grand problem was to produce an alphabet that would unite cheapness and legibility.

While the puzzling question of an alphabet best adapted both to the fingers of the blind and the eyes of their friends, was under warm discussion on this side the Atlantic, Dr. Howe was developing his system at Boston, in the United States. In 1833, the Perkins Institution for the Blind was established at Boston, and Dr S.G. Howe, n gentleman distinguished through a long series of years for his philanthropic labours, was placed at its head. As Gall had done, Dr. Howe took Haily's invention as the basis of his system, and soon made those improvements and modifications which have rendered the Bostou press so famous. He adopted the common Roman letter of the His first aim was to compress the letter into lower case. His first aim was to compress the setter into a comparatively compact and cheap form. This he accomplished by enting off all the flourishes and points about the letters, and reducing them to the minimum size and elevation which could be distinguished by the generality of the blind. He so managed the letters that they occupied hat a little more than one space and a half instead of three. A few of the circular letters were modiinstead of three. A few of the circular letters were modified into angular shapes, yet preserving the original forms sufficiently to be easily read by all. No great was this reduction, that the eatire New Testament, which, according to Hañy's type would have filled nine volumes, and cost 20%, could be printed in two volumes for 16s. Early in the summer of 1834 be published the Aets of the Apostss. Indeed, such rapid progress did he make in his enterprise, that hy the end of 1835 be printed in relief, the whole of the New Testament for the first time in any language, in four handsome small quarto volumes, comprising 624 pages, for four dollars. These were published altogether in 1836. The alphabet thus contrived by Dr. Howe in 1833, it appears, has never since been changed. It was immediately adopted, and subsequently became extensively and almost exclusively used by the seven principal public institutions throughout the coun-try. It is now the only system tanget or tolerated in the try. It is now the only system range.

United States, and deserves only to be better known in
Grent Britain and elsewhere to be appreciated. In Ameeducation of their blind, and as universal education is the policy of the country as well as its proudest boast, these books for the blind soon became in great demand. Dr. Howe some time since proposed a library for the blind, and with a view of increasing the number of books as rapidly as possible, arrangements have been made between the several institutions and presses to exchange books with each other, and not to print any work already belonging to the library of the blind. This barmony of action, together with the uniformity of the typography, presents su many obvious advantages, that the Jury ca not but wish a similar system were pursued by the Insti-tutions of Great Britain and the continent of Europe. We subjoin a list of the books printed at the press of the Perkins Institution in Boston (see Tables p. 417). From this list it appears that, exclusive of the three volumes not fully described, 7,903 pages, containing on an average 77 square inches, have been printed at this press, or more than 12 times the quantity of matter contsined in the New Testament. Almost all the books are toined in the New Testament. Almost all the books are sterostyped, and small editions are struck off as they are required. They are sold at the actual cost, the cost of the larger works being averaged on an edition of 250 copies. The above prices include the bludding; 50 per cent. discount is made for books sold in sheets. The books are embossed in the Institution under the superin-

tendence of Dr. Howe himself, by means of a powerful press, huilt for the purpose. The sale of books in 1851 amounted to 427 dollars. This, however, is exclusive of

the Scriptures. The American Bible Society, which now uses the stereotype plates of the Bible described above, distributed last year 149 volumes of the Bible. In short,

the Boston books possess a neatness, clearness, sharpness, and durability of impression peculiar to themselves. The seventh volume of the Cyclopedia is already printed, and the Jury learn with pleasure that the printing of the remaining volumes will be resumed and probably be

TITLES.	Number of Vols.	Siar.	Pate of Pub- lication.	Number of Pages.	Number of Square inches in a Page,	P	Yices.
The Bible, containing the Old Testament	6	410.	1842	1849	117	16:00	E. s. d. 3 6 1
The New Testament (small)	4	.,,	1836	624	84	4:00	0 16 6
The New Testament (large) (The several books sold separately at corresponding prices).	2	111	1842	430	117	4.00	0 16 6
The Acts of the Apostles	1	,,	1834	-	84	-	-
Lardner's Universal History	3		1837	437	88	9-00	1 17 2
Howe's Geography	1		1836	174	88	3.00	0 12 6
Howe's General Atlas	1	folio,	-	-	- 1	3.00	0 12 6
Howe's Atlas of the United States	1	**		-	- 1	2.00	0 8 4
Howe's Atlas of the Islands	1	4to.	1838	.44	80	2.50	0 10 4
English Reader, First Part	1	**	1838	146	75	3.00	0 12 6
English Reader, Second Part	1	**	1839	139	75 50	3.00	0 12 6
Dalryman's Daughter	1	17	1835	77	85	1.00	0 4 2
	i	2.2	1837	80	51	1 00	0 4 2
The Spelling-book	i	.,,	1836	184	84	2.50	0 10 4
Baxter's Call	1 :	**	18%	139	76	1:50	0 6 3
Murray's English Grammar	l i	**	1835	112	51	1:00	0 4 2
Howe's Blind Child's First Book	1 1		1000	32	30	1.00	0 4 2
Howe's Blind Child's Second Book	l i l	,	1846	45	30	. 75	0 3 1
Sixpenny Glass of Wine	i	17	1000	26	41	-50	0 2 1
Life of Melancthon	l i	- "	1837	50	32	1:00	0 4 2
Book of Sacred Ilymns	l i	11	100	-		1:00	0 4 9
Howe's Blind Child's Manual	l i	177	1840	65	35	.75	0 3 1
Constitution of the United States	i	1 13	-	25	75	.75	0 3 1
Book of Diagrams	1	1,,	1836	58	48	-75	0 3 1
Viri Romm	1		1839	52	75	2.00	0 8 4
Peirce's Geometry, with Diagrams	1	111	1840	85	75	2.00	0 8 4
Political Class Book	1		1841	112	75	2.00	0 8 4
First Tables of Logarithms	1		1841	75	88	1.00	0 4 2
Second Tables of Logarithms	1		1841	133	80	2.00	0 8 4
Principles of Arithmetie	1		1840	49	75	1.00	0 4 2
Astronomical Dictionary	1	.,,	1841	49	63	1.50	0 6 8
Smellie's Philosophy of Natural History	1	,,,	1845	189	75	3.00	0 12 6
Olmsted's Rudiments of Natural Philosophy	1	**	1845	122	80	3.00	0 12 6
Cyclopædia	6	**	1845-9	1,588	114	18.00	3 14 4
The Book of Common Prayer	1 1	17					
Guide to Devotion	1	**	1845	141	114	1.00	0 4 2
Book of Proverbs	1 1	- "	1837	38	117	1.00	0 4 2
Psalms in Verse	l i	,,,	1842	97	73	1 00	0 4 2
Psalms and Hymns	1 1	,,	1848	189	120	2.00	0 8 4
100000 004 1170000	' '	"	1949	,00	1.00	- 00	0 8 4

finished in 20 volumes very soon. Want of funds is the

temporary and only obstacle.

About the time that the Perkins Institution was established at Boston, another was set up in Philadelphia. A meeting of benevolent persons was called on the 21st of January 1833, when arrangements were made to open a January 1853, when strangements were innet to open a school for the instruction of the blind, and Mr. J. R. Friedlander was placed at its beed. This school became the Philadelphia Institution for the Hild by Act of In-corporation, 27th of January 1854. The hind owe much to Mr. Friedlander for the Philadelphia contributions to their literature. On the 21st of November 1833, he held his first public examination, and astonished the public by the progress of his pupils in reading, writing, geography, music, &c. The pupils read fluently from tangible letters executed by themselves with pin-types. These were small pieces of wood about two inches long, having a letter cut in relief on one end, and the same letter formed ut the other by steel points. Maps of the world and of the United States were also exhibited, made by perforat-ing the outline from behind. The result of this exhihiston was highly satisfactory. In his address, Mr. Friedlander set forth the greut advantages that would accure to the hilid by a general system of instruction. He repeated the usual unanswerable arguments against the advantage of other systems of the property of the satisfactors. the adoption of arbitrary characters, and stenographic or phonetic systems, and strongly recommended the use of our own alphabet. He followed generally Hauy's plan of instruction. Early in 1833, Jacob Snider, a young gen-tleman, native of Philadelphia, applied his mind to the contrivance of a method of printing in relief. The alpha-

sure on thick paper between two sheets of copper having the letters deeply cut. The embossing was thus on both sides. His first attempt, after printing n few elementary sheets, was on the Gospel of St. Mark, which he completed by the end of 1833, in a large quarto volume, and published early in January 1834. An account of his first American book for the blind may be found in Poulson's American Daily Advertiser of the 10th of January 1834, The four Gospels were soon after printed in Roman capitals; but being found too bulky and otherwise objection-able they were abandoned, and a smaller, more compact, and sharper type, in the Roman capitals, was adopted. For the list of books printed at the Philadelphia press, see

Table, p. 418. It oppears that the Boston and Philadelphia Institutions were founded almost simultaneously, and that their presses and system of typography were established without being apprised of the efforts of each other. Time, however, has at length remedied this diversity. typography of the Philadelphia books is exceedingly well executed, and compares most favourably with the best of the Glargow books, but the press has censed to work, and printing in capital letters will not probably be resamed. From the preference which the present distin-guished and intelligent Director of the Philadelphia Institution, Mr. William Chapin, late Superintendent of the Ohio Institution, is known to entertain for the Boston system of typography we may reasonably hope that when printing shall be resumed there it will be with Howe's alphabet. It is the opinion, however, of Mr. Chapin that all the American Institutions should unite. bet at first adopted was a mixture of the upper and lower not only in the use of the same alphabet, but that they case italies, and the relief was produced by heavy pres- should all contribute to support one press. It may be

	1	TITL.	.E8,						Stae.	Number of Vols,	Date of Publication.	Number of Pages.	Number of Square Inches in a Page.
St. Matthew's Gosp	el.	_	_	_	_	_	_	-	4to.	1	1834	-	60
St. Mark's Gospel -		-	-	-	-	-	-	-		1 1	1833	160	60
St. Luke's timpel-		-	-	-	-	_	-	-		1 1	1835	-	60
St. John's Gespel -		-	-	-	-	-	-	-		1 1	1835	-	60
Select Library -									folio.	5	1839	500	-
Ruth and Eather -										1	1835	50	-
Student's Magazine	1)	ubl	inbe	d m	onthi	(4)	-	-		6	1833-43	-	140
Proverbs		-	-	-	-	-	-	-	- 22	1 1	1837	96	1 -
Spelling-Book -		-	-	-	-	-	-	- 1		1	-	86	-
Church Music -							-	-		3	1840	300	
Psalms and Hymns		-	-	-	-	-	-	-		1	1840	68	-
Early Days of Wa Independence -		-	-	-	-	-	-	- 4	-	1	1834	71	-
De Osier Eier (In C Auswahl (in Germe	Ger	mai	n)	-	-	-	-			1		84	-
Auswahl (in Germe	nn)	-	-	-	-	-	_	-	- '''	1	-	44	-
French Verbs -		-	-	-	-	-	-			1 1	. 1839	25	-
Dictionary of Must-	cal	Ter	rtns	-	-	-	-	-		1	-	-	-

remarked here that the pupils in all the American Institutions read flucutly in both the upper and lower-case letters, but it is presumed that Philadelphis and Glasgow books will soon be entirely abandoned there; and as the Boston books can now be obtained in London at a price cheaper than any of the five different systems of books printed in Great Britain, it is to be hoped that they will come into general use here. If it be thought that the letters are too small for idults to read with ease, books may be printed with larger types, and even then be less bulky and expensive than any of the systems in arbitrary characters now in use.

In the year 1848 or 1849 the Virginia Institution set up a press, and has printed several elementary and school The Boston type is adopted, with the exception useas. The mostom type is mapping, with the exception that capitals are used at the beginning of sentences and proper names. This alteration, in the opinion of the Jury, is not an improvement, as the blind are thus comnelled to learn two alababets instead of one. The Virginia books are well embossed, and it is hoped that in future books capitals will be omitted.

To the American Bible Society at New York much asse is due for their commendable efforts in the circulation of the Scriptures among the blind. The stereotype plates of the Bible in six volumes, executed at the Boston press, under the superintendence of Dr. Howe, now belong to this Society. They have printed a second edition from the same plates, and annually distribute gratuitnessly from 100 to 300 volumes.

It had ceased to be a matter of surprise in the United States that the blind could read, before the public attention was loudly called to the subject in Great Britain, for we see that in 1836, there were two active printing establishments for the blind in the United States; by one the whole of the New Testament had been published in a cheap form, in the common lower-case letters, and by the other the four Gospels in Roman capitals. Let us now return to the Society of Arts of Edinburgh, and their Prize Medal, to which we have already referred. It was not until the 31st of May, 1837, that the Society's Medal was awarded. In 1836, when the 19 different nlphabets were before the Committee of the Society, circulars were drawn up and distributed, with specimens of the several alphabets, to the various institutions for the blind in England and Scotland, and every means emninin in Engano and Scotland, and every means em-ployed to arrive at a correct result. The opinions of Mr. Taylor, of York, and Mr. Alston, of Glasgow, seem to have been those which the society chiefly followed. They were in favour of the common homan capital letter, merely deprived of the seruphs, or small strokes at their extensities and exceedingly the second extremities, and accordingly the prize was awarded to Dr. Pry, of London; and on the 31st of May, 1837, a Medal was granted to him for the invention of an alphabet which appears to have been in use since 1833 in Philadelphia. On receiving the Society's circular in 1836, submitting

the forms of all the competing alphabets to him, Mr. Alston was struck with the simplicity of Fry's, and imme-

diately conceived the idea of making such alterations as he thought necessary, and patting it to the test. The changes made were simply to reduce the size of the letters and render the faces thinner. On the 26th of October 1836, he exhibited his first specimen of printing in relief in the Roman capital letter at a public examination of the hlind. It was Fry's alphabet slightly changed to improve the sharpness of the embossing. He then made a success-ful appeal for a printing fund. After great exertions and most commendable perseverance he procured a printingmost commendable perseverance be procured a printing-press, with two foatm of type, and the other necessity of control type, and the other necessity of elementary works. By March 1885, he issued a few elementary works. By March 1885, he issued to progress that the whole of the New Testament was printed to four super-royal 4to volumes. The type is great printer, and there are in the four volumes 623 leaves of 42 lines to a page. In December 1840, Mr. Alston com-pleted the printing of the Old Testament in 15 super-pleted the printing of the Old Testament in 15 superpleted the printing of the Old Testament in 13 super-royal quarter volumes, in double per type. Of alise of the volumes he printed alon, and of the vensiting str., 250 with 37 lines on a page. Mr. Alston was justly proved of his great work, the entire Bible, containing the Old and New Testaments, in 18 volumes. In his "Nateseast 50 May 18 miles of the Str. of the Str. of the Str. of the subset of the Str. of the Str. of the Str. of the Str. of subset of the August for the Blind, Glasgow, with a short Account of the Str. of the shown that the greater part of it had long before been printed in Boston. We allude to these facts merely because it seems a matter of much regret that Mr. Alston should have devoted so much enterprise and money in producing the Scriptures when he might have ascertained that they had already been printed, and could have been bought at less money than it would cost him to print them. The main difference between the Glasgow and the Boston alphabets is that one is in the upper and the other is in the lower case, which difference is certainly not of sufficient consequence to demand two editions. summent consequence to demand two editions. Had he expended the same energy and money in producing other valuable books, and exchanged them with the Boston and Philadelphia Institutions, as he was urged to do, the three Institutions would have been greatly benefited by the large outlay, and the hind of both countries would have had a great increase to their library. On the 18th of January 1838, the officers of the Philadelphia Institution wrote to Mr. Alston, informing him that they possessed a wrose to Mr. Auton, informing aim that they possessed a dopt the same character, it appears to our Board of Management that both Institutions would gain by an interchange of volumes." Mr. Alston at once acceded to this proposition, and immediately shipped 150 volumes, being 10 full sets of the New Testament, and 50 single copies of the Gospels, hesides multiplication tables and other works. subjoin a complete list of the books issued from the Glasgow press since its first establishment,

TITLES,	Number of Vois.	Size.	Date of Publication.	Number of Pages.	Number of Square Inches on a Page.	Price.
The Piller of City of						£. s. d
The Bible: the Old Testament complete	15	4to.	1839-40	2,535	90	7 10 0
the New Testament complete (or separately)	4		1838	623	90	2 0 0
1. Genesis	1	**	1840	159	90	0 10 0
3. Numbers	!!	,,	1840	229	90	0 13 0
4. Denteropomy	1		1840	137	90	0 9 0
	1		1840	115	90	0 7 6
5. Joshua, Judges, and Ruth	1	**	1840	165	90	0 10 0
		**	1840	178	50	0 11 0
8. Chronieles	1		1840	186	50	0 11 0
9. Ears, Nehemiah, and Joh -		**	1840	190	90	0 11 0
	1 1	27	1840	159	88	0 9 0
11. Proverbs, Ecclesiastes, Song of Solomon, and Esther	1	22	1849	217	82	0 13 0
	1 1	**	1840	127	88	0 8 6
	;	**	1840	152	90	0 10 0
	i	22	1839	188	90	0 11 0
5. Daniel to the end		22	1839	160	90	0 10 0
	1	**	1810	173	50	0 11 0
St. Mark	1	22	1839	79	90	0 5 6
K. Luke	1	22	1837	50	90	0 4 0
it John	1	**	1838	84	90	0 5 6
Acts of the Apostles	i	**	1838	62	90	0 4 6
inlatlans, Ephesians, Philippians, and Colossians (editions		**	1843	80	50	0 5 6
in large type)	1		1845	53	90	0 4 0
Epistle to the Romans	1	**	1842	42	90	0 4 0
Church of England Catechism						
	1	ob. 8ro.	n. d.	16	40	0 1 0
		4to.	1839	3:2	55	0 2 6
	1	nb. 8vo.	1839	23	38	0 1 6
Map of England and Wales	sheet.	fello.	n. d.	22	40	0 2 0
pecimens of type :- Ruth and James	anrec.		n. d.		285	0 2 0
riest and Second Book of Lessons	i	4to.	1837	19	80	0 2 6
Selection of Asup's Fables, with Woodents	i	oh 8ro	n. d. 1838	30	42	0 1 6
salus and Paraphrases (Scotch version)	2	4to.	1838	342	63	0 2 0
essons on Religion and Prayer	i	ob. 8vo.	1843	26	44	0 16 0
salms and llymns (version of Tate and Brady)	i	felle.	1543	207	104	0 1 6
Inming and Evening Services (Liturgy)	i	440.	1839	34		
pitumized History of the Bible (Second Edition)	i		n. d.	37	68	0 2 6
dusical Catechism, with Tunes	i	**	n. a. 1838	38	40	0 3 6
inglish Grammar	i	ob. 4to.	1838	72	67	
Todd's Lectures	3	ob. 8to.	1841	185	53	
Description of London, by Chambers	1		1841		48	
deditations on the Sacrament, and Prayers	i	410	1841	75 42	90	0 3 0
entilsh Songs	i	ob. 810.	1843	25	20	
ntroduction to Astronomy	i		1841	32	50	
Uphabet, nn Card		**	n. d.	32	33	0 3 6

Since the death of Mr. Alston, on the 20th of August, Since the death of Mr. Alston, on the 20th of August, 1846, the Changwey press has almost ceased to work. A full of the control of the control of the control of the control of the Apostics. Since 1837 it has been almost the only press that has supplied England, Ireland, and Scotland the choose in Emma type. There books are type-pressively well executed, and the Jury think that the Changwey and the Changwey are described by the Changwey and the Changwey are described of great Mr. Alston and the Changwey great are described of great and the Land of the Changwey are described of great and the Land of the Changwey are described of great and the Changwey are described of great and the Changwey are more described on the Changwey are described on the Changwey and the Changwey are described on the Changwey are de praise. The objections, however, to the small Roman capitals, in which most of the books are printed, are such that it is to be hoped that ere long this press will follow the example of that at Philadelphia, and adopt Howe's

typography.

It has generally been supposed that the Glasgow press
was the only one in Great Britain that printed anything
of consequence in the common letter. But we cannot omit to mention a valuable work that has come under our omit to incuttion a variance work that this course moser our notice; it is a "Magazine for the Blind. London: Simphia. Marsholl, & Co., Stationers' Court; Price 62; in treelee mostley parts. 1839-40." After two volumes were printed, the first Magazine for the Blind in this country advantaged by the form the Policy of the Blind in this country. praired, no rest Magazine zor no rimid in this country praired, no fall page. The type is the ceilinary mixture of the earliest praired for a full page. The type is the ceilinary mixture of the area of the ceilinary mixture of the beautiful prairiest of the ceilinary mixture of the beautiful prairiest prairiest produce the ceilinary distribution of the ceilinary d

a contribution to the literature of the blind should not have found better support. It consists of miscellaneous information, with fragments of authors, poetry, anecdotes,

woodents, &c. In 1806, an Institution for the Blind was established at In 18%, an instruction not the Billed was extensived as Stockholm, and it is with pleasure that we learn that Mr. Watts, of Crown Court, London, has, at the expense of the British and Foreign Bible Society, printed in relief, with the ordinary Roman type, in capitals and lower-case, the Gospel according to St. Luke, in Swedish, for this Institution. The volume was printed in 1848, and is a beautiful specimen of embossed typography. It is in quarto, consisting of 132 pages, 27 lines on a page of 70 square inches. Price, as sold by the Bible Society, at

cost, 6a; 500 copies were printed.

In France, Belgium, Prussin, Anstria, Switzerland, Sweden, and the United States, the Roman lower-cane alphabet is used. In most, if not all, of these countries, the Institutions for the Blind are supported and partially controlled by Government, and perhaps this is the reason why, in all of them nearly, the same system of typography

2 E 2

uniformity of typography were adopted. This diversity of opinion is causing great injustice to them, and the Jury cannot but urge upon the parties concerned the speedy adoption of some one system throughout the country Our opinion is decidedly in favour of Howe's American typography, Perfection is not claimed for this system, but it seems to us that there are fewer objections to it than to any of the others, and it may be the more easily improved; but any one of the five principal systems now used in England is far better than so many. The present state of printing in the Roman character in Great Britain is, as we have seen already, that every press has beco stopped, while the books in arhitrary characters seem to be increasing and gaining public favour. The principal of these is one known as Lucas's. It was devised by T. M. Lucas, of Bristol, about the year 1835. It consists of arbitrary characters, and is said to be founded on Byron's system of stenography. It is simple, speedily learned, and easily read by the touch, and is generally acknowledged to be of all the arbitrary systems the best. The printing in this system hegan at Bristol, and the following are the works published there:-

 The Gospel according to St. John, edited by T. M. Lucas, inventor of the system for teaching the blind to read by embossed stenographic character; July, 1837; Bristol; in 4to, 66 pages, and 27 lines to

July, 1837; Bristol; in 4to, 66 pages, and 27 lines to a page. Two pages are pasted together. 2. The Acts of the Apostles (according to the authorized version's, in T. M. Lucas's emboased stenographic character; 1838. Published under the direction of the Bristol Society for Embossing and Circulating the Authorized Version of the Bible for the use of the Blind; Bristol; in 4to, 118 pages, 27 lines on a page.

lines on a page.

This second publication of Mr. Lucas was announced as containing some improvements,—as widening the spaces, and lessemog the abbreviations.

3. The Gospel according to St. Matthew (according to the authorized version), in T. M. Locus's embossed stecographic character, 1839; published, &c. Bristol; 4to, 116 pages. In this third publication is announced the firm conviction that this system will prevail over any other plan, on account of its tangibility.

4. The Gospel according to St. Mark, &c.; Bristol, 1840; 4to, 71 pages.

The above, with the exception of a few small elementary

The above, with the exception of a few small elementary works, are, we believe, all that appeared a Bristol. In the other content of the content of the content of the conlection of the content of the content of the conlection of the content of the transferred from Bristol to London; not in 1841, the coverty issued "The Epithe to the Boumans." Since then their press has not been like, as the following int will stitution in the Avones Road, Regorn's Park.

TITLES.		Number of Vols.	Size.	Pule of Pub- lication.	Number of Pages.	Number of Square Inches in a Page,	Price to Subscriber	Price to Non- re Subscribe
lie Bible as yan as printed	::	14 9	440.	1842 - 50 1839 - 51	=	70 70	£. a. d 4 7 6 1 10 6	
(May be had separately.)		1		1843	113	70	0 4 6	
enesis, Part I			**			70		
enesis, Part II., and Exodus, Part I		1 1	**	1843	112			
xodes, Part II		1 1	**	1843		70		
umbers, Part I		1	**	1849	139		0 4 6	
umbers, Part II., and Denteronomy, Part I.		1	**	1849	117	70	0 4 6	
Neuteronomy, Part II., sed Joshus, Part L -		1 1	**	1850	123	70	0 5 6	
salms, Part I		1 1	**	1842	93	70	0 3 6	
salms, Part II		1 1	**	-	-	70	0 4 0	
roverbs, Ecclesinstes, and Song of Solomon		1 1	**	1849	111	70	0 4 6	0 5
miah, Part I		1 1	**	1844	98	70	0 3 €	0 4
solah, Part II., and Hosea		1 1	**	1844	5/8	70	0 3 6	0 4
eromiah, Part 1		1 1		1847	104	79	0 4 6	0 5
eremiah, l'art II		1 1	- ::	1848	109	70	0 4 6	0 5
pel to Mainchi		l i	- ;;	1846	119	20	0 4 6	0 5
latthew, New Edition		l i		1846	108	70	0 4 6	
lark		i		2040	71	70	0 3 6	
uke, New Editlon		i	,,,	1851	119	70	0 4 6	
	= =	l i	- "	1846	86	70	0 3 6	
		i	**	1845	120	20	0 4 6	
icts, New Edition	: :		**		41			
				1841		70		
orinthians to Ephesians, Inclusive				1844	100	70	0 3 6	
hillppians to Hebrews, Inclusive			***	1844	95	70	0 3 6	
ames to Revetation, inclusivo				1844	101	70	0 3 6	
iturgy, Select Portions				1849	111	70	0 4 6	
rayer-book Psalms, Part I				1849	104	70	0 4 6	0 5
rayer-book Psalms, Part II		1	- ;;	1849	95	70	0 4 6	0 5
rayers and llymos		1 1		1842	109	10	0 4 6	0 0 5
lymn-book, embossed by the Blind Pupils -		1	8vo.	1845	72	70	0 2 6	0 9
eripture Lessons		. i		-	-		0 0 6	
irst-Class Book			-	1 - 1	-	=	0 0 6	
record-Class Book			1 -	1 = 1	1 =	=	0 0 6	
in-foil Alphabet			-		_	=	0 0 0	
and Alphabet			1 =	1 5		-	0 0 5	
inhering Board and Type				1 5		-	0 17 6	
ipitering nourd and xype			- 1	-		-	0 17 0	, , ,
alsed Maps of Europe, Asia, Africa, An (North and South), each	-	-	-	-	-	-	0 15 (0 17
in Apparatos for embossing in Lucia's 8 adapted by Mr. Wood, the Master	ystem,	-	-	-		-	0 15 (0 0 17
he Figures of the First Book of Euclid's Ele	ments			1				
of Geometry, oo Five Boards, by Mr. Wood	l each	- 1	-	-	-	-	0 10 0	6 0 12
Chess-Board, adapted to the use of the Bii	ad her				i .			
Mr. Wood		-	-	-	-	-	0 9 (0 0 11
The Book of the Prophet Ezckiel, and a New I of the Psalms (Bible versian) is in course of	dition							1

Condition Condition

In May 1838, the " Loudon and Blackheath Association for embossing the Scriptures in various languages, and for teaching the Blind to read on the Phonetie System, was established. Its object is to stereotype the Holy Scriptures in James Hartley Frere's phonetic characters.
Alout the year 1839, Mr. Frere devised a cheap plan for embossing or stereotyping. It consists simply of small wires, drawn with angles laid down upon tin plates. The wires are best, and cut by means of ingenious spindles to common printing, or common neubossing, but to form an form the characters, which are similar to those of Gurney's casy introduction to them. The following is a complete system of short hand. The wires are attached to the plate by heating it sufficiently to melt the conting of tin, into

which the wire sinks and is fast when cold. The common printing press is need in embossing. Mr. Frere's books are read from left to right, and bock, after the manuer of the ancient Greek boustrophedon writing. Mr. Frere's books are well embossed, and from his plates the books can be printed as they are wanted. The objections to phonetic alphanets are obvious. Mr. Frere, however, does not claim to supersede the common spelling, or the list of Mr. Frere's books,

TITLES.		Number of Vols,	Size.	Deta of Pub- lication.	Number of Pages.	Number of Sprine Inches in a Page.	Price,
THE NEW TESTAMENT complete THE OLD TESTAMENT as far as Printed (Each Volume sold separately.)	:::	8 7	ob. 4to.	1839-51	723 811	110 110	£. s. d 2 10 € 2 U €
Marthew Jarke Jarke Jarke Ke, John Komans to Carlathiana Komans to Carlathiana Komans to Carlathiana Komans to Carlathiana Komans Komans Komans Jarke		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	27	1843 1802 1802	83 72 88 96 110 89 74 111 132 112 65 65 76 128	110 110 110 110 110 110 110 110 110 110	0 6 6 0 5 6 0 7 6 0 5 6 0 7 6 0 7 6 0 3 6 0 7 6 0 3 6 0 7 6 0 5 6 0 7 6
Grammar Moralug and Evening Prayer Hymns from Cowper and Newton Five Addresses to those who wish to go to Heaven			:	=	13 33 40 21	110 70 70 110	0 1 0 0 2 0 0 1 0

More recently still another system has been devised by typing in believed to be quite the same as Ferre's, by Nr. W. Moon, Master of the Brighten Edited April m. mems of wires hid on the plates. We subjoin a list of The characters are arbitrary, though Mr. Moon defines them at the "Common Alphabes Simplified,." He claims the different sizes of the print are distinguished thus: also a new mode of stereotyping, by which the characters are rendered sharp and prominent. The lines are read forwards and back like Frere's plan, and it is even more bulky and expensive than his. The new mode of stereo-

The different sizes of the print are distinguished thus:-

1. Lines very wide apart, for beginners.
2. , wide.
3. , nearer. , nearer.

Size of Print.	TITLES.	Number of Vols,	Slae.	Pate of Pub- lication.	Number of Pages.	Number of Square tories in a Page.	P	rice	
-	THE NEW TESTAMENT complete (Volumes sold separately.)	9	ob. 4to.	1848-51	-	110	£.	-	d.
2	Pealmet	1		1851	_	110	1	1	0
3	St. Matthew's Gospel	l i	;;	1849	-	110	ė	12	0
3	St. Mark's Gospel	1		1849	-	110	0	7	0
2	St. Luke's Gospel	1	1 ::	-	-	110	0	13	0
2	St. John's Gospel	1	,,,	1848	-	110	0	К	0
3	The Acts of the Apostles	1	.,,	1849	-	110	0		0
2	Romana and Corinthians	1		1850	-	110	0		0
4	Galatiana to Philemon	1	,,,	1849	-	110	0	.7	0
3	Epistic to the Hebrews-James, Peter, John, and Jude Revelation	1 1		1850	-	110	0		6
3	lst, 2nd, and 3rd Epistles of St. John		ob. 8x0	1851	1 2	110	0	7	0
2			00. 540,		-	20	6 0	4	0
1	St. John's Gospel, Chapters XIV, and XV., each	2		1850	20+18	50		nc)	6
	Epistle to the Hebrews, Chapter XIL			1851	13	50	, ,	1	6
î	Isaiah LIII, and Psalms XXIII, and CXXV	1 1	"	1851	-	50	ő	i	6
i	First Lesson Book, containing Freeman's Card and)	1 1	11				-	•	
-	Scripture Texts	1		1850	19	50	0	1	6
1	Morning and Evening Devotions	1	.,	1847-50	-	50	0	6	0
4	The Last Days of Polyearp	i i	111	1847	10	50	0	ï	n
4	The Last Days of Cranmer	i i	177	1847	-	50	0	i	6

Str of Print.	TITLES.	Number of Vols,	Sian.	Date of Pub- lication.	Number of Pages.	Number of Square Inches in a Page.	Pri	ice.
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If now the New Testamest, printed in all the six | standard of comparison, the following Table will show the systems used in the English language, be taken as a results:-

SYST	EVIS			Number of Vols.	Size.	Number of Pages.	Number of Lines in a Page.	of Square Inches in a Page.	,	Price		
The New Te Howe's Alston's Gall's = Lucas's	estaa -	nent	-	2 4 8	4to.	430 623 811	42 28 27	117 90 70 70	£ 0 2 2 2 2	16 0	0 0 0	
Frere's Moon's	Ξ	Ξ	Ξ	8 9	ob. 4to.	723	25	110	2 4	10	0	l

Howe's books are not only much less in hulk than any of the others, but are also much chesper.

APPARATES AND BOOKS FOR THE BLIND.

England, -Mr. E. A. Hvones (20, p. 537), of Mount Row, Westminster Road, exhibited a machine for enabling persons born blind to write, in raised characters, without using types; a machine to write with a pen or pencil in skeleton Roman capitals; a machine to cast accounts and make general arithmetical calculations by tangible characters; a machine to copy and compose music on paper, &c. Mr. Wedgwood, of Lombard Street, exhibited an improved noctograph, useful to persons who have become blind, after having learnt to write.

THE SOCIETY FOR TEACHING THE BLIND TO READ (198, pp. 550, 551), Avenue Road, Regent's Park, exhibited mbossed books for the blind; ciphering boards for the blind; maps for the hlind; geometrical boards for the blind; npparates invented by Mr. W. Wood, for enabling the blind to emboss Lucas's characters, and thus to con municate with each other; a specimen of music hy Mr. Wood, for the blind, in raised characters; and chess-boards for the blind. The system adopted is Lucas's, which has already been fully described, and has the objection of being in arhitrary characters: this also applies to the machine. This is a well-established Institution, and great pains were taken during the whole of the Exhibition, by the master, Mr. Wood, to demonstrate the snecessful operation of the various plans he has adopted to educate hlind persons.

Mr. JANES GALL, Myrtle Bank, Edinburgh (171, p. 548), exhibited Gall's triangular alphabet for the blind, which, hy its similarity to the Ruman alphabet, is said to be easily read by eye and touch without previous instruc-tion. A volume, containing the Epistle to the Ephesians, printed with this alphabet, and Gall's apparatus for writing by and to the hind. The apparatus consists of a stuffed frame, on which paper is placed; of a cover with bars to guide the lines, which are written from the bottom

By a comparison of all these lists it will be found that | upwards; and of small stamps, with the letters formed of common plus, which are pricked through the paper and read on the opposite side.

THE EDINBURGH SCROOL FOR THE BLIND, Abbey His Edinburgh (170, p. 548), exhibited Dr. Foulis' tangible ink for the blind. This ink contains a large quantity of solid matter, which is deposited on the paper, so as to present a raised workers to tity of solid matter, which is deposited on the finger. Dr. Punlis' as to present a raised surface to the finger. Mr. Gall's as to present a riases surface to the larger. Dr. Funiti-manuscript manies notation for the hind. Mr. Gall's typhlograph for the blind. Mr. Gall's system of arith-metic for the hlind, accomplished by common pins stuck into a pin-cushion, and Mr. Gall's types for corre-spondence, by which hlind persons can correspond with one another, or jot down memoranda for private use, Dr. Foulis' tangible ink appears to present some advantages, and will probably become a useful adjunct to the merous means devised for the instruction of the hlind, and for enabling them to read and write. The letters on the specimens exhibited were sufficiently mised to be quite perceptible to the touch.

APPARATUS, &c., FOR THE BLIND-UNITED STATES. Mr. C. Stans, of New York (89, p. 1438), exhi-hited books for the blind. Twu Bibles, embossed with Dr. Howe's characters. Two leaves are pasted together, and a stoat strip of paper stuck between and around these leaves, so as to form a rim to prevent the characters from being flattened on shutting and opening the book. This plan has also the same advantage as if each leaf were printed on both sides. The types are rather small, but the whole work is one of meri

Dr. S. G. Howr, Boston (439, p. 1463), exhibited books for the blind: his system has been fully described, and to it the Jury give the preference above all others,

Mr. Dongs, Superintendent of the American Depart-ent, exhibited Xenophon and Virgil; characters on Dr. Fry's plan, known as the Glasgow type, all in Romae capitals. This is the system adopted at the Manchester School for the Blind. It has been in use for about 15 years.

adoption

THE INSTITUTE FOR THE BLIND, Stanton, Virginia, exhibited specimens of books and types for the blind. The characters are capitals and lower-case; the printing is sharp and good.

APPARATUS, &c., FOR THE BLIND-FRANCE, M. Marcellin Legrand, Paris (584, p. 1206), exhibited type-plates to print in relief for the blind. The characters are rather too small, and possess the disad-

vantage of having both capitals and small letters. APPARATUS, &c., FOR THE BLIND-AUSTRIA.

G. B. Manchest, of Lodi (139, p. 1014), exhibited a writing-machine for the blind, producing the characters in block or in relief. The letters are formed with pin points, and they are sufficiently tangible; but having capitals and small letters, this plan offers the disadvantage that two alphabets have to be learnt.

APPARATUS, &c., FOR THE BLIND-BAVARIA. MM. Fens and Eisenburg, Augsburg (2 Zolly. 54,

p. 1100), exhibited metal plates, with letters and characters in relief. The letters are too broad, and are not well adapted for the blind. The Jury beg to suggest that a uniform system should be adopted, and that, in foture, all books printed for the bliod should be printed in the same character. Dr.

flowe's plan appears simple, easy, and fit for general II. BOOKBINDING.

Splendonr in the binding of books is a taste which dates back from remote times. The rarity of maouscripts, and the ornaments of every kind with which they were enriched, rendered them so precious that they were exhibited upon desks for the purpose of gratifying the sight and the pride of their possessors. Seneca said of them: "Plerispee libri non stediorum instrumenta sunt, ad adum ornamenta." But if these rich bindings, some beautiful models of which still exist in public libraries, were suitable before or soon after the invention of printing, when books were almost as scarce as manuscripts. they are an anachronism, when we are compelled to heap them so closely in our libraries. These magnificated covers, executed for the greater part by jewellers, who cariched them with reliefs in gold, silver, steel, and ivory, with precious stones, with enamels, and with decorations of every kind, could only be suitable for the missals, and the antiphoners placed in churches. On seeing at the Exhibition, inclosed in the beautiful articles of furniture from Austria, the superb hindings in ivory carved with so much art, or in gold and silver d with gems, and enamels still more precious, it might be supposed that these were shrines inclosing stered relies, or even the casket of Durius, in which Alexander deposited the poems of Homer.

Between simple bindings and those in which costline is carried to extreme, a medium may be found which lovers of books delight in, combining elegance with solidity and simplicity, qualities preferable to richness of gilding. At the period of the Rennissance, artists of great taste executed admirable bindings for kings, princes, and a few rich and learned amateurs whose names are preserved in the recollection of histopoles, who main-tained in their bouses binders whose taste they directed.* Some chose the Byzantine style; but the greater portion adopted the style called the Resaissance. After them, the hinders confined themselves to initation, applying this style of ornament indiscriminately to every species of book. Some attempts have been made to submit bookbinding

to general principles, and to adapt the hinding either to the period in which the books were written, or according to the subjects of which they treat; and a variety of ornaments have been devised us consequence. The idea, though a happy one, is not new, but has not generally * This is probably the cause which has kept us in igue-

rance of the names of these artists.

been adopted. We have seen the cap of liberty, the owl, and the ward of Æsculapius applied to hisdings with respect to the contents of the works. The Egyptian, Grecian, and Roman ornamental emblems have been resorted to, as well as the Gothic borrowed from monuments, Others have thought it desirable that bookbinders, departing from the beaten track, should endeavour to give a more peculiar character to their bindings, a character which should mark our era; and that thus the choice of colours-more or less sombre or more or less brightmight always be in accordance with the nature of the subject treated of in the books. They contend that this system would at once afford, in a large library, the advantage of facilitating the search for books by immediately striking the eye: that it is also to be desired that certain styles of ornament should indicate whether such a work. on Egypt for example, belonged to the Pharaonic, the Arabic, the French, or the Turkish era; and that it should be the same with ancient Greece, Byzantine Greece, or modern Greece, the Rome of the Casars or the Rome of the Popes. All these suggestions may be oseful if they are placed

der the control of taste and judgment Modern bookbinding is carried on in England on a

scale of such magnitude as the binders of former times could scarcely have foreseen. The production of books greatly exceeds that of any former period, and has caused the application of so much machinery to bookhinding, that it may fairly be said to have become a manufacturing business. Books, handsomely bound, gilt, lettered, embossed, and otherwise ornsmented, no longer depend npon individual skill; but are produced, with extraordinary rapidity, by the aid of machinery. Mr. Barn, of Hatton Garden, first introduced rolling-machines to supersede hammering; the iron printing-presses of Hopkinson and others were altered to form arminepresses, hy which block-gilding, blind-tooling, and em-bossing can be effected with accuracy and rapidity. Leather covers, embossed in elaborate and beautiful Leather covers, embossed in elaborate and beautiful patterns by means of powerful fly-preses, were introduced by M. Thouvenin, in Paris, about 25 years ago; and aimset simultaneously in this country by Messramian and the pattern of old plough: the cutting-tobles with shears, invented by Mr. Warren De La Rue, and now applied to squaring and entting millboards for book covers; all these means and contrivances, indispensable to large establishments, prove that machinery is one of the elements necessary to enable a binder on a large scale to carry on that business spe-

Mr. STARR, of New York (88, p. 1438), had, in the United States Department, two machines, one for backing, and one for finishing backs; but the Jury were not fortunate enough to see them at work, although they made many applicatious for the purpose,

Binding in cloth-boards is carried on with such radity by houses like the Remnants, the Leightons, the Westleys, and others, that 1,000 volumes can be put in cloth, gilt, in six hours, provided the covers be previously got ready, and this can be done in less than two days? Notwithstanding all these numerous improvements, the Jury could have wished for some advantages and real progress in ordinary leather hindings, where large quantities are not bound at one time. Those in the Exhibition were experally well executed; but the price is still high in proportion to that of the books, the cost of which has been much reduced by modern improvements in printing and paper-making.

France applies handing in boards chiefly to ephemeral books, which must attract the eye by their splendour, and which are intended either to ornament the drawingroom tables or to be given as prizes, and especially to books which are exported to South America. The books which are experted to South America. The hindings in boards exhibited by M. Mars, of Tonra (Frace, 321, p. 1192), display elegance combined with a relative degree of solidity.

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It is to be deployed that appearance should be so often preferred to reality, and that instead of the solidity which our fathers sought before everything, the inconstancy of our age should, by a contrary excess, prefer changeable-uess and variety. But, after all, books cannot be surrounded by too many attractions in order to inspire all classes with a taste for reading.

For bindings in boards a system has been for some time adopted, of employing ornaments allied by their style of design to the subject treated of in the book

covered by them.

Amongst the beautiful hindings exhibited by the different bookbinders, the Jury have particularly remarked the works of the following exhibitors:-

BOOKBINDING-ENGLAND.

REMNANTS and Co., Lovell's Court, London (5, p. 837). -The design shows excellence and good taste; their workmanship is perfect; and in the application of carved wood to binding, by the patent mode of burning in the pattern, a great degree of beauty and cheapness, compared with carving, is attained. J. S. Evans, Berwick Street (8, p. 537) .- An impe-

rial 4to albam, bound in vellum, illuminated by Joseph Stuart Evans, with the rose, shamrock, and thistle, intertwined and inclosed within a border of gold and colonis The interior of the book embellished with illuminated pages of various designs, and on the inside of the covers the arms of Her Majesty the Queen and His Hoyal Highness Prince Albert, also illuminated by the same method. The clean and superior finish of this album deserves great praise. An album in the Etruscan style, black kid inlaid npon a brown ground, the edges of the leaves ornamented to correspond. The Art Union Illusleaves ornamented to correspond. The Art Union Illea-trations of the "Pilgrim's Fregress," bound in moreou-finished in outline; the subject, "Christian met by Exam-gelist." By lines and gauges; a style of decoration totally unswited for the purpose. The gold is well worked and bright. The whole of the binding exhibited by Mr. Evans is well executed. Messrs, LEtouron, of Brewer Street (24, p. 538).

- These bookbinders evince, in various styles, great perfection, and all kinds of binding seem easy in their hands. Their manner of restoring fac-similes of missing pages to valuable works is first-rate. A quarto Lexicon, unfinished, showing a new mode of covering a book in such a manner as to preserve the strength of the leather at the joints. This appears to be an advanthe tester at the joints. This appears to be an available, tage. The taste displayed in the Royal Bible, with heavy ornaments, was inferior and of less happy adaption to the subject than Luke Limmer's general designs.

Mr. Josean Westley (48, p. 540),- Spenser's works in white vellum, a 4to Bible in russia antique, and other specimens, show excellence in workmanship. Mesers. Bowg and Soxs (52, p. 541).—Their speci-mens of hinding attracted the attention of the Jury

by the cheapness and general excellence of their cloth R. J. HAYDAY (106, p. 544) sustains bis well-earned

reputation in the bindings exhibited by Cundata and Apper M. D. BATTEN, Clapham Common, London (59, p. 541)

The books exhibited by him were elaborately worked, — The boost extended by any over accountry when although requiring more careful attention in finishing.

J. Watturr, of Noel Street (130, p. 545).—"Das Nielelungenlied," royal 4to. A fine specimen of veilinn illuminated bioding, in the Grelier style, the design has n English workman. The price of bioding, ivd. "Pogin's Glossery," royal 4to, inlaid illuminated moreov, well and expensively extented; the design taken from the contents of the book, and adapted to the deco ration of the binding. The price of the binding, 162. Owen Jones and Humphrey's illuminated books of the middle ages, imperial folio, dark-brown moroceo, blindtooled in imitation of the old monastic binding. The manner of fastening the leaves so as to open freely, by means of silk joints, appears apperior to caontchouc, where so large a book is required to open freely without

twisting. Price of binding, 4l. "Silvester's Universal Paleography," imperial folio, brown moroceo; the sides beautifully and accurately tooled in the old French style. in gold. It is a first-rate specimen of forwarding, solidity, and correct workmanship. Price of bioding, 4l. Domestic Animals of Great Britain," chastely decorated and good workmanship. "Rogers' Poems," and "Italy." specimens of rich and accurate tooling, the edges marbled and well gilt over. "Memoires de Napoleon, A specimen of emblematical binding. "Bolin's Standard Library," in calf gilt, is a fine specimen of sound, durable, " Bohn's Standard and neeful binding, and the price moderate, being 3s. 6d. per volume. "Bohn's Classical Library," as a revival of the English style of binding of the period of 1760, with bigbly-raised boards, is another specimen of superior workmanhip. The whole of the s reputation Mr. Wright has acquired. The whole of the specimens justify the

Messrs, WESTLEY and Co., of Friar Street (111, p. 544) had, among other well-bound specimens, a royal folio Bible in purple morocco, bevelled boards, richly enchased gilt clasps, corners, and centres. The interior of the boards worked in gold, the edges of the leaves illuminated in gold and colours in the missal style. The cost of this binding is 75t. The workmanship is bighly meritorious, and proves that if work can be so well and elaborately executed, it is worthy of better designs

Messrs, Maconnie and Co., Percy Street (26, p. 539),-A Cambridge folio Bible, red morocco, gilt centres, one in tortoiseshell and buhl; a royal 4to Bible in russin, and numerous other specimens, showing many points of great merit, but somewhat deficient in the ficishing, an error which could and should have been avoided, particularly where so much elaborate work is bestowed. The prices given are-£, s. d.

A Cambridge folio Bible, red morocco, elegant, gilt corners and centre, silk

insides A Cambridge folio Bible, tortoisesbell and build, silk insides, elegant --

A Loudon demy folio Bible, bronze and			
blind-tooled	5	0	0
A royal 4to Bible, russis	6	10	0
A royal 4to Bible, marcon morocco,			
silk iosides	7	10	
A royal 4to Bible, brown morocco -	6	10	0
A royal 4to Bible, purple morocco, plates	- 5	10	0
A crown 4to Bible, brown morocco,	-	ю	•
silk insides	- 4	- 4	0
A crown 4to Bible, purple morocco,			
slik insides	4	4	0
A crown 4to Bible, calf, imitation wood	2	2	ñ
A erown 4to Bible, velvet-pierced, gilt	_	-	-
sides		10	0
A royal 4to Prayer	- 8	0	0
A royal 8vo Prayer	5	0	0
A pica 8vo imperial Bible, inlaid	5	0	0
A long primer 8vo, reference	- 2	10	0
A Boccaclo, vellum, Illuminated	- 7	0	0
A grown 4to Bible	- 4	- 6	ŏ
V CLAMB 400 INDEC	- 7	0	v

Mrs. Lewis, Duke Street (163, p. 547).—" Horne's Commentary," "Glossary of Architecture," and other works, among which was one in the Gothie style, all bearing evidence of good and careful workmanship.

Mesers. Barnerr and Co., Fleet Street (196, p. 550). Specimens of carefully and well-executed work, among which is a royal 4to Altar Service, ultramarine border round the pages, and carved wood boards, covered in Turkey morocco: the electro-metal corners and centres deserve mention. Mr. Barrett had also numerous small Common Prayers and Church Services, perforated and

engraved, solid covers, &c.

Mr. P. Sapsporn, London (35, p. 539).—An illuminated and elaborately finished 4to Bible, in red morocco, with metal edges.

Mr. TARRANT, London (43, p. 540). - The Works of Sir Thomas Lawrence, morocco illuminated, neatly

Mr. Nezz, Edinburgh (91, p. 543). — An imperial 4to Bible, white morocco, super-extra, morocco inside, with satin fly-leaves, the outside of the boards and back hand-tooled and illuminated. A fine specimen of what can be effected where care and judgment in the execution are combined, even under the disadvantages of working after a day's hard labour, this Hible having been bound in the winter avenings, by gas-light, after Mr. Neil's daily

Mr. Budden, Cambridge (97, p. 544).—An Alham, inlaid in colours, with interfacing band pattern, inside joints, and inlaid vellum, gilt and painted, displaying great care, skill, and taste in the execution.

Mr. Oux, London (109, p. 544).—A number of volumes neatly blocked, and a thin book under the title of "Fiddy," very neatly bound.

Mrs. LEIGHTON and Sox, Harp Alley, London (156, p. 547).—Various specimens of blocking, some in silver, said to be protected from tarnishing. "The Women of the Bible," a volume showing good block-gilding.

Mr. Riviner, Great Queen Street (89, p. 543).—
A volume, "Virgili Opera," royal 8vo, inlaid white morocco, inside covers tooled in foliated curves, beantifully put out of hand; "The Chronicles of England," 4to tree-marbled calf, also a fine specimen of this style of binding.

Mr. JOHN CLARKE, of Frith Street, Soho (68, p. 541).—Sir Joshua Reynolds' "Discourses," and a folio Bible in the Harleian style; a Bible in antique morocco, single hand-tooling, remarkable for its extremely well forwarded and finished style of work. Four volumes in calf, tree-marbled, in which Mr. Clarke excels.

Mr. Macnata, of Glasgow (117, p. 544), Mr. Clark, of Dunfermline (68, p. 541), Messrs. Clark and Donalison, of Mauchline (135, p. 545), exhibited specimens of

average workmanship. After having attentively observed the amount of elabo-

rate work which is bestowed on most of the productions exhibited by the bookbinders of the United Kingdom, the Jury cannot disguise the fact that there is a general want of good designs; and they beg to remark that more attention should be paid to a subject which impresses a special character on the products of a country. The attempts at emblematic hinding are generally not very successful; but the imitations of the old English style of hindings are a nearer approach to simple, useful, and good work.

BOOKBINDING-FRANCE.

M. Nitinara, of Paris (665, p. 1211), exhibited numerous works, among which several are forwarded, designed, and finished in a first-rate style. The ornamental tooling in gold is a near approach to all that can be desired.

A. LORTIC, Paris (1652, p. 1256), among other works bound in a superior manner, a large folio "Balbas de Janua," illuminated Greslier intersected pattern, with the iusides elaborately gilt, is deserving of high praise. Some few specimens of very thin books displayed a

degree of skill seldom surpassed. Maxiame Gauxa, of Paris (857, p. 1221), exhibited a smaller number of elegantly bound books than could nive been expected from her well-known establishment, Those that were in her glass-case were principally orna-mented in claborately carred wood and ivory. A large folio, "España Artistica y Monumenta," red morocco

illuminated, intersected pattern, deserves comm for its elaborate workmanship. M. Siniea, of Paris (693, p. 1212): this name brings back recollections which impose duties on his success whose specimens contain merit of only an average kind. M. LE BRUN (No. 906, p. 1233) and M. AUGUSTE DAUTHUILLE, of Paris (1171, p. 1233), exhibited bindings

of an average description The Jury regret that MM. BEAUZONNET, OTTMAN, CAPE, and other eminent bookhinders in Paris, have ubstained from sending their works to the Great Exhi-

In general, the bindings of French artists are remarkable for a superior degree of taste in their design, as well as for neatness of execution in the hand-tooling and finishing. Their best designs, however, are imitations of old artists.

BOOK DENDENO-A DEPOTA

Bookbinding on a large scale is carried on in Vienna and in Pressia, where also the manufactory of finery leather articles has considerably increased of late years, The principal part of the specimens exhibited were placed in M. LEISTLER'S rooms, enclosed in a bookcase, and as the Jury were informed that these goods were private, there was a certain degree of delicacy in asking more than once for leave to inspect them. The names of the binders and ornamenters of the books and album-cases were not found by any number affixed to the cases, and it was not until the 20th of June that it was comm cated to the Jury that the books, &c., were exhibited by individual persons who were desirous that they might not escape notice.

The designs of the portefeuilles exhibited by M. HABENICHT (376, p. 1029), bookbinder of Vienna, are by Professor CHARLES RAESNER and Professor VAN DER NCLE, and show what can be accomplished when artists are employed, instead of leaving the workman to follow his own notions of what constitutes appropriate ornamentation. These portefeuilles, got up by M. Habenicht, can only be noticed in this place for the very superior work-manship displayed in gilding and ornamenting, fur they do not constitute bookbinding in its strict meaning. the portefeuille-cases in the shape of books are specimens of first-rate workmanship and appropriate design, and reflect great credit on M. Habenicht and the artists who designed them.

The following is a list of six of those elegantly finished and ornamented productions:-An elephant folio, in dark-blue velvet cover, with the

figure of our Saviour and Cross, in chased silver, in the An elephant folio, green velvet, with exquisitely

pierced ivory ornaments. An elephant folio, with tortoiseshell cover, profusely ornamented with inlaid metal ornaments, Gothic design, pierced ivory and coloured glass border, silver and gilt device of three figures in the centre; the lettering in exquisitely formed raised letters of metal gilt.

An elephant folio, in blue and red morocco, illuminated in gold, with rose bouquet, and raised intersected ornaments, in ten compartments, each filled with highly finished tablean x An elephant folio, in dark puce velvet, raised gold or-

naments, with three small ivory figures, and beautifully carred ivory ornaments round the sides. An elephant 4to, light purple velvet, profusely orna-mented with gift metal, ebony, and pearls; females play-ing harp and into in the ecutre, in gift metal. Raised

gilt letters, top, bottom, and sides. M. Geras Det, of Vienna, bad also two beantiful por feuilles, designed by Professor Charles Raesner, and of erfect workmansbip. One an elephant folio, covered in light blue, red morocco tooled border, gold and ivery scroll ornaments, gilt metal centre, with female figure holding a tablet, in gilt metal, on n brown ground, with the names of celebrated Austrian music composers-perfeet in the forwarding and finishing. The other, an elephant 4to, in dark-blue velvet, bronze and gilt metal, raised intersected pattern in fourteen compartments, ornamented with gold, with highly finished drawings of the costumes of Austria, and the imperial arms in the centre, in brouzed and gilt metal

M. Ginander had also in the book-case apwards of 200 volumes of books, exquisitely bound. The whole of M. Girardet's productions were supposed to be with the book-case, and not exhibited for competition, and no iuformation was afforded to the Jury to enable them to view them as a collection placed there by an exhibitorthere was neither number nor name to indicate who was the binder. Considering the superior workmanship, it is probable that M. Girardet would otherwise have received the marked approbation of the Jury by their awarding him a Prise Medal.

BOOKBINDING-THE ZOLLVEREIN.

Only two bookhinders have submitted specimens, although some of the booksellers and printers, combining M. Schornino, of Berlin (1 Zollv., 154, p. 1057), exhibited a large Altar Bible in morocco, well bound. M. GRAF, Duchy of Saxe Altenburg (1 Zolly., 746, p. 1091), a large Altar Rible in purple morocco; as a specimen of block gilding it is perfect, and considering the large size of the engraved block, which is stated to be in one piece, much skill is displayed in its being so skilfully

BOOKBINDING-NETHERLANDS

M. RECKES, of Rotterdam (112, p. 1141), exhibited the works of Hogarth, in folio, as a specimen of hinding, neatly and curefully executed.

BOOKSINDING-SWEDEN.

M. F. Been, of Stockholm (104, p. 1354), exhibited ten specimena of hinding, possessing fair merit. BOOKBINDING-UNITED STATES OF AMERICA.

Judging from the collection in the American Departmeet, bookbinding has not advanced in that country as much as some other branches of the book trade. The works exhibited are loosely forwarded, and twist in handling; and although much labour is bestowed in gilding and finishing, sufficient attention is not paid to the miour details on which good workmanship so much depends. The fullnwing is a list of the exhibi-tors:-Mr. Il. Baaner, Boston (473, p. 1465)-books in cloth, well blocked. These specimens were enclosed in a case in the form of an immense book, well and neatly covered. Mr. HENRY GASSETT, Boston : 420, p 1462), and Messrs. Lippincoff, Grango, and Co., of Philadelphia (57, p. 1437) - specimens of hinding, of moderately good workmanship. Mr. G. P. PETNAN, of New York (122, p. 1441)—five or six specimens of mediaval hinding. Messrs. Walken and Co., New York (123, p. 1441)- a large 4to Hible in two vols., bound in Gothic style, green morocco, gilt metal ornaments and corners, most claborately worked fly-leaves, illuminated in green, red, and white, with recesses to each side for a family register, embelished paper, and finished in such a manner that when the recesses are shut up the inside of the cover remains even. This is the best specimen in the American Department, and possesses some novelty and care in forwarding and finish-

BOOKSINDING -VAN DIENEN'S LAND.

THE COUNCIL OF THE ROTAL SOCIETY OF VAN DIEMEN'S LAND (345, p. 999) displayed a collection of books neatly bound by Mr. Roawenas, of Hobart Town (196, p. 998); and one volume, said to be gilt and lettered with gold leaf from Californian gold, manufactured by Mr. R. V. Hoop, also of Hobart Tawn.

Vellum Binding.

Vellam binding is a separate branch of the trade, and consists in binding all kinds of account books, from the largest ledger to the smallest memorandum book. The covers are usually vellum, forril, russia leather, smooth and rough ealf, and the larger books are in general neatly worked with russia bands, which add both to their up-pearance and durability. The English vellum hinders, whose works were in the Exhibition, fully sustain their high reputation for heavty of execution and solidity of workmanship. The ledgers of MM. Gaynand and Genatur, of Paris (517, p. 1203), however, show that remarkable progress has taken place in France within the last 10 years in this branch of trade. In the American Department, also, Mr. Hernetck (302, p. 1466) and Mesers. J. and W. McAdams, of New York (482, p. 1465), had ledgers raled in a very superior manner. An improved mode of numbering the leaves of account books has been introduced within the last few years, by books has been introduced within the most rew years, or means of a paging machine, patented by Mr. Shaw. There are other machines for the same purpose; and Mr. Senagaviorin (38, p. 539) had one at work in Class XVII. during the whole of the Exhibition, which is

this branch of the book trade, had also some bound works. | very simple in its construction; and appears to answer M. Schormino, of Berlin (1 Zollv., 154, p. 1057), ex-Mr. Hancock took out a patent some years since for the purpose of applying esoutchone to the manufacture of account and other books: the leaves are fastened together with caoutchouc in a semi-fluid state, instead of stitching them, thus obtaining much greater freedom in opening when the book is bound; this appeared at first to opening when the book and bound; the appeared all others. be a superior mode, and promised to supersede all others. It was not found, however, to be sufficiently strong to mastain the severe wear and tear consequent on the constant opening and shutting of ledgers. It is a process by which books that do not require such constant handling may be bound to advantage, as they open much more freely. It appears admirably adapted for music-books, allouns, small pocket ledgers, and miniar works.

The English exhibiturs of secount books were Messrs. THOMAS and Son, Cornhill (44. p. 540); J. WILLIAMS, of Hucklershury (53, p. 541); Evans, Berwick Street, (8, p. 537); HARRIS and GALARIN, Fenchurch Street (173); ROTSTON and BROWN, Broad Street (34, p. 539); WATERLOW and SONS, London Wall (46, p. 540); Cuwan and Sons (101, p. 544); De La Rue and Co. (76, pp. 541-543), for pocket ledgers; and Mr. Won-benstroon (159, p. 547), whose new mode of fastening the sections with cloth hands appears to be an improve-

From France, MM. GATMARD and GÉRAULT (No. 517, p. 1203) exhibited an immense and well-bound ledger; and M. NERAUBEAU (661, p. 1209), whose various account books were of an average quality. From America, Mesers. Sangle and Mott, New York (339, p. 1456), in addition to those already mentioned.

III. PAPER.

The introduction of paper, first made of cotton, and afterwards of linen rags," dates from the arrival of the Arabs in Spain and Sicily, in this part of Europe, and from the time of the Crusaders as regards the Southern Thus it is from two different parts of the East that we have derived this process, originally inreuted in Chias, where the art of making sheets of paper from the bark of trees, from bamboo, old racs, silk, hemp, or cotton, reduced to pulp, dates from the commencement of the second century of the Christian

era 4 The use of popyrus, manufactured in Egypt, cessed in Europe about the minth century, and the cutton paper, then in great use in the East, was introduced into Europe at this time, through the commercial relations of Venice, Naples, and Sicily.

Edrisi, who wrote in 1150, tells us that the paper made

at Xativa, an ancient city of Valencia was excellent, and that it was exported to the East and West. At the commencement of the fourteenth contary there existed at Fabriano, in the Picenum, and at Colle, in Tuscany, paper-mills moved by streams of water.§ It was from these Fabriano mills that Bodoni, at the comwas from these Factumos must that notion, as the com-mencement of the present century, obtained the paper for his beautiful editions; and this manufacture is still carried on with success, judging from the superb var-made paper exhibited by M. Millalant, of Fabriano (Rome, No. 12, p. 1285).

At Noremberg, in Germany, a paper-mill was established in 1390,

The introduction of paper-making in France dates from the fourteenth eentury. The towns of Troyes and Es-* "Ex resuris pansorum," are the words of Peter the

Venerable, Abbot of Cluny. † Between the years 83 and 105 after the birth of Jesus Christ

"Xniva is n pretty town, with eastles, the beauty and solidity of which have passed into a proverly; here is made paper, the equal of which cannot be found in the whole universe. It is experted to the Fast and West.—(Geography of Edriel, translated by A. Jaubert, vol. il., p. 57.) Xativa

is now called Sun Fellpe.

5. The Charter of the 6th of March 1377, relates to the lease of a mill with a waterfall, ad faciendes cartes.

sonnes are the first quoted in relation to this manufac-

In Expland the manufacture of paper was interdence much lairer, and was imported from Fronc. Vet it much lairer, and was imported from Fronc. Vet it die Woods, under the tilt of Hackfolmess de Proprieto for the paper had been made for by John March Park, and the paper had been made for by John hadly the manufacture was not secondid, for it was in 1256 that (spece Ellished granted to be twy-beller, John hadly the manufacture was not secondid, for it was in 1256 that (spece Ellished granted to be twy-beller, John hadly the paper had been to the paper of the paper to the paper had been to the paper of the paper paper, principally wrapping, was made in Great Pittain. It is wan not mild 1700 tab the ocidebeal J. Wassems after his return from the Centimet, where he had wireless also propriety and the paper propriety paper.

When the art of paper-making was first introduced into Europe, parabount (cheephalin), or etlaim (callakin), was used for writing and printing. In place of these substances, paper was required to possesse greate these substances, paper was required to possesse greate and the paper was required to the present mode, which, by removing the natural gass exveloping vegetable fibres, injury them more of less. It is remarkable, that there old papers, having here well-sized with gelatial transfer of the papers of the present mode of the In 1736, Backerille, to dwinter the roughques of the

In 1729, Baskeville, in obvinte the resiphose of the International Conference of Virgil, 1721, in their primal on this were paper. This structed the attention of Xi, the best of the Conference of the Tenes of the Conference space, to make mixing paper, which is related "verbina paper" (papier ordin.). Until that period the rape were propriet ordin.). Until that period the rape were required considerable motter perory: to energly this, sylladors with sharp steel Males for tenring the rape with the conference of the conference that were propriet and constant modes. Builton these strangers in repair and constant modes.

in the Dutch Department.
At the end of the last century (1799), the first trial was made at Essounes, in France, in the paper-mill of M. François Didot, of a machine for making continuous paper. It was the invention of M. Robert, a workman in that establishment, who obtained a patent for 15 years, and a sum of 8,000 francs from the French Govern Some sheets of paper in continuous lengths were then made; but the troubles in which France was involved at that time caused delay in the necessary experiments, which were both tedious and expensive. As soon as the Peace of Amiens restored intercourse with England, M. Didot, jun., convinced of the great utility of the invention, came over with it to seek in England what was then wanting in France-capital engineers and enterprising wanting in France—capital engineers and enterprising paper-manufacturers; he was accompanied by Mr. John Gamble, his brother-in-law, who had resided several years in Paris. Having obtained patents in England, one in 1801, and the other in 1803, they were assigned to Mesers, Henry and Scaly Fonthrinier in 1804. Dartford, in Kent, was selected as the place best adapted for realizing the patentees' plans, and Mr. Hall's establishment as the fittest engineering concern for that purpose. In that manufactory, Mr. Bryan Donkin, since so celehrated as a paper-machine maker, was employed; and to this gentleman the credit of perfecting the paper-machine is mainly due. In 1803, after intense application, Mr. Donkin produced a self-acting machine, or

* See the argument of De Thou, in favour of the 24 sworn booksellers - Furliment Records, 17th January 1:64.
† The first specimen is in one of the reclumes of the collection which he printed for Moos. In Comta d'Artois (Cluster X.)

working model, which he erected at Frequency, in Herrichther; and in 18th, he part up the second anchine at the finehalter; and in 18th, he part up the second anchine at mounthfurer of continuous paper became one of the most mounthfurer of continuous paper became one of the most discovered or him, and the part of the second ten years they per up 21; and marking their 18th is markine. Or there as I have been made for Green timents, 22 for Piscos, 46 for Germany, and the state of the second ten years of the years

In two, yet, hermands, paper-maker, interductions and in the papinded delite bases cylinder, perfection of an applied delite bases cylinder, perfection of the perfect of the perfect of the perfect p

In 1836, Mr. Brown, of Esk Mills, near Edinburgh, obtained a patent for applying suction-pumps to the Foundrainer machine. He places a rectangular box transversely beneath the horizontal wire-cloth, without the interposition of any perforated covering.

interposition of any perforated covering.

In April 1839, Mr. T. B. Crompton took out letterspartent for producing n partial and continual vacuum
under the wire by means of a fan; and a uniform rarefaction is obtained by this arrangement. It has been
successfully applied since that period at his extensive
mills, Farnworth, near Bolton, Lancashire.

The first mechine for continuous paper actually made in France was constructed at Sord, new Anet, by Mosars, Berts and Grévénich, under the directions of M. Didot, who has decided a patent for maker. The mechines first made in France were very inferior to those made by Mesars. Dookin, consequently the supplied the principal paper-stakers in that country with machines made by him Novi viltastanding the great benefit derived by the per-

fection of the Didot and Fourdraine paper-machine, and the immose quantities of paper produced by three and the immose quantities of paper produced by these papers and the immose quantities of paper produced by the paper paper. The vas effected by invention were fully developed. This was effected by means of a cloth or clothe, against bessel cylinders, such as the paper paper paper was made as cloth or clothe, against bessel cylinders, such as the paper paper was made in the paper paper. The paper was made in the paper paper was made paper paper was made paper paper was made paper paper. The paper was made paper paper paper was made paper paper paper was made paper paper paper. The paper was made paper pa

Enoch Taylor, obtained a "patent for enting paper longitudinally, by means of revolving circular blades." In 1829, Mr. Firmin Didot introduced into his mill, at Mesnil, Mr. Comptou's drying process. This was the first time that it was put into operation in France

Fine writing-paper is now made, sized with gelatine, dried, and cut into sheets, nt the rate of 60 feet a minute in length, and 70 inches in width, at the works of Mr. William Joynson, at St. Mary Cray, Keat, which produces, from only two machines, the large quantity of 25 tons per week.

The paper used in England for newspapers is required to very strong and firm: to obtain these qualities it is sixed with polatise. To Mr. T. B. Crompton is due this mode of string with relies. The amount of Excise duty on paper made by him has been no less than 15,000, per annus, taking an average of ten years, and now xearing \$2,000 the property of the property o

In Americal ISM, the late Mr, Thomas Barrat, of St. Mary Cory, obtained a patent for inserting the water-mark and maker's name to continuous paper, so as to the continuous paper, so the continuous paper, so as to the continuous paper, owing to the perfection he attained in making genter, owing to the perfection he attained in making genter, owing to the perfection be attained in the continuous paper, or making the perfect perfect to the perfect of the perfect paper or my other grinding material; and, by continuing the perfect perfec

purposes requiring great accuracy.

In August 1831, M. Jean Jaques Jegnier obtained a
patent for making continuous paper with wire marks,
similar to the laid papers usually made by hand; to which
the preference was still given for their greater strength
and peculiar appearance.

In 1830, Mr. Ibotson, of Poyle, paper-maker, obtained a patent for a peculiar construction of strainers nisted the getting up of these strainers to Nessr Donkin, who used great care in their manufacture. By Mr. Ibotson's simple contrivance, the sand, lumps, knots, and other impurities, are kept from flowing with the palp at the moment of its running on the wire web on which the paper is formed. Most countries have since adopted these strainers; and paper is now free from the imperfections which formerly caused so much damage to types in the printing, spoiling large founts and valuable wood-cuts, after they had been in use only a short time: this great improvement also superseded the operation of picking the lumps, &c., after the paper was made, which caused so much retree (damaged paper) to otherwise good and well-made paper. Other kinds of strainers are used; but few are found to work as well as Ibotson's, made by Doukia and Co. Mr. John Wilks, a partner in the firm of Donkin and Co., obtained a patent in 1830 for a channelled and perforated roller, technically called a "dandy," to remove part of the water from the pulp, to facilitate conching, to emble paper to be made with increased rapidity, and to close its apper surface. gentleman manufacturers are greatly indebted for many valuable suggestions and improvements in the namero ntensils and implements required in the making and

fishishine of paper.

In Eurland, writing-papers are sind with gulaties, the Parkend, writing-papers are sind with gulaties, the parken of the paper of the parken of the paper so we are parken of the paper, the paper of the p

writing pagene is imported into Supland. The white of the theorytepon of Pirane, Germany, and where flowing the theorytepon of Pirane, Germany, and when flowing the theorytepon of the pirane is a support of the being circle in the val with firms, in addition to make any instead of political, they are him years where the than those which are saided with neighbor of the pirane than those which are saided with neighbor of the pirane partnership makes in a supportedly year where of flowing contributes and in drawing-sparers and strong accountgravity makes in a supportedly year where of flowing contributes and in the proposed proposed proposed and proposed proposed proposed proposed proposed and proposed proposed proposed proposed proposed and proposed waying canadres, they Are. Black papers of the same waying, canadres, they Are. Black papers of the same and were made in triedle and Manchester meet than

S. Johnstoff (18), p. 1907), of the Stoche Paper Mannfestery, challed printing-speer of a good colorir, Mannfestery, challed printing-speer of a good colorir, colorie times of great brilliary, dyed with additives, and fibring-speer of certained prayers, which, pervalent the colorie times of the colorie times of the which the Souther waters flow, seem to consider all the colorie times of the colorie times of the colorie times of the colorie waters flow, seem to consider all the colories of the colories of the colories of the colories of filtering-speer, weighing profit prammes, and having a state of tradition time, analysed by M. Intervent, protained of the colories of the c

a very forwardle result.

"A very forwardle result."

"A very forwardle very M. Wenner, some very label with the bird by M. Ontare 1939, p. 1925, Backwentz, and bird by M. Ontare 1939, p. 1925, Backwentz, and the bird by M. Ontare 1939, p. 1929,
Sing in the vat offers many advantages, has in a positive cannot be employed without injury to the fitt of the positive contraction of the positive contraction of the for primitive rere destribute; and in 1977 M. Cannon made unchare, the base of which was retain sudders seem to madera, the base of which was retain sudders seem to limiting it with peasa-states, which he adopted in 1972, and the positive contraction of the positive contraction of writing and primiting papers. In England, for printingpapers, the reads are to the positive contraction of the writing and primiting papers. In England, for printingpapers, the reads are in the contraction of the positive papers, the positive papers. In England, for printingpapers, the reads are in the positive contraction of the decision of the positive contraction of the positive contraction of the decision not readily to take the nice made with another which seem not readily to take the nice made with another outstay, and it is after process.

Glazing of Paper.

High glazing, now universally adopted, was first introduced by the late Mr. Heath, about 35 years ago, at his pasteboard manufactory in Hackney, and for many years the means be adopted were not known. On the introduction of steel pers, there was an increased demand for smooth papers, and a desire to obtain the highest possible

finish. Other card and drawing-board makers applied

• Mr. Joyason since the Great Exhibition has remedied this inconvenience by a very ingenious process.

manufactured in

Mr. Heath's process, and it became the custom for wholesale stationers to send post and other writing papers to the eard-makers to be glazed or satioed. A patent having the curv-makers to or gazaci or sanced. A patent narrog been granted in 1832 to Mr. De La Rue for "certais improvements in playiog-cards," in which he applied printing in oil, instead of the old way of steeniling with water colours, he adopted the mode of passing them between copper sheets through powerful rollers, natead of the usual mode of glaning by friction with a flint, and subsequently he attained a higher finish in fice writingpaper than had hitherto been effected by submitting it to the same process.

Glazing is now earried on at most of the paper-mil in all countries. Writing-papers have also been glazed in long lengths; but as the naked rollers through which the paper passes become indented after having been only better mode is to pass the paper several times through a calender, having an iron roller at the top and bottom, and a paper roller in the middle, the iron rollers being slightly heated by steam. This plan is useful where ebenpuess is necessary; but it is nevertheless an inferior sort of glazing, and does not long maintain its gloss. It has been practised many years by Mr. Crompton for strong brown preking-papers. The Weamoutt Parka Cospany (149, p. 546) exhibited, through Messrs. Venables, a first spacinger of brown water shand it. a fine specimen of brown paper glazed in loog leogth; and Mesers. Daxwsen and Co. (Denmark, 4, p. 1335, 1356), of Silkeborg, in Jutland, Denmark, have exhibited a large roll of ercam-laid writing-paper well glazed, not satisted, in long length. There is no difficulty whatever in glazing paper in long lengths, provided care be taken to obtain very true rollers. A thin ductor-blade should be fixed in a proper position to detach the sheets as they pass through, as the electricity which is developed causes them to adhere to the eylinders, particularly where rosin size has been used.

Paper Bleaching.

At the end of the last century, M. Berthollet's diseovery of the means of bleaching with chlorine was suceessfully applied to paper-making; and by this valuable rocess coloured rags, ropes, &c., were converted into fine white paper, but the improper use of it deteriorated the quality, and recourse was therefore had to the use of chloride of lime, and to a better system of washing the pulp, for which purpose washing drums were introduced by Mr. Breton, and perfected by Messrs. Blanchet and Kleber. As a further precaution against the deteriorating effects of the use of chlorine or its compounds, some makers use anti-ehlor, such as sulphites, to neutralize the small particles which might still remain in the pulp after

bleaching and ordinary washing.

The rotatory rag-washing machine, invented by Messrs.

Donkin, has the advantage of enabling the boiling operation to be performed under high pressure: the mechanism continually lifting the rags out of the lye and plunging them back insures complete and uniform action. may be used repeatedly by adding fresh doses of alkali-M. Jonrnet has adopted the plan long followed in England of using the waste wash-water of his mills for manuring land.

The ehloride of lime is cheaper in England than in France; it is made principally at Glasgow as a secondary product of the soda manufacture; the price in 14s. per ewt. (about 30 fr. the 100 kilogrammes), whilst at Ronen or Paris it costs 47 fr. the 100 kilogrammes, being 56 per cent. dearer, a disadvantage to which the French manufacturer is subjected on one of the most important raw materials used in paper-making, as the importation of ehemical productions is prohibited in that country. The difference of price is from the great disparity in the cost of fuel; coals are sold in England at an average of 4s. per ton (5 fr.); in London 15s., or 18 fr. At Rouen, coals cost 33 fr. per 1,000 kilogrammes, to which must be added the cost of cartage to the different mills.

are fewer waterfalls than in France and other parts of the Contineut. Although steam is more expensive than water power, it is more available, and mills using it are not subject to stoppages from floods and shortness of water

In France and other countries where mills are near large forests, it is cheaper to use wood than eoul; but England has great advantages from the cheapness of its fuel, particularly for steam drying. Where mills are in unfavourable situations, without coal, the cost of drying the paper is considerable.

Englind and France obtain the greater quantity of manganese from Germany; the price of which is therefore about the same in both countries. Rosin is imported from America and Russis, and some is produced near Bordenux. Alam and potato-starch are about equal in price in England, France, and Germany. Muriatic acid is dearer in England than in France, where the price is now very much reduced.

Paper .- Price of Labour,

Although the price of labour is, in general, higher in England than on the Continent, yet owing to the care and skill of the English workmen, and the great superiority of the machinery employed, it is doubtful whether the cost of the manufacture of paper be not as cheap in Earland as in other countries. To ascertain the merits of the manufactures, quality and price of the paper being considered, it would be necessary to have exact data as to the rate of labour in different countries, and even in each locality, as the price varies according to the greater or less distance of the mills from the capital; for example, in France the price of labour in the Vosges is much less than near Paris, but this advantage is conoterbalanced by the expense of carriage, which is always greater in the case of mills distant from the centre of consumption. These points have been considered by the Jary according to the best information obtained, and they find thut mills established where civilization has made little progress are the most favourably eircumstanced. The price of rags mainly regulates that of paper, and the value of rags is always in proportion to the degree of civilization and prosperity of the country. Thus Sunyma, which seem years ago converted its rags into coarre boards, and sold them to the paper-makers of Europe for toaking paper, now makes good writing and other papers, the low price of which proves that both the raw materials and the labour must be cheap in that part of the world

In proportion to the progress of civilization, paper-machines have been introduced into the different parts of macaloes have been familiary possesses a great number. South America has now begun to obtain them from the United States. In Africa there is only a small vat-mill at Bonlac, near Cairo.

The following is an necount of the number of pape mills in England, Scotland, and Ireland, and the number of beating-engines employed; also the amount of duty charged on paper, the quantity imported from various countries, and the amount exported from Great Britain in the year 1850. (See Table, p. 430.)

By a Parisamentary paper, published March 9, 1852, the number of paper-mills at work in England on the 18th Fehruary, 1852, was 304 in England, 48 in Scotland, and 28 in Ireland, making 380. There were 1,616 beating engines at work, and 130 silent.

Sharp, in his "Gazetteer," ed. 1852, p. 977, states the number of paper-mills to be 800, employing 50,000 hands; but the Table (p. 430), obtained officially from the Inland lievenne Office, gives the number of mills as being only 415, iocluding Eogland, Scotland, and Ireland, The amount of duty charged in the year 1850, shows

the enormous amount of 62,960 tons weight of paper pro-duced in Great Britain in one year! The first papermachine was erected in 1804,*

Paper.—Motive Power.

The use of stems as a motive power has become almost universal in England, Hilland, and Belgium, where there universal in England, Hilland, and Belgium, where there

					England,	Seetland.	Ireland.
Number of paper-mills		-	_		327	51	37
Number of beating-engine		-	-		1.374	286	86
Poper charged with duty		_	_	- lbs.	105,712,953	28,600,019	6,719,502
Amount of duty		-	-		£ 693,741	€ 187,687	£ 44,096
Paper Impor	ed, riz	_					
Printed, painted, stained, o	e bane	inet	-	so, wite.	342,746	470	-
Other kinds			_	- lbs.	267, 162	53	-
Amount of duty		-	-		£ 5,607	£5	-
Paper Expor	led, ráz	_					
Printed, painted, or staine	1 -	_	-	sq. yds.	1,155,012	163,164	
Other kinds		-	-	- Ibs.	6,568,268	1,649,555	9,248
Amount of drawback paid		-	-		£ 43,934	£6,946	£ 60

An Account of the Number of Machines and Vats employed at Paper Mills in the United Kingdon, distinguishing England, Scotland, and Ineland, in the last Ten Years.

1	Ese	LAND.	Scott	439,	lass	AND.	Синтер Кенерон		
Yza	Number of Machines	Number of Vata.	Number of Machines.	Number of Vars.	Number of Machines	Number of Vata.	Number of Machines.	Number of Vets.	
18	2 292	311	46	21	18	40	356	372	
18		300	47	24	22	38	367	362	
18	4 299	302	48	25	23	32	370	359	
18	5 310	309	50	25	24	30	384	364	
18		328	51	22	25	28	384	378	
18-		326	54	20	31	27	405	373	
18	8 321	321	54	21	32	25	407	367	
18	9 319	310	55	19	32	24	406	333	
18		307	57	19	32	18	412	344	
183		2)5	58	19	33	15	413	330	

Inland Revenue Office, Old Broad Street, 14th October 1851,

The annual value of paper manufactured in this country is said to be two millions sterling.— Vide "Sharp's Cazetter," ISS is a list of the principal sizes of writing-paper in English inches, and in Freuch continuents, to the nearest millimature or teath of a centimature, will be found ascella to stationers and all connected with the paper trade:-

An Account of the Quantity of Old Rada, Old Junk or Rotes, or Old Finning Nets, fit only for making Paper or Pasteboard, Imported into the United King-dom in the Year 1850, showing the Countries from which Imported.

Countries from which imported.

					Inches.	Centimètres.	
Donbie elspi Atlus — Colombier Imperial — Elephsnt — Super-Royal Royal — Medium — Demy —	ent				40 - 26] 34 - 26 34] - 23] 30 - 22 28 - 23 27 - 19 24 - 19 22 - 17] 20 - 15]	101-6-67-9 86-4-66-0 87-6-59-7 76-2-55-9 71-1-58-4 68-6-48-3 61-0-48-3 55-9-44-4 50-8-39-4	Russia Sweden Norway Demark Prassin Germany, viz Meckleobur, Hanover Hunsearie T Channel Islandie
Large post	-	-	-	-	21 - 16	53-3-42-5	
Small post	-	-	-	-	19 -15	48:3-39:4	Italy-
Foolscap -	116	draw	ing a	nd w	16g - 13g riting payer size at dimensions.	41*9=33*7 s—printing-papers	Duchy of To Papal Territ Naples and Austrian To Malta —
							Egypt

With rags produced by a population of 274 millions of
inhabitants in Great Britain and Ireland, and notwith-
standing the large quantities of bagging and other descrip-
tions of linen and cotton wrappers, old sails, cordage and
old navy stores, &c., England imports from foreign coun-
tries a quantity of rags, amounting annually to 3,124 tous,

								in the Year 1950
			_		_	_	_	Tons,
Russia -	-	-	-	-	-	-	-	859
Sweden	-	_	_	-	-	_	-	61
Norway	-	_	-	-	_	-	-	101
Denmark	_	_	-	-	-	-	-	205
Prussin	-	-	-	-	-	-	-	27
Germany.	viz.	_						
Meckl	pdon	re 8	chw	erin	-	-	-	78
Happy	er	-	-	-	-	-	-	23
Hoose	atle'	Tow	DS.	-	-	-	-	4,449
Chappel I	elan	às -	-	-	-	-	-	282
Italy-								
Duchy	of	Tusc	say	-	-	-	-	1,352
Papal	Terr	iter	es	-	-	-	-	305
Naple	e and	Sic	ilv	-	-	-	-	41
Austr	an 3	erri	torio	19 -	-	-	-	43
Malta -	-	_	-	-	-	-	-	91
Egynt -	-	_	-	-	-	-	-	23
British P	OFFICE	sion	a In	Sont	h At	rica	-	27
British P	osser	alon	e in	East	Ind	ies	-	29
British C	oloni	es la	No.	eth i	Ame	rica	-	25
United St	atre	of A	mer	ica	-	-	-	202
Brazil -		-	-	-	-	-	-	18
Other Po	eta	-	-	-	-	-	-	102
								8,124

Quantities Imported into the United Kingdom

The waste* of the Munchester cotton-mills, and that of the spinning-mills in England, Scotland, and Ireland, produces enormous quantities of material, which is now skilfully applied to paper-making, and, when mixed with rope, bagging, &c., produces strong and good paper for

Of the large number of paper-makers in Great Britain and Ireland, a few only have exhibited, namely:—Mr. JOYNSON, of St. Mary Cray, Kent (42a, p. 540), who exhibited a large assortment of blue wove, blue laid, large bank post, eream laid post, blue laid post, and cream laid foolscaps; the 54 lbs, thin large bank post, in imitation of the French pelure, was not equal to that exhibited by the French manufacturers, although a nearer approach than any yet made in England of that weight. The post and any yet made in England of that weight. The post and other papers were all of high qualities, fully maintaining Mr. Joynson's reputation as a first-rate manufacturer. Mr. DEWDNEY, of Collumpton, specimens of excellent eream laid writing-papers, and also some unchangeable hlue papers of superior manufacture for the use of stareh-makers. Mr. Saundens, of Dartford (36, p. 539), strong parchment paper, for printing shares, and other purposes where great strength and tenacity are required; plain and coloured bank-note papers, of strong texture, with a variety of water-marks of elaborate and complicated designs; white and coloured safety papers, for printing bankers' eleques, letters of credit, &c., detecting the removal of writing by chemical reagents, and some specimens of n new method of making papers with waterspeciment of a new memora of infaring papers with water-marks, giving gredations of light and shoulder the whole of these papers were of excellent qualities and make. Westra, Cowan and Co., of Edinburgh (101, p. 544), a variety of printing, writing, sote, and letter papers. Mr. WILLIAW WILDER, of Soodland, Rochester (102, p. 544), some specimens of writing-papers, with wreaths of flowers in the water-mark. Messrs. Bancus Browners, Chesham (96, p. 544), patent writing-papers with or-namented water-mark, Mr. CHARLES VENABLES, Clifden and Soho Mills (149, p. 546), specimens of well-made and fine quality plate, lithographic, and printing-Mr. GEORGE VENABLES, strong and good wrapping-papers (149, p. 546). Mr. Edward Snith, Gateshead, strong brown paper, manufactured by Messra Thomas Gallon and Co. Mr. Lann, of Newcastle (147, p. 546), pottery tissues, of excellent quality. Mr. Formp. 546), pottery tissues, of excellent quantry. Mr. Pott-BRINIER (100), p. 280), also had some pottery tissues, of good quality, in Class VI. Mr. Alfrazo Hanez, of Horsforth, Leeds, &c. (64, p. 543), prees papers, for pressing woollen elothe; and brown papers, rolled and glazed, of good qualities. Mesers: Hastrisos and Mellans grazer, of good quantities. Meestrs. Flastings also MELLIN (65, p. 543), brown paper, glazed nod unglazed; and press papers, of good qualities. Meestrs. Whitevand and Soxs (98, p. 544), produced sonne fine specimens of press papers. Meestrs. Vexamlers, Wildows, and Triers, of Queenhithe (149, p. 346), and Meests. Seiters (42, 540), of Bridge Street, wholesale stationers, enabled the Jury to ascertain the state of the paper trade in this country, by the ample and varied specimens which those houses have submitted to public inspection in Class XVII. Messrs. Dr. La Rue and Co. (76), as paper finishers, displayed every description of the best writing papers produced in England, thus affording the means for judging of the high state of finish which this important branch of manufacture has reached in Great Britain.

* The quantity of cotton-wool imported in 1845 was sever bundred and twenty millions and a half pounds weight above one thousand tons of raw ention are required for daily consumption cosumption. In 1850, one million eight hundred and wenty-two thousand hundredweight of flax was imported Liben and flax are spun to the value of ten millions sterling annually.— Vide "Sharp's New Gazetteve," edit. 1852, p 9:6. Chevaller Chaussen's discovery of fiax-cotten, which promises to extend the growth and manufacture of fiax, promises to extend the growth and manufacture of flax, cannot full greatly to increase the best description of raw material for poper-making. In 1775, a description was given by Lady Maire, and pablished in the Transactions of the Society of Arts in 1783, of a new method of reducing flax to a fine fibre by means of an alkaline solution: the specimens were retained by the Society.

Writing-Papers in Packets,

Immediately after the introduction of the penny postage* in this country, there was an immense increase in the consumption of fetter and note paper, and a total change in the sizes was required. Until 1859, 4to letter-paper was put up only in balf reams, and retailed in loose quires or single sheets, at prices varying from 6d. to 1s, per Very superior letter and note papers are no sold in neut and convenient packets at from 1s. to 2s. 6d, per five quires. The patent cutting-machine of the lato Mr. George Wilson proved a powerful auxiliary in en-larging the sphere of this branch of the paper-trade, by accelerating one of its simplest operations, cutting in letter and uote size. Without its aid it would have been scarcely possible, by band labour alone, to supply the daily increasing demands of society for note-papers since the introduction of the cheap postage. This is one of the innumerable common-place instances which show that the full importance of machinery in the commercial progress of the community is not duly appreciated, unless time and quantity are taken into the estimate as well as difficulty. It is to Mesers De La Rue that the new sizes and improved mode of putting up paper in convenient forms are due. The quantity and variety exhibited by them and others are evidence of the encouragement given by the public to this orunmental mode of packeting letter and note papers, for each size of which euvelopes are made to

The following exhibitors also displayed writing-papers

in puckets, viz.:Mesers, Donns and Co., London (79, p. 543); Mesers,
Cowax, of Edinburgh (101, p. 544); Mesers, Spicen BROTHERS (42, p. 540); and Messrs, VENABLES, WILSON, and TYLER (149, p. 546),

Foreign manufacturers have adopted the mode of making up letter and note paper in ornamental packets, and they have exhibited a variety of good specimens, among which were-

France.-M. Marton (609, p. 1207), M. Berrot (1084, p. 1230), and M. Valant, of Paris (1514, p. 1249). Belgium,-MM. Gopts and Sox (284, p. 1160), and M. TARDIF (281, p. 1160), of Brussels.

M. Tandri (281, p. 1160), of Brussela.

Zellereis Stetae. – M.M. SCHASFER, Orro, and
SCHASHA, of Berlin (1 Zellv, 153); M. C. A. Kocu,
of Gladbach, near Mulbeim, on the Rhine (1 Zellv,
329); MM, Holsers and Son, Duren (1 Zellv, 392,
p. 1071); M. L. Scheell, of Daren (1 Zellv, 393,
p. 1072); M. Plette, of Dillingen (1 Zellv, 394,
p. 1072); M. Plette, of Dillingen (1 Zellv, 394,
p. 1072); M. Plette, of Dillingen (1 Zellv, 394,
p. 1072); M. Plette, of Dillingen (1 Zellv, 394,
p. 1072); M. Plette, of Dillingen (1 Zellv, 394,
p. 1072); M. Plette, of Dillingen (1 Zellv, 394,
p. 1072); M. Plette, of Dillingen (1 Zellv, 394,
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p. 1072); M. Plette, of Dillingen (1 Zellv, 394,
p. 1072); M. Plette, of Dillingen (1 Zellv, 394,
p. 1072); M. Plette, of Dillingen (1 Zellv, 394,
p. 1072); M. Plette, of Dillingen (1 Zellv, 394, 1072).

* PENNY POSTAGE.-The following is an estimate of the number of chargeable letters delivered in the United Kingdom in each year from 1839 to 1851 :-

is i		Number	Annu	d Increase,
n s	Years.	af Letters.	Number of Letters,	Percentage reckuned on the Number for (83).
e	1899	76,000,000+	-	-
	1840	169,000,000	93,000,000	123 per cent.
2	1841	196,500,000	27,500,000	36 ,,
- 1	1842	208,500,000	12,000,000	16 ,,
- 1	1843	220,500,000	12,000,000	16 ,,
	1844	242,000,000	21,500,000	28 ,,
: 1	1845	271,500,000 1	29,500,000	39 ,,
y d	1846	239,500,000	28,000,000	37 ,,
ài.	1847	222,000,000	22,500,000	30
ũŀ.	1848	329,000,000	7,000,000	9 ,,
	1849	337,500,000	8,500,000	
g l	1850	317,000,000	9,500,000	123
ь,	1851	360,500,000	13,500,000	18 ,,

+ The exignate for 1829 is founded on the secretarned number of latters for one week in the month of November, and, strictly spoul, ong, it is for the year seeding Berember 3, at which time 44, as made the non-mon rate. The ceilmate for each subsequent year is founded on the accretizated number of letters for one week in each calendar month.—(Fed Erlant to the House of Commons, No. 234, 1851.)

Grand Ducky of Wartenburg. — M. Schaeuffellen, Heilbronn (4 Zollv., 41, p. 1117). Russia.—MM. Vargounin Brothers, St. Petersburgh

Ressis,—MM, Vargounty Brothers, St. Petersbut (260, p. 1375).

PAPER-MAKING-FRANCE.

France, besides importing yearly from America 22,000,000 bis. of cotton, and ultimately converting a large perion of this into rars, the export of which commolity is forbidden by the Freche law, is also in a favourable position with regard to other raw materials, such as hemp and lines rags. Unfortuneley, the introduction of strong alkalies, used in washing in large towns, greatly deteriorates, there and elsewhere, the materials for paper-

making.

The oorthern countries, where hemp and flax are abundant, are in geoeral favourably situated with regard to the quality of the rags.

There was in the Exhibition a species of paper made

There was in the Exhibition a species of paper made in the Sandwich Islands, from vegetable substances, retaining the original strength and flexibility of the raw unterial.

Novy Theore glant is expalse of being converted joinpree. Many stimped here been under in this and other properties of the propose of the properties of the properties of the substances for that purpose, but the great water and expansing in converting these substances that properties of lowering rapis become so acree as greatly to enhance lowering rapis become so acree as greatly to enhance lowering rapis become so acree as greatly to enhance lowering rapis become so acree as greatly to enhance lowering rapis become so acree as greatly to enhance lowering rapis become so acree as greatly to enhance lowering rapis become so acree as greatly to enhance lowering the properties of the properties of the solid, which would be considered the properties of the substance, as was related to that enhanced by M Gasta At the Proteck Endomine of 1928 and 1924, there were

At the French Exhibitions of 1872 and 1844, there were precinized for player made with the leaves of the humantree and similar plants. The leaves of the humantree and similar plants of the leaves of the humantree and the leaves of the leaves of the leaves of the substances from foreign matter, M. Bocques etablished sowerful works at Hanamah, to wash and coover them sowerful works at Hanamah, to wash and coover them state the leaves of the leaves of the leaves of the state the absolute necessity of strong blenching caused a water of more than one-third of the original weight

M. Paccuer (16, p. 181) symbiled in the Algiers Department of the Great Exhibition specimens of paper mode of the dwarf palus (Chameropa Sandila), which almost is that court, and could be obtained serry year, at a triting cost, by causing it to be gathered by women and children, no that it might be had for two frames the true trained while to its green state, it would yield 56 per cent. of its weight, and dry. 50 per cost; and that two loars bearing would be sufficient to recode this half-stoff of the control of the control of the court of the court of M. Diddt states that there are 200 machines in France.

M. Didot states that there are 200 machines in Frasoc, producing cach 700 kilogrammes per day, or 195 tons each per year, making a total of thirty-nice thousand tons, sod 250 vats, producing over two thousand tons more per year, being a gross amount of forty-one thousand tons.*

ons.*

The first paper-machine was established to France in

"The following is a first of the Presch paper-makers who here exhibited, it:— MM_LEACHS, of Aspesdime and Paris (1650), superior writing-paper. MM. DEELY, SOX. and Co., Courtaine (Seine-et-Marrie) (988), machine and vot-made writing and princip paper. MM. Catalonia and tracted writing and princing papers. MM. Catalonia and tracted writing and princing papers. MM. Catalonia Comparison of the Comparison of

later of excellent quality. M. G. De SERALA, Gourn. See Inferience 11-041, various sort of poper. M. E. Decume, Josey, S. Morin (Science-Manne) (1972, partial control of the property of the European Control
Tagles showing the Import and Export of Paper, Rags, &c., in France. EXPORTATION 1849.

RAGS POR PAPER.

Algiers	-	-	-	-	-	-	-	465
United States	_	-	_	_	_	-	-	-
Guadaloupe -	_	-	-	_	-	-	-	500
Other Countries	-	-	-	-	-	-	-	130
								895

IMPORTATION 1849. Rags for Paper.

| Belgium | 29,000 | England | 29,000 | England | 29,000 | England | 218,378 | Spirity, Kingdom of 221,655 | Spirity-cland | 20,000 | Spirity-clan

PAPER White or ruled, for music:-

Egypt Other Countries 5	94
Other Countries 5 4,8 Coloured, in reams or quires, for binding:— Zoliverein 1,1 Netherlands 1,1	23
Other Countries 5 4,8 Coloured, in reams or quires, for binding:— Zoliverein 1,1 Netherlands 1,1	
Coloured, in reams or quires, for binding:— Zoliverein — 1, ii Netherlands — 1, iii	2
Zoliverein 1,1 Netherlands Belgium	38
Zoliverein 1,1 Netherlands Belgium	
Belgium	3)
Belgium	
	70
Eogland	13
1.2	-
1,8	-
Envelopes, coloured:-	
Zoffverein 8	48
Hantestic Towns 9	
	12
Philippine Isles 5	30
Other Countries 2	53
Accessed to the Contract of th	
1,8	43
Detail to cells for benefits.	_

Netberlands - ... Hansestic Towns

Other Countries -

195

Kilon.

3 889

These data are approximate. Paper-haugings and brown paper are included. A paper-machine occupies about sixty persons; one vat about ten.

Silk Paper, India Paper, &c., &c.: Kilos.		
	Kilos.	
England 4,866	Brought forward - 237, 42 Turkey - 105, 34:	
Other Countries 241		:
	Barbary 48,040 Algiers 184,150	
6,093	United States 6,16:	ï
	United States 6,16: Cuba and Porto Rico 3,066	
EXPORT OF PAPER FROM FRANCE IN 1849.	Brazil 148,32	Ė
EXPORT OF PAPER PROM PRANCE IN 1849.	Mexico 8,370	ï
PAPER.	Mexico 8,370 River Plate 15,119	
Kilos,	Other Countries 20,955	i
White, or ruled for music:	-	
Russia, M. N 26,906 M. B 24,637	813,933	•
11 M. B 24,637		
	Printed, in rolls, for hangings:-	
Zollvervin 18,317 Netherlands 10,622		ż
Netherlands 10,622 Belgium 32,580	Zollverein 11,30	ė.
Belgium 32,580	Beigium 5t,30	į.
Desimark 9,009	Hamendin Torons	į.
England 200,885 Portugal 46,752	England 69,248 Portugal 28,701 Sicily 16,094	
Portugal 46,752 Austria 10,814	Portugal - 28,701 Sicily - 16,098 Spain - 16,798 Sardiala - 16,798 Tusseny - 5,788 Roman States - 4,211 Switzerland - 42,848	
Sicily 28,559	Sicily 16,094 Spain 9,80	١.
Sicily 28,559 Spain 43,070	Spain 9, 80 Sardiain 16, 70 Tusciny 5,750	
Spain 43,070 Sardinia 67,051 Tuscany 17,167	Sardiain 16,796 Tuscony 5,796	
Tuscany 17,167	Tuscany 5,7% Roman States 4,215	
Switzerland 91,891	Switzerland 42,84	
Switzerland 91,891 Greece 5e,676 Turkey 110,531 Egypt 84,701	Roman States 4,210 Switzerland 42,846 Turkey 10,561	
Turkey 110,531	Egypt 7,85	ï
Turkey 110,531 Egypt 84,701	Algiers 8,38	ï
Egypt 84,701 Barbary 23,432	Mauritius 23,850	i
Barbary 23, 432 Algiers 165,960 Africa, West Coast 8,497	United States 107,12	i
Zollwerden 3. 18, 117 Zollwerden 1. 18, 127 Elegiam 2. 2, 200 Hasswelle Town 1. 11, 202 Harman 2. 2, 200 Hasswelle Town 1. 11, 202 Hasswelle Town 1. 11, 202 Hasswelle Town 1. 12, 200 Hasswelle Sale 1. 12, 200	Dissected Towards	i
Mauritius 11,058	Cube and Porto Rico 7,86 Brazil 56,66 Menico 6,62	,
India 136,540 Batavia, &c 14,800	Mexico 6,62	6
Batavia, &c 14,800	New Grenada	ŧ.
United States, O. A 139,773	Peru 12,821 Chili 30,522	,
Hayti 12,096 Uba and Porto Rico 48,111	Chili 30,52 River Plata 23,65 Frugusy 4,67	2
Hayti 14,047	River Plata 23,690	ı
Cuba and Porto Rico 48,111 St. Thomas's 25,746	Fruguey 4,07	1
St. Thomas's 25,746 Brazil 500,279	Keunion, Isle 14,997	
Brazil 500,279 Mexico 336,816	Other Countries 27,52	į
Venezuela 16,111		
Cula and Ports Rice. 48, 111 St. Thomas 1 25, 74 Beatl 20, 75 Meters 20,	G44,441	
Peru 132,844		
Chili 204,516	Silk and Chinese, and others of almilar	
River Plate 84,663	Earland 170	
River Plate 84,663 Uruguay 13,719		
Guadaloupe 23,183	Spain 216	٠.
Martinique 51,542		
Reunion, isie 20,733	Switzerland 419	
Réunion, isie 20,733 Ségéral 11,526	Switzerland 415 Other Countries 115	
Réunion, isie 20,733 Ségéral 11,526	Other Countries 115	
Reunion, isie 20,753 Senegai 11,326 Other Countries 23,330		
Réunion, isie 20,733 Ségéral 11,526	Other Countries 11:	
Réculon, isle - 20, 753 Séségal - 11, 296 Other Countries - 23, 300 2, 848, 853	Other Countries 11: 92 Paper-making—Belgium.	9
Reunion, jule 20, 733 Seaged 11, 596 Other Countries 23, 300 2, 848, 853 Coloured, in reams or quires, for blad-	Other Countries 11: 20 PAPER-MAKING—BELGIUM. Though several passecessful attempts had been a	
Reunion, luie 20, 753 Sesengai 11, 546 Other Countries 23, 350 2,848,853 Coloured, in reams or quires, for bind-	Other Countries 115 920 PAPER-MAKING—BELGIUM. Though several massecessful attempts had been a before the severeteenth century to introduce the man	na
Reunion, isle	Other Countries 11: 22 PAPER-MAKING—BELGIUM. Though several ansaccessful attempts had been a before the sevenivesth century to introduce the man tare of paser isto Belgium, it was only towards the	me
Reculon, Isle	Other Countries - 112 20 PAPER-NAKING—BEAGUEN. Though several assucessful attempts had been a before the seventeenth century to introduce the man trare of paper into Belgium, it was only towards the	me
Récuslon, Isle	Other Countries - 112 20 PAPER-NAKING—BEAGUEN. Though several assucessful attempts had been a before the seventeenth century to introduce the man trare of paper into Belgium, it was only towards the	me
Recursion, Isle	Other Countries - 11: PAPEN-MAKING—IBAGIUM. Though several munacessful attempts had been in before the seventeenth century to introduce the man trave of paper into Belgium, it was only towards the of that period that it was regularly cutoffinised in separations, with a cachacter partices, several countries of the cachacter partices, several countries of the cachacter partices general days.	no uf
Recursion, Isle	Other Countries - 11: PAPEN-MAKING—IBAGIUM. Though several munacessful attempts had been in before the seventeenth century to introduce the man trave of paper into Belgium, it was only towards the of that period that it was regularly cutoffinised in ser provinces, with each substituting general growthers, which each substituting general supportance, with careful services and support to the support of the substitution of the	no uf
Recursion, Isle	Other Countries — 11: 52: Though accreal ansaccessful attempts had been a before the secreteath century to introduce the nature of paper has Delgiam, it was only towards the provinces, with acclassive privileges granted by Government. In pragress was not rapid during eighteenth century; but during the last thirty you desired the last thirty you.	no uf
Recursion, Isle	Other Countries — 11: 52: Though accreal ansaccessful attempts had been a before the secreteath century to introduce the nature of paper has Delgiam, it was only towards the provinces, with acclassive privileges granted by Government. In pragress was not rapid during eighteenth century; but during the last thirty you desired the last thirty you.	nd uf
Recursion, Isle	Other Countries — 11: 52: Though accreal ansaccessful attempts had been a before the secreteath century to introduce the nature of paper has Delgiam, it was only towards the provinces, with acclassive privileges granted by Government. In pragress was not rapid during eighteenth century; but during the last thirty you desired the last thirty you.	nd uf
Recursion, Isle	Other Countries The Park-MANDO—BEAGEN, Though several assesses of a stronger based before the executiventh century to introduce the man before the executiventh century to introduce the man provinces, with exclusive privileges granuate by provinces, with exclusive privileges granuate by exploration, with exclusive privileges granuate by exploration extensive between the provinces, with the privilege private pri	uf contraction
Recursion, Isle	Other Countries The Park-MANDO—BEAGEN, Though several assesses of a stronger based before the executiventh century to introduce the man before the executiventh century to introduce the man provinces, with exclusive privileges granuate by provinces, with exclusive privileges granuate by exploration, with exclusive privileges granuate by exploration extensive between the provinces, with the privilege private pri	uf contraction
Berustin, int. 20, 725	Other Countries PAPER-RANGE—BLOOKE Though several annocessful attempts had been before the exercil annocessful attempts had been before the exercil annocessful attempts between the several product the name of paper insee Belgiam, it was only towards the of that provid that it was regularly established as of the product of the several belgiams of the several bel	no unit
Berustin, int. 20, 725	Other Countries PAPER-MANUO—BRACES Though several nancescendia stampes had, been before the executecenth century to introduce the man terr of paper into Belgiam, it was only sownful the rare of paper into Belgiam, it was only sownful to Government. In Bengrass was not rapid during provinces, with exclusive privilege, granted by Government in Dengrass was not rapid during large the second to import writing-paper from France, and privaces and the paper of	no unit
Berustin, Int.	Other Chemistes	and the state of t
Berustin, Int.	Other Countries PRESENTATION—BRACES Though several anaecentical attempts had been before the executerath century to introduce the name of page into Belgiam, it was only towards the involvance, with actuative privilege granted by Coerciment. In pergraps was not rapid during eighteenth century, but during the last thirty year considerably interest to the company of the contribution o	not be a second
Boundarie, Inter- Other Constraint 20, 1726 Other Constraint 2, 340, 500 2, 348, 500 Colournel, In remain or quirren, for bidsoling, fact. 5, 500 Ling, fact. 5, 500 Edition 5, 250 Edition 5, 250 Persugal 1, 1000 Persugal 1, 100	Other Countries There ** A	and the state of t
Berustin, Int.	Other Countries Though averal annocessful attempts had been before the executement century to introduce the temperature of the produce of the produce, with exclusive privileges granular provinces, with exclusive privileges granular provinces, with exclusive privileges granular propositions, with exclusive privileges granular propositions, with exclusive privileges granular propositions, and the start propositions of the proper from the privileges and the proper from Francis, and privileges granular proper from the privilege granular properties granular properties granular	and the state of t
Berustin, int. 20, 1736	Other Countries Though averal annocessful attempts had been before the executement century to introduce the temperature of the produce of the produce, with exclusive privileges granular provinces, with exclusive privileges granular provinces, with exclusive privileges granular propositions, with exclusive privileges granular propositions, with exclusive privileges granular propositions, and the start propositions of the proper from the privileges and the proper from Francis, and privileges granular proper from the privilege granular properties granular properties granular	and the state of t
Boundar, lab. 93, 729	Other Countries 72 Parez-MARNO—Binaties Though several numerous distinguist had been before the excentered century to introduce the name of page in an antenesseful attempts had been the of page in the bidgian, it was only towards the rare of page in the bidgian, it was only towards the provinces, with exclusive privilege granted by provinces, with exclusive privilege granted by forestments. In page 1889, and the provinces, with exclusive privilege granted by forestending the page 1889, and the same of the page 1889, and the page 1889, a	and the state of t
Bornalin, lab	Other Countries Though several nanocessful attempts had been before the event-enth century to introduce the nanocessful attempts and before the event-enth century to introduce the name of that period that it was regularly established as expositions, with exclasive provingers granted by a positions, with exclasive provingers granted by has been to mend developed that Belgium has been to make the provinger of the provinger of the thing, and that introl conditionally force proper from the final and, and had introduced really force Belgium like, and the latter quadrature to which it seems before the proper regular thanks, and had introduced the proper from Belgium like, with the contraints to which it seems Belgium like, with the contraints to which it seems before the proper regular thanks and the proper thanks and the province of the proper regular thanks and the province of the province	and the state of t
Berustin, Int.	Other Chemistes Though several annocessful attempts had been before the eccentreal century in introduce the leaferst the eccentreal century in introduce the name of that period that it was regularly exhibited in section of the period that it was regularly exhibited in section of the period that it was regularly exhibited in the Chemister, but during the last theiry yet exhibited in the century of the centur	and the state of t
Borusia, isla	Other Chanteles	and the state of t
Securities 10, 125	Other Chanteles	and the state of t
Berustin, lab	Other Countries Though averal annocessful attempts had been before the executement century to introduce the mean of the provinces, with exclusive positive documents of the provinces, with exclusive privileges granual by explosions, with exclusive privileges granual by proper from the factor, and the theory of the proper from the factor, and the last they are considered to import writing-paper from France, and private proper from the factor, and the last they are considered to import writing-paper from France, and private from Belgiam in 1849, with the contention to which it sent the proper from the factor of the paper range for the private from the proper from the factor of the private from the proper from the private	and the state of t
Benedits, lab	Other Countries Though averal annocessful attempts had been before the executement century to introduce the mean of the provinces, with exclusive positive documents of the provinces, with exclusive privileges granual by explosions, with exclusive privileges granual by proper from the factor, and the theory of the proper from the factor, and the last they are considered to import writing-paper from France, and private proper from the factor, and the last they are considered to import writing-paper from France, and private from Belgiam in 1849, with the contention to which it sent the proper from the factor of the paper range for the private from the proper from the factor of the private from the proper from the private	and the state of t
Berustin, lab	Other Countries Though averal namecessful attempts had been before the event-entire country to introduce the name of the provinces, with reaching to introduce the name of that period that it was regularly established as expositions, with reaching privileges granted by expositions, with reaching privileges granted by expositions, with reaching privileges granted by expositions, and the start privileges granted by expositions, with reaching the time of the proper from France, and privileges are considered by force that the proper from France, and privileges from the france of the privileges from the privileges from the privilege from the france of the privileges from the privileges	and the state of t
Benedits, lab	Other Countries Though averal annocessful attempts had been before the executement century to introduce the mean of the provinces, with exclusive positive documents of the provinces, with exclusive privileges granual by explosions, with exclusive privileges granual by proper from the factor, and the theory of the proper from the factor, and the last they are considered to import writing-paper from France, and private proper from the factor, and the last they are considered to import writing-paper from France, and private from Belgiam in 1849, with the contention to which it sent the proper from the factor of the paper range for the private from the proper from the factor of the private from the proper from the private	in the state of th

							France.
	Bro	uchi	t for	war	d	-	679,003
Portugal	-	-	_	-	_	_	500
Turkey -	-	-	-	-	-	-	2,650
Coast of Gui	oes	-	_	-	-	-	1,4(4)
Morocco	-	-	-	-	-	-	1,320
Singapore	-	-	-	-	-	-	10,250
United State	•	-	_	-	-	-	19,950
Mexico -	-	_	-	-	-	-	12,200
Guatemala	_	-	-	-	-	-	2.379
Cuba -	_	_	_	_	_	-	3,350
Brazil -	_	_	_	-	-	-	146,415
River Plate	-	-	_	-	_	-	1.820
Chili -	-	-	-	-	-	-	19,725
							500 917

The importations of rags and other material for paper-making into Belgium, io 1849, amounted to only fourteen tons and a halfum imported paper from the following countries to the amount of 69,343 france (2,7741):-

Prussia		_	_	-	_	-	16,929
Grand Duchy	of	Lux	emb	oure	_	-	1,437
Netherlands -		_	-	- "	_	-	3,136
England -		_	_	-	_	-	8,681
France		_	-	-	-	-	37,483
Other Countrie	es :	-	-	-	-	-	977

Systematics relative to the Maximacroup of Papers in Brighton

	01.	ATIS	nes	resas	ive p	o the	NA.	AL PA	TUR	E of	FAFE	100 110	136.4	GIU M.					-	
							No	aber o	f Wo	rkpeop	de of	both :	Sesen,	with t	their	Agra,				_
Description		tarry.	1		here Yests			ese	1	Child From	-	1	From	19.10	1	Num of each	her Nex.			
MANUFACTURE	Pastrace.	anufac					and l	below.		tz Y	P02%		16 Ye	1074,						
		No. of Manufactures		Men.	Wanne		Hoys.	Girla.		Beys.	Girla.		Beys.	Glbla.		Male.	Fermale.		Total.	
Paper Mills	Antwerp Brabant East Flanders Italianut Liege Limbourg - Luxembourg	4	3	23 481 76 16 151 12 18	4	11 20 12 1 77	2 - 2		1	37 12 3 3	17	2	153 16 5 11	54 2 3 54		27 656 104 24 168 12 12	34	6	1,1	40 48 28 30 46 12 19
Total for th	ns Kingdom -	7	4	771	2	38	8	-	6	59	2	3	165	113	1	,003	86	10	1,8	93
Paper and { Pasteboard {	Halnaut Namur		2	18 78	1	3 41	=	-		-	=	F	5	2 22		23 84	10	5		28 47
The who	le Klogdom -		6	96	1	44	-	-		-	-		11	24		107	10	18	2	75
								Du	ily W	elia e		Work	people							
Descurption						_					dulta				_			_		_
OF MARIPICEURS	PROVINCE.	Uni so Co		Cen	m 10 ts. 10 ts.c.	to I		From So Co to S			Fr. Fr. rate.			form to 4	S Fr. Fr.	From to 3	e Fr. Pr.	Ab b i	2000 Fz.	
		Men.	Wosten,	Men.	Women.	Men.	Women.	Men.	Wemen.	Men.	Women,	Men.	Wessers.	Men.	Women.	Men.	Wemen.	Men.	Women.	Total.
Paper Mills	Aotwerp Brabant East Flanders Ilaioaut Liège Limbourg - Luxembourg	1 7 1 1 1 1 9	5 - 14 - 5	10 76 2 2 16 9	11 413 14 - 292 -	8 283 57 14 68 3 10	3 8 1 21 -	4 102 14 - 53 -		1 9 2 10 -	11111111	7 1 2 -	1111111	1111111	1111111	1111111	1111111	1110111	1111111	34 902 98 17 478 12 19
Total for t	the Kingdom -	6	24	115	732	412	33	173	-	23	-	10	-	1	-	-	-	2	-	1560
Paper and Pasteboard	Helnant	-	-	3 6	3 133	8 45	- 8	7 19	-	5	=	-	-	-	-	- 2	-	=	-	21
The who	ole Kingdom -	-	-	9	136	53	8	26	-	3	-	1	-	-	-	2	-	-	-	210

Statistics relative to the Manufacture of Paper in Belgium-continued,

			Duit	y Wage	of the !	Korkpro	ple.		Strem	ingines.	Horse	Mills.	Мі	ile.
Description ор Маничастия	Рвочінст.	Children.								1				
		Under 30 Ceuts.		Prom. 30 Cents. to 1 Fr.		Abore I Fr.				page.		mplayed.		
		Beys	Oirts.	Boys.	Girls,	Воува	Cieta.	Total.	Number.	Horse-P.	Number	Borses e	Water.	Wind.
Paper Mills	Antwerp Brabant East Flanders Ilainaut Llège Limbourg - Luxembourg	115 21 3 13	9 52 - 9 59	56 7 3 4	20 2 3 12	-,		247 30 13 88	13 1 - 8	142 12 100	2	-4	1 47 4 3 10 1	11.11.11
Total for th	e Kingdom -	156	113	70	37	- 4	-	384	22	254	2	4	68	
Paper and {	Halmant Namur	5	-6	-5	2 16	-	=	7 28	-3	70	:	-	2 4	=
The whol	e Kingdom -	6	6	5	18	-	-	35	3	70	-	-	6	-

MM. Goux and Sox, of Huy, Eige (244, p. 1100)

amplian, hat the for exportation. Figur we largely displayed an extrained endersion of every description of impaction of the control of the state of the control of the c

Rowe.—M. MILLANI (12, p. 1285) exhibited specimens of drawing and plate papers, of excellent quality. Densork.—MM. Dawssex and Sooxy, of Silkeborg, Juliand (4), exhibited specimens of writing-paper, milled in long lengths, stated to be by a new process. The finish is not equal to the highly-glaned papers called sotted, but as mill-plazed the specimens were good.

PAPER-HARING—THE ZOLLVEREIN STATES.

The manufacture of paper has rapidly increased in the German Zollverein within the last few years. The States not only now produce paper sufficient for their own con-

the entire population, as proved by manufacturers who other their gas within errain districts; this attenuest the control of the control of their state of the control of the control communition of their and cetter. The Zellverine, according to the last cetters, bad a perpandicular to the control of their contro

Quantity, per Cut. Value, (Prossian Dollars),

understood from the following table:-

		Price per cwt.		nge of 6-68,	Ave	nge of 3-45.		rage of 6-45,	Ave 184	rage of 13-43,
		Dollars.	Imports.	Experts.	Imports.	Exports.	Imports.	Experts.	Imports.	Expreta.
Unsized ordinary printing-pay Grey blotting and packing-pay All other sorts of paper — Paper-hangings — — Bookbinders' stationery —	- 19 	7 8 15 40 100	1,142	1,447 5,468 1,606 1,142	1,006	1,589 5,621 838 1,276	9,136	10, 129 82,030 64,240 114,200	8,048	11,123 84,315 33,520 127,600
Total		-	-	-	-	-	9,136	270,589	8,048	256,558
			Exce	ss of Exp	sorts -		261	,458	245	,510

It appears from the above that stationary forms a large portion of the raports, which comize if nunerous small articles, such as porte-monaics and similar pools, for which Berlin and other Zollverein large cities are celebrated. From 1844 to 1847 the annual amount of ragimported exceeded that of the exports by nearly 11,000 cwts. In 1845 this excess of imports was reduced to 4,500 cwts. In 1849 and 1850 these amounts increased;

e and in the latter year the imports were 8,386 cwts, and lite exports 1,564 cwts, shwing an excess of 6,752 csts, or frags imported more than those exported. The first poper-meakine was established in Berlin in 1812 cst.

Trinting keeps pace with paper-making. The circulation of periodicals is very considerable. In 1840, Prassis on alone had more than 300 newspapers and periodicals, and (if the number has since greatly increased. In Germany

the great number of scientific works form an important branch of the book trade. The catalogue of the Leipies fair of Easter [53] great the titles of upparation to the fair of Easter [53] great the titles of upparation to the number. In 1850, 16,783 evts. (Zollverein standard) of books were imported, and 24,897 evts. exported. In Prusias alone there are 24 type-foundries, in which 24th workmen are employed; in the Zollverein above 50

workmen are employed; in the Zouveren above of Good workmen, and Romosem and R

printing and music is 574, with 1,154 present, and 3,54, and 954 workmen. Herfin prosenses 23, with 199 pressure, and 254 workmen. The whole of the Zollverien, with the exception of Wartenburg, Brunswick, and Frankfort-on-the-Maine, from which bistes the official accounts are waiting, has 255 exhabilisments, with 2,005 presses, and waiting has 255 exhabilisments, with 2,005 presses, and 8,000 workmen will be the probable numbers. In Market 2,000 workmen will be the probable numbers. In

Establishments for	copper, stere	oplate	printing.	and	wood-c	nt pr	inting	35,	employing 112 men.
Establishments for	lithography	-	-	-	-	-	-	414	. 1.173
Booksellers, print,	and music sh	ора	-	-	-	-	-	739	885
Old book shops (un	(iquarr) -	-	-	-	-	-	-	87	s, unknown,
Circulating librarie	10	-	-	-	-	-	-	645	n nnknown.

Lithographic printing is much more on the increase than the other brenches of printing. Leiphic is the centre of the Zellverein book trade, where bookselfers at Easter and Michaelman, to centre with each other and balance their accounts. He'lin is the seat of the Royal Andenny of Seisence, with its own printing-office for difficulties and terreture to the control of
Dound there in great numbers. There were, in that eight none, in 1840, 8 type-fluudrice, with 110 workneer; 25 exhibitments for printing books and music, with 199 revesce, and 354 workneer; 17 exhibitments for copper, presses, and 354 workneer; 17 exhibitments for copper, 141 lithographic establishments, with 265 workneer; 124 lithographic establishments, with 265 workneer; 127 dealers in old books; 43 circulating libraries.

The following from those, prepared with great ears, 170 following from those, propared with great ears, 170 following from those, propared with great ears, 170 following from the propared with the pr

LIST of PAPER-MILLS, specifying the Number of VATS and PAPER-MAKERS, together with the Number of PERSONS employed in the Year 1846.

STATES OF THE ZOLLVEREIN.	Paovinces,	Number of Mills.	Number of Workmen,	Number of Vata.	Number of Faper Markines.
Prussla	Prussia	16	329	90	2
	West Prussia	23	116	28	-
	Posen	19	85	23	
	Brandenhurg	34	930	41 21	9
	Pomerania	76	196	21 NG	
	Silesia	69	850	84	12
	Westphalia	68	1.637	83	16
	Rhine Province	72	1,927	117	19
	Total	394	6,333	503	72
Savaria	Upper Bayaria	17	309	33	2
	Lower Bayaria	10	230	22	2
	Palatinate	22	305	-	-
	Upper Palatinate, Ratisbon	22	139	26	-
	Upper Franconia	22	117	29	-
	Middle Franconia	29	33)	30	2
	Lower Franconia, Aschaffenburg	29	178	58	1
	Soabia and Neuburg	25	272	50	4
	Total	176	1,884	257	11
exony	Dresden	10	962	12	2
	Leipeic	10	106	8	ī
	Zwickau	40	316	43	- '
	Bautzen	6	313	5	3
	Total	66	997	68	6
Grand Duchy of Hesse	Starkenburg	8	30	9	-
	Upper Hesse	13	140	18	1
	Total	21	170	27	1
Electorate of Hosso		28	299	39	6
Baden		32	624	53	14
Nassan		27	196	30	6
Parts of other States that partake In the Prussian Zollverein -		10	99	14	
Thuringian States		41	274	53	
inging minera	The accounts from Wurtemburg and		214		
	Brunswick are wanting	-	-	-	-
	Total Zollverein, 1846	795	10,936	1,024	116

IMPORTS and EXPORTS of RAW MATERIALS for PAPER-MAKING in the ZOLLVEREIN in 1850,

ZOLLVEREIN.	Provinces.	Districts and Manufacturing Piaces,	Fishing Nets, Junk, and Hopes.		
ACCES CREIN.			Import. Export.	Import, Exper	
Prussia	Prussia	Memni	Cut. Cut. 474 - 591 - 1,342 -	Cwt. Cwt. 1 10	
	West Prussia	Dantzio	- 110	255 -	
	Posen	Podzemize Pogorzelice	1,052 -	1 1 2	
	Pomerania	Covelpass	- 15 - 7 - 53		
		Stettin Tribsees	79 -	1 1	
	Silesla	Görlitz Breslau	68 -	= =	
	Brandenburg	Gransee Warnow Wittenberg	2 2 - 449 - 854	E E	
	Saxony	Holligenstadt	1 -		
	Westphalia	Minden	92 852 89 -	2 =	
	Rhine Province -	Aix-la-Chapello	59 -		
		Total	4,705 1,542	238 100	
Luxembourg			2 -	- -	
Bayaria		Wakhassen Waidhaus	1 -	3 3	
		Passau	4 -		
		Pfronten	18 -	130 -	
		Lindan Zweibrück	30 -	-30 -	
		Total	101 -	130 -	
exony		Schandau Pirma	60 -	: :	
		Annaberg	20 -		
		Eibenstock	463 - 15 -	- 7 -	
		Total	568 -	7 -	
Wurtemburg		Friedericlahafen	50 -		
aurtemourg = -		Principalementen	35 -		
Backn =		Randegg Stühlingen	32 -	: :	
1			483 -		
		Near Rheinfelden Near Schusterinsel	1,908 - 22	= =	
		Total	2,826 22		
Slectorate of Hesse -		Rintela	125 40		
		-			

Table showing the IMPORTS and EXPORTS of PAPER in the ZOLLVEREIN STATES in 1850,

STATES or tust	Proxinces,	Custom-houses.	Paper, Wist	Printing stallaner is and ared g Popter	Fine	Paper, in-i, and ured.	ting. Parki	ing	Gold Nil Pag	rer	ban	per- giogs.	Stati	ionery.
ZOLLVEREIN.			Import.	Export.	Import	Export.	Import.	Export.	Import.	Export.	Import.	Export.	Import.	Export.
Prussia	Prussia –	Memel Tilsit Schmalleninghen - Stallupburn Johannisburg - Konigsberg	:	-4 -4 -4 -4	Cart. 170 17 - - 3	Cwt. 146 124 2 153	Cat.	Cat.	Cet.	Cwt.	Cut.	1 1 1	Cut. 3 4 - - 3	Cet.
	West Prussia.	Dantxie Thora	_3	54	- 5	- 1	=	=	Ξ	=	=	Ξ	1 -	=
	Pesen =	Podgamize Skalmierzyce Posen		32 43 -	=,	3	Ξ	Ξ	Ξ	Ξ	- - 2	Ξ	Ξ	Ξ
	Pomera- nia.	Cavelpass Demmin Stralsand Swinemlinde Wolgast Stettin	- 3 - 2	807 188	41	as	12		1	- 6 -		- 8 10		40.0
	Silesia	Landsberg - Mittelwalde - Myslawitz - Neustalt - Görlitz - Liebau - Schweidnitz - Breslau - In the Interior - In the Interior	120 4 1 94	108 3 12 40	- 8 1 4 - 7 4 - 7	17 1 160 2 6 169	17 23	-	4	100	1111101111		1 1 5 1	
	Branden- burg.	Berlin Gransee Warnow Wittenberge Prenslau Frankfort-on-the-Oder.	=	11 567 749 9	151 - 5 - 1	318 4,477 676 26		1 38 10 -	10	10 46	38	76 413 1	95	26.29
	Saxony -	Heiligenstadt - Salzwedei Ilalberstedt Nordhausen Halle Magdeburg - Rosslan	16	12 30 - 1 -	- 1 - 4 9	13 3		1	1111111	1111111	1 6		1 3 3	
	Westpha- lin.	Minden	=	2,073 33 81 23 72 388 -	18 - 14 1 - 7 - 3	10, 180 4 5 1 37 33	37		11111111	7		738 6	2 - 1 - 1	1
	Rhine Province.	Aix-In-Chapelle Craneaberg = Emmercid = Kaldeokirchen = Kaldeokirchen = Treven = - Cobleata = Cologue - Duisburg = Duisburg = In the Interior wassenberg = - In the Interior = - Cobleata =		161 87 6 - 1	40 2 10 1 11 5 10 77 1 11 11	1,101 1,348 51 63 14 5 1,273	-	13	21111111911191	19	2 1 24 2 1 1	2,412	30 -1 -4 2 1 54 -2 3 -	150 150 150
		Total	627	5,599	747	20,363	666	105	41	93	78	3,698	234	1,

Table showing the Imports and Exports of Paper in the Zoliverein States in 18:0-continued,

STATES	Previnces.	Coulott-houses.	Paper,	Princing sectionary to and secret g Paper.	Flor	Paper, itsel, , and ared.	Grey, ting, Pack Pap	and lor	91	l and incr per.	2º has	sjage.	Blook Stat	binder sowery.
ZOLLVEREIN.	I portunida.	C tall tall tall tall tall tall tall tal	Import.	Export	Imper.	Export.	Import.	Export.	Import.	Export.	Impert.	Export.	Impart,	Expert.
Luxembourg			Cws.	Cwt. 104	Cet. 18	Cut. 40	Cut.	Cart.	Cut.	Cut.	Chrt.	Cwt. 838	Cut.	Cwt.
Bavaria		Hof Waldsamen Waldsamen	=	18 2 25	-1) - 22	=	=	-	1	-	Ē	1 6 1	=
		Eschikam Passau	1	57	2	94	=	=	1	1 3	=	-	i -	9
		Freilassing - ~ Reichenhall	- 1	1	=,	5	16 - 27	=	Ξ	10	=	Ξ	=	Ξ,
		Rosenheim Mitterwalde Pfronten	Ξ	7	1	46 33	Ξ	Ξ	Ξ	=	Ξ	20	=	=
		Lindau Neuburg-on-the }	=	62	27 102	20	Ξ	Ξ	Ξ	ii)	1	1	- 2	
		Main - j Zweibrück Aschaffenburg -	-	=	2 8	3	=	=	- 2	=	Ξ	_	-	i
		Augsburg Bamberg	Ξ	-	5 2	Ξ	-	Ξ	Ξ	=	1	Ξ	1	Ξ
		Furth Kempten Munich	Ξ	Ξ	11 67	Ξ	Ξ	Ξ	=	=	- 9	=	-	=
		Nürremberg	1 =	3	13	=	-	=	4	=	1	-	2	-
		Waldmünster - Speyer Wirzburg	=	Ξ	1 2	- 64	Ξ	Ξ	-3	=	Ξ	Ξ	=	Ξ
		Total	11	177	259	305	43	Ξ	13	28	12	21	25	20
Satony R		Zittau Schandau	196 45 32 1 16 51 -	395 - - 28 1 - 38	9 7 6 3 46 6 76	4 16 3 - 2 3 	108 420 11 3 36 156		1 1 3 - 6 -		1 16 16 19	13	8 1 1 - 4 19 1 26	-
		Total	275	462	147	28	734	Ξ	12	1	27	14	60	
Wurtemburg -		Friedrichabafen - Heilbronn - Caustadt - Stattgardt - Elm -	-	32	- 1 18 10	164	-	2 -	=	21	1 1 8 1		1 1 - 9 6	2 1 1 1
		Total	_1	32	37	164	-1	2	Ξ	21	3	8	17	23
Baden		Ludwigsbafen Constance Handenge Rühlingen Near Beheinfelden Near Schusterinach Old Breislandsh Kehl Lebert Keblingen Kenterinach Liebtenberg Mannshein Labr Preiburg Thiengen	34 159 119 12 3	23 - 160 - - -	5 5 2 8 20 1 37 2 9 15 9 7	49 4 40 20 80 469 - 140 - - - 8	- 6 - 1 3 - 6 - 1 - 1 - 1	3 - 13 - 1 - 1 - 1 - 1		1111851111111		1 27 2 2 2 62 - - -	1 3 2 11 1 7 8 8 1 -	9 31 29 48 89
		Total	389	167	118	819	16	14	4	8	6	98	36	218

Table showing the Imports and Exports of Paper in the Zollverein States in 1850-continued,

449

STATES	Previnces.	Custom-houses.	Paper, Stre	solend Printing sore, ard-sory White said Critered tecking Paper.		Stred Paper, Unelsed, Fine, and Coloured.		Grey, Blot- ting, and Packing Paper.		and ver	Paper- bangings.		Bucktenders' Stationery.	
ZOLLVEREIN.	110-11-11-11	Expert.		Expert,	Import.	Export.	Import.	Export.	Import.	Expert.	Import.	Export.		
Electorate of Hesse.		Cassel Carishafen Witzenhausen - Rinteln	Cet. 167	Cwt. 346 69 518	Cut. 17 1 - 3 1	Cwt. 838 108 27 25	Cet. 5	Cwt. 275 - 100	Cwt.	Cwt.	Cwt. 3 1	Owt. III	Owt. 3 1	Cwt. 108 - 10
		Total	169	933	22	998	5	375	Ξ	-	4	111	4	118
Grand Duchy of Hesse.		Mayence Odenbach -	=	=	12	:	-	:	-	=	4	=	4 2	-
		Total	Ξ	-	14	Ξ	-	Ξ	Ξ	-	5	-	6	-
Thuringian States.		Saxe-Altenburg - Schwarzburg, Rudobtadt,	-	-	1	-	-	-	1 -	-	-	-	-	-
		Total -	-	-	2	-	-	-	1	-	Ξ	-	Ξ	-
Brunswick -		Wolfenbrittel -	43 79 9	-	12 184 5	303	147 42	95 213	=	1 -	6	102	15 - 2	146
		Total -	124	678	201	304	189	308	-	1	6	102	17	147
Nassau		Biebrich -	-	-	1	-	-	-	-	-	1	-	1	-
Frankfort-on- the-Maine.			16	_	219	_	-	-	2	-	7	-	40	_
		Total Zolivereia, 1850 –	1,460	8,172	1,785	23,021	1,654	796	73	152	152	4,374	451	2,444

Trans should the Weight of Bone Invested into and Presented from the Zerturana Course in 1810.

Exported Ont.	Imported.	ZOLLVEREIN.			ooks , Bound, t Bound, nd Prints,	
Cwt.				Exported.	Imported	
1	Cut.			Cwt.	Cwt.	
			Brought forward	198	222	
	6	Pomerania -	Swinemunde -	1,342	1	
24	7		Tribsees	-	4	
17	87		Stettin	-	216	
	3					
37	24	Silesia	Landsberg	12	1	
- 3	24		Lieban	1	48	
	31		Mittelwalde	1		
28	31		Myslowitz	1,131	124	
					35	
-	2		Receion	286	322	
- 34			Gloran	-	322	
			In the Interior -	-	3	
	2 1		in the interior -	-	1	
	1 1	Brandenburg	Gransce	159	127	
-	16	Brandenburg	Warnow	6,411	127	
1 :	16		Wittenberge -	19	30%	
	2		Berlin	19	1,164	
	1 1				1,104	
					2	
				-	1 1	
	29	20 15 - 8 - 1 - 1 29 3	- 20 15 - 8 - 1 29 3	- 20 15 Potedam 8 In the Interior - Frankfort-on-the Oder.	- 20 15 Potsdam	

Table showing the Weight of Books Imported into, and Exported from, the Zoliverein States in 1850-continued.

STATES AND PROVINCES	Custom-houses,	Printed and not	oks Bound, Bound, d Prints,	STATES AND PROVINCES OF THE	Custom-houses.	Printed and no	oks , Bound, t Bound, nd Prints,
ZOLLVEREIN.		Exported.	imported.	ZOLLVEREIN.		Exported.	Imported
PRUSSEA - continued. Saxony	Brought forward Helligenstadt - Salawedel	Cet. 9,560 69 1	Cwt. 2,648 76 3	Wинтемвино -	Friedricshafen - Sintigart Ulm	Cut. 434	Cwt. 249 57 63
	Nordhausen Halle Magdeburg	=	32 22 181		Total	434	360
	Naumburg Rossins In the Interior -	Ξ	1 5 6	BADEN	Ludwigshafen - Constance Rondegg	8 4 486	15 18 263
Westphalia -	Minden Rheine Telgte	958	96 4 7		Stühlingen Thiengen Near Rheinfelden	42 7 140	85 21 269
	Corsfeid Lemgo Warburg Münster	-1 11	3 24 4 19		Near Schusterinsel t)Id Breisach - Kehl New Freistatt -	644	546 1 222 11
Rhine Pro-	In the Interior -	210	856		Heidelberg Mannheim Carlsruh	Ē	64 19
vinces.	Cranenburg Emmerieh Kaldenkirchen - Malmedy	1,395 12	7 75 4 12		Lahr Freiburg	=	9
	Nasrbrücken - Wassenberg - Treves	-6 -1	60	ELECTORATE OF	Total	2,968	1,553
	Cobientz Cologno Duisburg Düsseldorf	2,309	2,083	Hesse.	Cassel Carishafen Witzenhausen - Rinteln	438 7 5	153 8 1 6
	Wesel	Ξ	9 2		Hanau Marburg	=	- 1
	In the Interior -	14,666	6,246		Total	450	170
Luxemborro		2	118	GRAND DUCHY OF HERSE.	Mayence Offenbach Glessen	Ξ	34 19 1
BAVARIA	Hof Waldsassen	1 2	2		Total	=	54
	Waidhaus Waldmünchen - Eschikam Passan	28 13 37 367	- 4 55	THESTROIA	Prussian = - Hessian = - Saxe-Weimar =	=	- ₆
	Limbach Freilassing Reichenhali - Rosenbeim	28 218 8 4	109		Saxe-Meiningen - Saxe-Altenburg - Saxe-Coburg - Saxe-Gotha -	Ē	5 1 66
	Mitterwaldo - Pfronten Lindau	282 23 565	48 14 737		Schwarzburg, Ru- dolstadt,	=	6
	Neuburg-on-the- Maine. Zwelbrück = = In the Interior =	28 3	5 273		Total		92
	Total	1,607	1,278	Bacsswica	Brunswick Wolfenbuttel - Holzminden -	105	533 16 16
SAXONT	Zittau Schandan Pirna	16 213 6	3 36 246		Total	109	565
	Marienburg - Eibenstock Bautzen	34	6	NASSAU	Bieberich	-	42
	Dresden Leipzic In the Interior -	Ξ	5,633 1	FRANKFORT-ON- THE-MAINE.			151
	Total	290	5,982		Total Zoliverein, }	29,456	16,620

TABLE showing the Number of Type-Fix Stories, &c., in the Zollveress States in 1846.

STATES		Type-F	oundries.	Estal-lash m-	ents for Prin and Music.	ting Books
OF THE ZOLLVEREIN,	Provinces and Districts.	Number of Foundries.	Number of Workmen.	Number of Establish- ments.	Number of Preses.	Number of Workmer
	Pressia	1	4	28	32	158
Phussia	West Prussia	-		25	38	141
	Pasen	-	-	24	43	158
	Brandenburg	13	168	98	243	843
	Pemerania	-	-	31	56	129
	Silesia	2	28	89	150	541
	Suxony	3	16	91	200	627
	Wrstphalia	-	-	58	109	270
	Rhine	5	28	130	263	672
	Total	24	244	574	1,154	3,585
BAVARIA	Upper Bayaria	3	47	17	40	205
DAVABIA	Lower Bayaria	-	-	7	16	46
	l'alatinate	-	-	15	23	48
	l'pper Palatiante, Ratisbon -	1	3	13	21	904
	I pper Francopla	-	-	11	23	67
	Middle Franconia	2	9	21	36	128
	Lower Franconia, Aschaffen-	1	1	14	26	71
	Sunbin, Neuburg	1	5	28	81	202
	Total	8	65	126	274	860
	Dresden	2	19	14	40	227
Sameny	Leipsic	10	193	47	199	1.227
	Zwickan	-	-	20	40	124
	Bautsen	-	-	11	23	88
	Total	12	212	912	302	1,666
ELECTORATE OF HEME		1	4	23	49	11:
BADEN		-	-	46	102	31-
GRAND DUCKY OF HESSE -		4	46	40	91	313
Nassau		_	-	11	17	35
MARKU		-	-	_	-	
THURINGIAN STATES			-	9	24	10
Parts of other States belong- ing to the Union.		1	1	12	22	- 6
	There are no accounts from Wurtemburg, Brunswick, and Frankfort-on-the-Maine.	1				
	Total Zollverein, 1846 -	. 50	572	933	2,635	7,06

The Jury with pleasure acknowledge their obligations to Professor Dieterici, Chief of the Bureau of Statistics at Berlin, for the valuable Statistics of the Zollverein,

The following is a list of paper-makers from the Zoll-verein who exhibited at the Great Exhibition:-MM. EBART BROTHERS, Berlin (1 Zollv., p. 1056).— Excellent writing and printing papers, bank-note paper, with superior water-mark; glazing-boards of good qua-

hty; and carton-pierre, for roofing.

M. Wuttio, of Pulverkrug, Frankfort-on-the-Oder (1 Zollv., p. 1056).—Tinted printing-papers of ordinary

good colour, and well sized.

quality.
M. C. A. Kocz, Gladbach (1 Zollv., 329, p. 1069).—
Samples of excellent plate, writing, and printing papers;

MM, Horsen and Son, Duren (1 Zollv., 392, p. 1072).

MM, Horszert and Son, Daren (1 Zoltv., 392, p. 1672). – Specimens of writing and printing papers; well-made coloured post papers, columned tissues—black and rose colour, bright and good.
M. Scriëll, and Duren (1 Zollv., 393, p. 1672). – Laid writing-papers and printing-papers of fair quality.
L. Piterre, at Dillengen (1 Zollv., 394, p. 1072). —

Writing-papers of excellent qualities and good colnur, but rather too soft sized.

M. Fischers, of Bautzen (3 Zollv., 168, p. 1112).— Printing, plate, lithographic, and writing papers, of excellent qualities.

MM. RAUCH BROTHERS, of Wortenburg (4 Zollv., 44, p. 1117).—Writing-papers of superior quality; thin pelare, well made and hard sized; veneered paper, blotting on one side, the other sized for writing.

MM. SCHARUFFELEN, of Heilbronn (4" Zolly, p. 1117), displayed a large assortment of well-made and good papers of every description, thin pelare, or thin post writing-paper, of good colour, well sized and clean, the folio ream 11s.; white tissues of good quality at 4s, 3d. or 5s, the ream; coloured tissues, bright tints, It's, the ream; fiue and well-made plate-paper, 8d. per pound; second unality plate 64d, per pound.

UNITED STATES OF AMERICA. About the year 1730, a paper-mill was erected in Massuchusetts, aud, about the same time, another in Pennsylvania; but prior to the American Revolution the progress in this important branch of manufacture was It appears, however, that before 1768, Christopher Leffingwell began to make paper at Norwich, in Connecticut, and received a boonty from the treasury of the colony of "twopence the quire on all good writing-paper that he made, and one penny the quire on all printing and common paper." At the end of the first year, in May 1770, he received the bonnty for 4,020 quires of writing-paper, and 10,500 quires of printing and coarser paper, after which the bounty was discontinued. Mesers, Watson and Ledyard set up a paper-mill in East Hartford, in the same colony; and this one mill, in 1776 and 1777, wholly supplied the press of Hartford, which published weekly above 8,000 newspapers, and also the greater part of the writingpaper used in Connecticut, as well as much of that used by the continental army. Shortly after this, paper-mills sprang up in every part of the country, and continued tu iucrease with extraordinary rapidity, as did also the number of newspapers and chesp books. Prior to 1810, number of newspapers and cheep cooks. Proc to 1810, the materials for paper-making were procured in the country; but, since that period, they have been largely imported from Europe. Nearly all the linen rags are imported, and are in great request in the United States for the purpose of mixing with the domestic cotton rags. It is estimated that the Italian rags used to contain about 80 per cent, of linco; but it is found that, as cotton for elothing is increasing in all parts of the world, the proportion of linen in the foreign rags is decreasing from 5 to 10 per cent, annually. This fact at first created some alarm; but it is ascertained that raw cotton, where it can be had on the spot for 3d, or 31d, per pound, answers as a very good substitute for linen. In the United States, the best qualities of writing paper contain from 30 to 50 per cent. of lineu rags. The import duty on rags is 5 per cent. of linen rags. The import duty on rags is 5 per cent. In the year ending June 1850, the quantity of rags

from the Hanse Towas; and 1,619,114 from Sicily. The remainder were chiefly from Turkey and Canada.

About 1820, machinery began to be imported into the United States from England and France; but, being found expensive, this was not much encouraged. It was not till about 1830, that Mesars. Phelps and Spafford, of Connorm 1830, that occases, riceips and continues, necticut, succeeded in manufacturing their machines, which are said to work well. They were much patronised, and they soon greatly enlarged their manufactory. Not long after Messrs. How and Goddard, of Worcester, Massachusetts, began to manufacture in great numbers machines for paper-making. At the present time, these two manufacturers produce nearly all the machines employed in the United States, and have besides begun to export them to South America and Mexico. The machines de hy these two firms are those known as the Fourdrinier Machines, with some modifications. A chesper kind, known as the Cylinder Machine, is used extensively for making the coarser and cheaper sorts of paper. These machines are also made in many other parts of the country,

imported into the United States was 20,696,875 lbs., which about one-half, or 10,277,337 lbs. were from Italy;

3,964,815 lbs. from Trieste and other Austrian ports;

1,621,692 from England, Scotland, and Ireland: 14.540,042

It is only since 1830 that any real impulse has been given to the manufacture of paper in the United States; and this is owing, not more to the introduction of machinery than to the great changes in the mode of manufacture, as well as in the raw materials. Various articles are now extensively used which were not thought of before the introduction of chlorine and other means of of paper from Belgium, France, and other countries. The

cleansing and bleaching. Old junk, rope, hemp, tow, bugging, raw cotton, cotton waste, coloured or filthy rags, Ac., are now extensively used even for superior papers. These materials, which were previously only used in the making of coarser papers, have risen 300 per cent, in value; in the United States, they are particularly useful, and consequently in great demand, where no linen is produced for mixing with, and importing streagth to, the cotton materials.

Since the beginning of the present century, the quantity of noner imported into the I nited States has been constantly decreasing, so that at the present day the proportion of foreign paper is only between two and three per cent, on the whole amount consumed. The paper imported is now almost exclusively of the superior qualities of writing and fancy papers, and is chiefly brought from Eagland and France, each country exporting about equal quantities. Belgium and Italy also contribute a portion. The import duty on all kinds of paper is 30 per ceat, ad valorese, There is no excise or stamp duty.

The Reporters regret that they have been unable to obtain from the United States the statistics of papermaking, which were so fully collected for the Ceasus of 1850, but which have not yet been published. We are, however, officially informed, that the number of engines and paper-mills have recently very rapidly increased, especially in the southern and western States. It is estimated that the cost of manufacturing paper at the present day, with all the improvements in machinery, and the increase in the variety of the raw materials, when compared with the old process and materials, is reduced fully 800 per cent. Hence the old-fashioned mode of making hand-made or laid paper is almost entirely abandoned in the United States, there being now only two mills of any note engaged in its manufacture. Even

two mils of any note engaged in its manuficiare. Even these only make appear (particulars ords, such as bank-note paper, letter, deed, parchinent, and such others as require great starceght and firmase, and the coasequent demand for new spapers and cheep literature, has readered demand for new spapers and cheep literature, has readered the United States the country within, it is said, economics more paper per head for its population than any other. But the great stain of the manuficturer in rather at cheapness than excellence in quality, though within the last five years improvements in the strength and quality of paper have been made. Recently, the fuish of writing and printing papers has been much improved by the introduction of iron and paper calcuders.

PAPER-MARING-AUSTRIA.

The principal mills are in Lombardy, Lower Austria, and Bohemia; there are also some in Venice, and in the Tyrol. Lower Austria contains the most extensive mills. The whole amount of paper produced per annum is now stated to be 650,000 cwts., 250,000 cwts, being common writing, and 60,000 cwts. fine paper; 150,000 ewts. printing, 100,000 cwts, packing, and 60,000 cwts. paper of other descriptions. Steam-power is applied in a few instances, but the mills are chiefly driven by water-power; three-fifths of the whole produce is by vat-mills, and two three-fifths of the whole produce is by vat-nulls, and two-fifths by machines. On a population of 38,096,008, it is stated that three pounds ut linen rags are produced per bend. There are, besides, quantities of of lorge, &c, used for paper-making. According to Messrs. Deraire and Mayer of Amentar, Fresch Commissioners at the Austrian Exhibition of 1845, the number of vata 540; machines in that Sates was 40, the number of vata 540; producing nearly 314,000 quintals (15,011 tons) of paper valued at 20,500,000 francs, being an average of 61d. per lb. The number of persons emplayed was 12,000, esides rag-sorters.

The number of machines is now 49, and 900 vats. Austria exports paper to the amount of 150,000/, per

PAPER-MAKING-DENMARK.

In Denmark there are six machines, besides one in Holstein, and 20 vats, producing altogether about 1,312 tons per year. In 1847, Denmark imported about 300 tous

TI

first paper-mill was established at Predericsburg, by order of Christian III., and the first machine for making paper was made by Messes, Donkin, and put up for Mr. J. C. Drewsen, in 1826,

PAPER-MAKING-SWEDEN.

In Sweden there are five paper-mills, employing seven machines, and eight vat-mill

PAPER-MAKING-SPAIN.

In Spain there are 17 machines: 1 in Old Castile, 2 in Valencia, 3 in New Castile, 1 in Estramadura, 2 in Catalosia, 3 is Arrazon, 1 in Audalsia, 3 in Gaijusces, and 1 in Nonane. The principal unith are at Burgos: at Resectifia, near Madrid; at Candedaria, open Begor; and 1 in Nonane. de Coppellades, near Parcelona. The machines have been imported from England, France, and Belginm; the first was established near Manzanares, in La Mancha, Don Thomas Jordan, There are also 250 vats, whole produce is 4,741 tons yearly. Of 3,400,000 kilogrammes of paper made in Spain, Catalonia produces 700,000 reans. The weight of mgs used in his province 7100,000 reans, is said to be 16.071 tous yearly. One hundred and forty thousand reams of paper were exported from Spain in 1848, to the following countries: -- to Cuba, 94,680 reams; to Chili, 16,000 reams; to Porto Rico, 10,000 reams; to other couotries, 20,000 reams.

PAPER MAKING - NETBERLANDS.

The importation of paper in the Netherlands, in 1847, was 219 tons, valued at 17,919 florins, chiefly from Belgium and the Zollverin. The importation of rags was 700 list, only. The exportation of paper, in the same year was 148 tone; its principal destination was Java. The expertation of rags was only 1,200 pounds weight.

PAPER-MAKING-SARDINIA, Triscant,

In the kingdom of Surdinia there are 12 paper-machines and 60 yats. The first machine was established at Horgo and 60 vats. The first macrines was estimated at horge Sesia for Mr. Molino. In 1848, the paper produced, none of which was experted, amounted in value to 6,000,000 florins; whilst in 1846, 1,178 tons of paper was exported from Genon to Mexico, Spain, and the Brazils.

In Tuscuny there are 20 paper-mills, and two Donkin machines, at the mill near Florence. In 1848, the exportation of rags and paper from Leghorn amounted to (3),(10) lbs.—about half to Eugland, and the other half to the United States.

PAPER-MAKING-HAMBURGH

The importation of paper in Hamburgh, in 1848, was of the estimated value of 1.288,000 france (51.250L)

PAPER-MAKING-SWITZERLAND

In Switzerland there are 26 machines and 40 vat-mills, producing together 11,507 tons annually. The men's wages are 90 centimes per day (about 8\frac{1}{2}d.), and the women 60 centimes (5\frac{1}{2}d.). No paper is exported.

PAPER-MAKING-SAXONY.

In the kingdom of Saxony, in 1847, there were 66 per-mills, with 6 machines, employing 992 persons. The exports and imports are trifling.

PAPER-MAKING-ITALY. In Italy, Lombardo-Venetian Kingdom, six machines are distributed among four mills,

PAPER MARING-SICILY.

In the kingdom of the Two Sicilies there are 12 paper-In 1827, MM. Firmin Didot Brothers and Lefevre established the first machine, under a potent of importation in the Mill of Fibrène (Isola di Sora). The number of persons employed is 1,200. There are about 12 vats, employing 300 persons. The whole produce amounts to 306 tons annually, and paper is exported to Sicily, Rome, Leghorn, Malta, the Ionian Isles, and

PAPER MAKING-ROMAN STATES.

In the Roman States there are three muchines; n Anatrells, at Fibre, and in the neighbourhood of

In Turkey there is one mill at Smyrns, and one papermachine, besides one vat-mill at Constantinople,

PAPER MAKING-TURKET. PAPER MAKING-EGYPT.

In Egypt, one vat-mill at Bonkae, near Cairo,

PAPER MARING-PRICE OF RAGE The following is the present price of white rags:-Per Ton. For 100 kiles.

In America	-	-	-	-			0	70 fr.
in England	-	-	-	-	25	6	0	63 fr.
n France (i	n 1	840	and.	fol-				
lowing yo	STS.	lt w	as fi	re-m				
60 fr. to 6	2 fr	.)	-	-	18	0	Ð	45 fr.
In the Zelly	crei	24	-	-				
In Austria	-	-	-	-	12	0	0	30 fr.
he principal		pôts	are	at P	eth	anı	i at	Agram.
la Switzerla	nel	-	-	-			-	-
to Belginm	-	-	-	-				
in Itoliand	-	-	-	-				-
In Italy -	-	-	-	-			_	-

In Italy -	-	-	-	-			_	-
In Lombard	¥	-	-	-	14	8	0	36 fr.
In the Two	Sh	cilies	(:	intil				
1850, the	peio	C W SA	24	fr.)	13	3		33 fr. 50 c.
In the Ross	nn S	cales	-	-	ii.	12	0	29 fr.
In Sardinia	-	-	-	-	17	12	0	44 fr.
In Spain	-	-	-	-	17	4	0	43 fr
In Russia.	-	-	-	-				
In Denmark	-	-	_	-	19	5	0	48 fr.
In Sweden	-	-	-	-				

IV. PLAYING-CARDS.

The country in which playing-eards were invented has never been ascertained with any certainty, neither are we sequainted with the precise time of their introduction into Europe. Namerous speculative opinions have been put forth in order to prove that the art of wood-engraving originated from the manufacture of playing eards, it being supposed that the outlines of the figures or court-cards were cut on wood, and that from this was obtained the first idea of wood-engraving. The most ancient cards we have seen appear to us to have been stencilled, and this method seems to have been employed for the outline of the figures, as well as for the filling in of the different colours; therefore, as stencilling, was probably known long before wood-engraving, we are inclined to believe that the figures were not taken from wood-engravings until at a later period, as an improvement on the former mode. Some eard-makers of the present day manage steucilling with great skill, and the method is a favourite one, as it leaves no impression to show through on the back of the card, a fault sometimes difficult to avoid in white-backed playing-cards, when the outline has been printed on the card-hoard with a printing-press.

The cards mentioned as the oldest eards we have seen

belonged formerly to Mr. Tutet, who has written the

* A playing-eard stencil is a sheet of strong paper, covered with several layers of oil paint on both sides, and kept for a long time until thoroughly well seasoned, when the form of any figure required is exercilly cut out so as to leave sharp edges. The colouring matter, mixed with paste, is of any figure required is carefully cut out to 64 to believe sharp edges. The colouring matter, mixed with parte, is brushed over with a large circular brush, and cuters into the cut-out parts of the stencil, and thus imparts the design to the card-board placed under it. If this operation is skil-fally performed, much better and sharper outlines are obtained than wantid be generally supposed. Wont of the obtained than wantd be generally supposed. Most of the card manufacturers still continue this mode of painting the pips of playing-eards, as well as the filling in of the outlines of the figures, which are cut on pear-free weed. The manner of taking the impression of the outline of the figures was done by rubbsing, satil some few years ago, en Mr. Creswick first employed a press for the purpose,

following remarks on one of the fly-leaves of the volume in which they are collected; -- "The ancient cards" in " this volume, with others, duplicate, and the drawings in " the second volume, were purchased by me out of the " collection of Dr. Stukeley; the drawings were produced by the Doctor on the 9th of November 1720, to the "Society of Antiquaries, observing that the cards had "been given him by Thomas Rawlinson, Esq., being two "pieces of the cover of an old book, supposed to be "'Claudian,' printed before 1300; and then there was a "leaf or two of an old edition of Erasmus's Adages, "pasted between the layers of the cards, which being inid stratum upon stratum, composed two pasteboards, and made the cover of the book. The Doctor took the pains to separate the cards, out of which I have chosen a complete pack, and the better to preserve so singular " a curiosity, have bad it bound, together with the draw-" ines, and some modern French cards. It is observable "in the assient eards that there are no sees nor queens;
"but instead of the latter, are knights," The marks of
the suits are hearts, bells, bones, and acorns, and the conrt-cards are the king, knight, and knave. The size is 3 inches long by 2\frac{3}{2} inches wide. They are very rudely coloured. The figures on the French card above mentioned are the same as those still preferred in this country.

It is curious to observe that while the honours of modern French cards have undergone a complete change, those preferred in England retain the costumes and outlines of the oldest French cards, every attempt made to modernize the English court-cards having invariably failed. Some vears ago Messra. De La Rue introduced some improvements, and endeavoured to induce the public to adopt a more modern and defined costume in the court-cards, but they were compelled to abandon the attempt, and return to the old style, after having incurred heavy losses in their endeavours to create a more elegant taste.

In 1392 or 1393, there is the following entry in the accounts of Papara, treasure to Charles VI, of France, that monarch having loat bis reason in 1392:—"Given to Jacquemin Gringsouser, painter, for three packs of cards, git and coburrd, fifty-six sols of Paris." The tenor of this passage seems to imply that cards were already known, therefore it is highly improbable that Gringsonneur was the inventor, as has been asserted.

It is not known when the manufacture of playing-cards was established in England. As early as 1463 there were card-makers in this country, the importation of playingcards having been probibited by Act of Parliament in that year, as injurious to the interests of native manufacturers. No cards of English manufacture, of so early a date, have, bowever, been discovered.

The Abbe Rives aeerlbes the investion of playingcards to the Spaniards before 1332. Mr. Anstes conjectures that cards were known at the end of the birteenth century. They appear to have been known to the Italians in 1378, for Covellano states that the game of cards was brought into Viterbo, from the country of the Saraceas.

brought into Viterbo, from the country of the Saraceus, in that year.

In 1397, the labouring classes of Paris were forbidden

In 1975, we assume the plant of the plant in China at the plant cards on working days.

Playing-cards appear to have been known in China at an early period. It is said that they were invented in the reign of Leun-ho (1120), and were common in 1131. They are called che-pae, which signifies paper-ticket. The Chinese cards in the Eabhittion measured 24 inches

long by I linch in width.

In the Mussem of the Royal Asiasis Society there are
there packs of Hindonian cards; they are circular, and
there packs of Hindonian cards; they are circular, and
all properties of the Control of the Control
I linches. They appear to be made with carona. In
the Indian Department of the Great Exhibition there were
also circular cards, whether were surgely variabled on
Hindonian Department of the Great Exhibition there were
the combined with some other branch on manufacture, and
conditional with wood-ourgraving in the
cards pointing was combined with wood-ourgraving in the
cards again of the delethfield with the cartonian manufacture, and

* Naw in the possession of Mr. Dz La Rue.

and opinions of the people. They coincide with the carliest Europeau cards in having no queen, the two court-cards being a king and his uninster or attendant, and the suits being distinguished by the colour as well as by the form af the mark or emblem.

Early in the fifteenth country card-making appears to have become a regular turde in Germany. Nursuelecpara, and Ulm were the chief towns for the manfacture of playing-cards. Besides applying the home facture of playing-cards. Besides applying the home stear of playing-cards. Besides applying the home ware; and at the present day much karper quantition of earls are exported from Germany than from any other country. Their desapones is, in odost, the principal tower made in England, although some are well under since they have adopted the method of printing the play since they have adopted the method of printing the play

and honoisers, as patiented in England in 1822.
At an early period the Netherlands seen to have been At an early period the Netherlands seen to have been the new period of the Netherlands and the Netherlands are not states that the longith Ind I a doven pecks for severe sitters. From a passage in Archanis Toxophinias, 1545, eards were then about twopreue per peck. This may appear of the new period of the Netherlands and two periods are not seen in the Netherlands and the Netherlands are not be longith for half-acrown a dozen in Hamburgh; and could be produced in this country and sold at these could be produced in this country and sold at these

Per de la companya del companya de la companya del companya de la companya del la companya de la companya de la companya del de la companya de la companya de la companya del la companya d

very high daty, tantamount to the same thing.

During the reign of Charles II, card making greatly increased in Eugland.

Carl-playing recens to have attained its fall tide in very part of eviliand Lurope in the reign of Queen Anne, and was both fashionable and popular in Dophaton Anne, and was both fashionable and popular in Dophaton for gentlemen; electymes and country squires played whist, and the countoserr played at all fours, pat, cribbogs, and contrabo. At no other time, before to beg, and contrabo. At no other time, before used to send a string of hog's puddings and a pack or cords, as a Christmas gift, to every poor family in the

During this reign the erad-maken petitioned the Hamed Commons on the occasion of a proposal by a tax of superse per ped, or each, "Note parts in two of the superse per ped, or each, "Note parts in two of the per per grox, and even these of the villa by the subjected to 3f. Iza. Iza. This, with submission, will subjected to 3f. Iza. Iza. This, with submission, will need to be affected under 10d, or 1s. If any of your linear most which are no example for 2d, per peck, early these to affected under 10d, or 1s. If any of your linear marked, that the common sort, who play for insocret diversion, will only be hindred; the sharp gaussian marked, that the common sort, who play for insocret diversion, will only be hindred; the sharp gaussian marked, that the common sort, who play for insocret diversion, will only be hindred; the sharp gaussian way of the sharp that the subject of the start of the strong sort of the sharp gaussian marked, that the common sort, who play for insocret diversion of the sharp gaussian marked, that the common sort, who play for insocret way that the sharp gaussian marked, that the common sort, who play for insocret way that the sharp gaussian marked, that the common sort, who play for insocret marked and the sharp gaussian marked, that the common sort, who play for insocret marked and the sharp gaussian marked, and the sharp gaussian marked and the sharp gaussian marked, and the sharp gaussian marked, and the sharp gaussian marked gaussian marked, and the sharp gaussian marked, that the sharp gaussian marked gaussian marked, and the sharp gaussian marked, the sharp gaussian marked, the sharp gaussian marked, and the sharp gaussian marked, and the sharp gaussian marked, the sharp gaussian marked, the sharp gaussian marked, and the sharp gaussian marked, the sharp gaussian marked, and the sharp gaussian marked, the sharp gaussian marked, and the sharp gaussian marked, the sharp gaussian marked, and the sharp gaussian marked, and the sharp gaussian marked, the sharp gaussian marked, and the sh

We doubt whether so large a quantity as 40,000 reams

of Genoa paper was ever consumed in manufacturing playing-cards; if so, the sale must have been far greater than within the last 50 or 60 years, for that quantity of paper would have produced 5,000,000 packs of cards, whereas the amount was only 507,672 packs for the home and export trade in 1851. And as five or six card-makers supply the demand, it appears doubtful whether so large n number as a hundred masters could ever have obtained n living by the trade. Genoa paper was preferred by card-makers up to a late period, for its silkines, for its power of receiving the colour freely, and for toking the flist or glazing better than the larsh Eaglish paper. At present there may be a few reams still consumed by the old-fashioned makers; but the hulk of the paper is now made here, cards being almost all glazed by passing them between copper-plates through rollers, instead of glazing

them with a flint, as formerly. In the early part of the reign of George III. eard-Diving was very prevalent.
Until lately the importation of cards was prohibited

in Russia, where the manufacture of cards is a royal monopoly. The whole income derived from their sale is applied towards the maintenance of the Foundling Hospital. The manufacture of playing-eards is carried on, ou a very large scale, at Alexandrotiski, near St. Peters-burgh. The machinery applied to the manufacture of cards in the Imperial Manufactory is the invention of Mr. Applegath, and is under the direction of General Wilson. All the modern improvements for the manufacture of eards are to be found in that establishment, many having been furnished by Mr. De La Rue. His patent process was adopted for a superior description of cards many years since. The cards printed at Applecath's machine are in water-colonra; and although upwards of 14,000 packs are manufactured daily, the supply is not equal to the demand. The best Russian playing-cards are excellent, surpassing most continental cards in the glaze and all the essential qualities of good eards,

The demand for playing-eards has not kept pace with the increased population of this country; the duty of one shilling per pack neperating, with other circumstances, such as musical evenings, reading societies, &c., against

their greater use.

No person is allowed to manufacture playing-eards in this country except in the cities of Lordon and Westminster, and in the city of Dublin, in Ireland. Their manufacture is prohibited in Scotland. The duty is npwards of two hundred per cent, on the cost of manufacture, besides the dety on paper, which amounts to about 6d, on a dozen packs

In consequence of the re-issue of second-hand playingcards being allowed, forged aces, with the London makers names, have been introduced from abroad, and used for spurious cards, which are sold for second-hand, thus causing detriment to the English manufacturer and loss to the revenue. The permission to re-issue second-hand cards seems to have been retained in deference to those hy whum cluh-houses are supplied, the eards when nnee played with, becoming the perquisites of the servants, who obtain a certain price from the original veudor, by whom they are again sold. This opens the door for the contraband cards with forged aces, and is andoubtedly a grievance that Government ought to remove. If the duty were reduced from one shilling to three pence per pack, it would put an end to smuggling, forgery, and perjury, as regards cards; the sale would increase, a larger quantity of paper would be consumed, and employment given to a number of extra hands. The duty and export aces are printed at Somerset

* Cut-corner cards are the waste of card-makers, and are Cut-torner cards are the waste of card-maxers, and are not sillowed to be sold in regular packs, although they may be sold as waste, provided half an inch be cut oft one corner. The wording of the Act of Parliament relative to this sub-ject is so imperfect, that for two or three years cat-corner earls were regularly manufactured and sold; but the Com-missioners of Stamps and Taxes declared the sale illiegal. and took proceedings for certain penaltics against the retailers. There are still manufacturers who sell these lliegal cut-corner cards, to the injury of the fair trader, notwithstanding the threat of heavy penalties.

House on paper furnished by the card-makers, who have also to pay thirty pounds for every ace-plate, eugraved by Mesers. Perkins and Co., and sent by them to the Inland Revenue Office. If the ace-plats, on which there are twenty aces, be engraved on steel, it will last for a considerable time, but it is netwithstanding a heavy charge on the manufacturer of playing eards, as two different news are required, one for the home trade, the other for expor-Every card manufacturer is required to give two tation securities in 500f, each before a licence can be obtained. When aces are wanted by the card-maker, a requisition is sent to Somerset House, and a ream, containing 9,600, is usually drawn at one time. An officer is sent round to is usually drawn at one time. An officer is sent round to the different card-makers with seals, one of which is affixed to each pack required for Immediate sale. According to the number of scals furnished to each maker by the officer, the amount of duty of is, per pack must be paid on the first of each month. The aces remain in stock at the manufacturer's, the quantity in hand being ascertained by officers sent from time to time to inspect these. Should any deficiency be found, the duty must be paid on such desciency, and the manufacturer is called to account for the irregularity. When playing-cards are required for exportation, the manufacturer has to enter o a heavy bond, with security, to insure the bone fide landing of the eards at the port named in such bond, and a drawback of three halfpence per pound is allowed on all cards exported; but it often happens that the expense of the bond for small parcels is such as to make it a matter of indifference whether the drawback be obtained or not; and it certainly checks the sale of cards for exportation, for many persons would buy two or three dozen, when they do not wish to take grosses, to form an assortment af

stationery for exportation.

The amount of duty paid on playing eards in 1850 was 11.782l. 10s., sterling. being on 235,650 packs. The number exported, on which there was no duty, amounted in the same year to 329,888 packs, In the last year, 1851, there was a diminution of duty-

paid cards, as well as exports. The number of duty cards sold was 226,576, being 9,000 less than in 1850, and 281,106 packs for exports, being 48,782 packs less than in 1850,

The general mode of painting playing-cards is by sten-cilling with water-colours mixed with paste. The eardcilling with water-colours mixed with paste. Inc earu-board used in England consists of foor sheets of paper; two strong sheets of cartridge are first pasted for the inside of the board: they are hung up to dry, well present, and afterwards covered on each side with a sheet of which should be strong and well sized. The ontlines of the honours, as well as the ornamental backs, are printed with a letter-printing press. The pips are stencilled, 20 cards being the usual quantity on a sheet of foolscap. They are packed in what is technically called works; each work should yield 16 dozen and 8 packs of cards. They are well dried and aired, and then rubbed over with Castila scap, that the flint with which they are over with Cabin soup, may the min with when any new glazed may pass smoothly new without tearing the card-board. The operation of glasing with a flint is tedious, and causes much waste. When glazed, they are taken to the eutter, and from him to the women-sorters; they are are fully looked over, all defective cards being put aside for a cheaper description. All the picked cards are laid at what is called the head of the table, and constitute those denominated "Mogula" (best quality); the seconds, or slightly defective, come next, and are called "Harrys: the last and most defective are the "Highlanders work of 16 dozen that turns out well should yield the following proportions: from 8 tn 10 dozen of Moguls, 3 or 4 dozen Harrys, and the remainder Highlanders. They are put in wrappers, with a thread tied round each pack. sealed by a revenue afficer when required, and put up in parcels of six packs, which are called sixaines." There was little or no improvement in the manufacture

* It is a curious fact that the technical terms used in the workshops of playing card-manufacturers in this country are Frinch words, such as sizess (sixaines), brief, brif (short), &c, &c.: this seems to imply that practical card-making was introduced by the French into England. of playing-each until 1932, when Nr. De La Rue abtathené a patient for erariai improveneus, which consisted in aubstituting printing with oil colours, in lithography or letter-poss, from wood or metal blocks, and using a imperior description of quick-drying printingital, not lable to set-off in glatting. By this process a little, and that the set-off in glatting. By this process as more vivid, and the backs better eranamented thus could be effected by steediling with water-colours. The patient node of manifecturing playing-cards has been ohoped by many of the German manifecturer, and by the

Insperial Government of Bussia.

In his work on playing-cards, Mr. Chatto says, that
"no other game was ever so generally played by people
from the game was ever so generally played by people
from the game was ever so generally played by people
as extensively diffused as the use of tobacco, and is certailly indulged in by a greater variety of persona."

Speculations on Playing Cards⁴⁺ for the valuable information it has afforded us, and of which we have made

for use.

The state of the physical manufactures where the state of the physical manufactures where the state of the physical manufactures where the state of the state of the state of the state of physical manufactures by Mr. Owen Jesus, of physical consuments, from drawings by Mr. Owen Jesus, of physical consuments, from drawings by Mr. Owen Jesus, of physical consuments, from drawings by Mr. Owen Jesus, of the state
lily, the innocence, modesty, and beauty of the Princes Rayal.

Mestrs. De La Ruse land also some eartls adapted for mear-sighted possible, the pins being in different coloura the spades in black, the chils in green, the hearts in red, were suggested by sir Frankland Lewis. Mosars, be Ia Ruc's playing-eards, earlied Victoria eards, surpass all others in fluids, quality of paper, perfection of printing,

and ornaments on the backs.

Mr. WHITTAREA, of Loudon (49, p. 541), contributed

Mr. WHITTAREA, of Loudon (49, p. 541), contributed

of playing cards in gold and colours; the designs of

these are commendable, hat as none were exhibited made

ap in pocks, the Jury could not ascertain the degree of

merit which would be due to them in a manufactured.

state.
There were several exhibitors of playing-eards from foreign countries, viz.:—
France.—M. Blaquetinx, of Paris (1552, p. 1251), who had some with the pips in different colours. M. Illetor (882, p. 1229) had some contriband forms electrolytes.

(882, p. 1222) had some court-card forms electrotyped.

Helgium.—Mr. DAVELUY D'ELHOUNGER, of Bruges
(448, p. 1165), specimens said to be printed by a new
process, but the Jury could not discover any particular
merit.

Frankfort-on-the-Maine.—M. C. L. WUKEY (5 Zollv.,

14. p. 1123. whn appears to have adupted De La Rue's patent process, exhibited some cards with defined pattern backs printed in register, well executed; and he deserves mention as having produced good specimens of that particular style.

Grand Durshy of Hess.—MM. FROMMANN, of Darmstadt (6 Zollv., 39, p. 1128), bad good nad well-made specimens. Mr. Iksuters, of Darmstadt (6 Zollv., 49), had some printed with oil colours. Mr. Il. L. Schnappes, of Offenbach (6 Zollv., 49), displayed some well-manufactured specimens. Austria.—Mr. G. Steiders, Vienna (374, p. 1028), Austria.—Mr. G. Steiders, Vienna (374, p. 1028),

exhibited very well-made cards.

Seeden,-Mr. HEURLIN, of Stockholm (113, p. 1354),
well-made and well-glazed playing-cards.

Demantk.—Mr. L. P. HOLMILAD, of Copenhagen (27, p. 1857), and also some good playing-cards. The playing-cards exhibited by these different countries indicate a marked ndvance in the manufacture of that article.

V. MESSAGE CARDS.

Alove thirty-five years nices, the late Mr. W. Creevile, paper-smite, trained-eat a sperier description with paper-smite, trained-eat a sperier description peried had been applied by physic-gent makers from the paper of the paper smith of the paper smith of the Mr. Creevict's earls, indeed other person to emisst. Mr. Creevict's earls, indeed other person to emisst, in this breach of the paper trade. Now all superstant this country. The English blank earls are under of excellent piper; the size was made with when graperer excellent piper; the size was made with when graperer excellent pipers the size was made with when graperer that country. The English blank earls are under size this country. The English blank earls are under size this country. The English bank earls are under size that could be a size of the size of the size of the country of the size of the size of the size of the paper of the size of the size of the size of the paper of the size of the size of the size of the size of the paper of the size of the size of the size of the size of the paper of the size of the size of the size of the size of the paper of the size of the siz

VI, DRAWING-BOARDS,

Developeduced should be remainfeatured of the best demotived flow regispers. Nature Libertownth, of an ance of J. Whatman); Helsard Turner, of Chafford, name of J. Whatman); Helsard Turner, of Chafford, to the Charlest Charlest Charlest Charlest Charlest School, and the principal nation of via parted injective. When two or now about any parted injective. There are neverth immediators of the single should be bounded by the control of the Hospital Months (Sanderley) (Ap. 4) and bluerer. Hospital South Southern (1976), and bluerer. General of Lifey (294, Belgium, p. 1107), and no ere to Percell programmed, after sett markets, but none

VII. ENVELOPES.

The use of exvelopes was cammon in France-before their introduction into England. It was not till 1839, in conceptsor of Mr. Bowland Hill's possing reform, that yell fittle progress was orded in the manufacture of exvelopes until March 1815, when Mr. Edwin Hill and Mr. Warren De La Rue obtained a patent for cutting and Mr. Warren De La Rue obtained a patent for cutting and former of the control of the control of the control control of the foliance of the control of t

intulingentials, some part and active properties. Heavier the penny posting, 25,000,1000 letters passed annually through the Post Office. In 18-0, 247,000,300 well sterrs were posted; of this large annuher nearly 300,000,000 were enclosed in envelopes. Heavier is a large posted of the connection purposes, there is a large considerable quantity of which are exported to most parts ar the work.

The manufacture of envelopes gives employment to great numbers of young boys and girls, whose wages range, in England, from six to nice shiftings per week. Mesers, Waternaw (4c, p. 500) ulso lad a foldingmachine at work in the Machinery Department. It are States.

De La Rue and Co.

Mesers, Pixenia, Oxendou Street (33, p. 539); Mr. Mesers, FINTHER, Oxfording Street 188, p. 5397 (Mr. J. JERUMAH SERITE, Bathbone Place (41, pp. 539, 540); Mr. J. MANSELL, Red Llon Square (27, p. 539); Mesers. Domss and Co., Fleet Street (72, p. 543); Mesers. Cowar and Co., Editaburgh (101, p. 544); Mr. F. Ealem, Throgmorton Street (142, p. 546); all exhibited good and well-made envelopes. A collection of cavelopes with embossed seal flaps, tastefully designed and appropriate for the use of the several colleges, were exhibited by

Mesors, Spirins and Son, of Oxford, (p. 208-552).

Mr. James Denman, Camberwell Place, New Road (137, p. 545), exhibited three sorts of self-scaling enelopes; very ingenious, but presenting no commercial advantages over the adhesive envelopes already in use, France, -M. BERTOU, Rue Faubourg St. Martin, Paris, exhibited a quantity of covelenes of ordinary make.

M. Manon, Cité Bergère, Paris, a large variety of envelopes, well manufactured. This exhibitor stated that he had a folding-machine for envelopes; every imporry was made for it, but it could not be found. M. T. P. Vallant, Fanbourg St. Autoine, Paris, exhi-bited envelopes of ordinary qualities, said to be cut by

Belgism .- M. E. TARDIF, of Brussels, exhibited a quantity of mourning and other envelopes of ordinary qualities and make

Zollverein.- M. P. RUHL and Sons, Ilesse Cassel, displayed a series of embossed and printed envelopes. America. - THE BELVIDERE COMPANT, Richmoud, Virginia, exhibited a peculiar description of buff paper for covelopes, which is in great demand in the United

VIII, FANCY STATIONERY, &c.

It is almost impossible to enumerate the various descriptions of articles belonging to this class of goods. comprise albums, sersp-books, portfolios, musie-books, manuscript-books, writing-desks, cabinets, envelope-case portefeuilles, pocket-books, metallie memorandum-books, card-cases, blotting-books, lace-papers, gold printed papers, valentines, embossed boards, wedding envelopes, gold and silver medallions, fancy wafers, porte-monnaies, and numberless similar articles. There were several English and foreign contributors of fancy stationery, which will be

noticed under the following heads:-LACE-PAPERS.-This is a description of pierced paper and cardboard in initation of lace, the improved manu-facture of which took place in Eugland about 1831, Long before this period this pierced lace-papers had been made in France, chiefly for ornamenting fruit packed in card-board loxes. This particular description of thin perforated papers continues to be made for ornaments, such as lamp-shades, of which M. DEVRANCE, jun., 257 Rue St. Denis (1188, p. 1234), and M. ARRAULT, 136 Rue St. Denis (9, p. 1170), contributed numerous fine specimens; and for borders to mount small religious engravings, of which Madame Boyasse, 9 Kue du Palais de Bourbon, St. Sulpice (1102, p. 1230), exhibited some pretty varieties, carefully and neutly got up. The mode of perforating thick paper and card-board by machinery was first applied by M. Mare La Kiviere, a Swiss watchmaker, who obtained a patent above twenty years ago, for perforating zinc and other metallic plates, and established a manufactory at Hackney, near London, Mr. De La Rue having been invited to see this manufactory, suggested its application to paper and cardboard, and entered into arrangements with M. La Rivière to carry out this beautiful and novel paper ornament. Very large quantities of perforated eard-boards have been, and still continue to be, exported. They are used for embroidering on with silk and coloured beads. Another and more beautiful imitation of lace is obtained by a process now extensively in use, which was invented by Mr. Addenbrook, of London, and applied to the lace bordering of note and other paper. Some specimens, applied to pretty valentines, were exhibited by Mrs. Hansa (17, p. 537) and hy Mr. Mosman (204, p. 832), and for

patented by M. Rémond some years after that of Messes. other purposes by Messes. De La Rue and Co. (76, 541), Mesers, Donne and Co. (79, p. 543), Mr. J. Massell, Red Liou Square (27, p. 539), and Mr. MEEK,

Crown Court, Fleet Street (190, p. 550).
France.—M. Manon (60), p. 1207, M. B. Devaange
(p. 1234), and M. Abrault of Paris (p. 1170), exhibited
various specimens of well-perforated fancy and letter

FANCY PAPERS,-These consist of numerous varieties of papers, printed in gold, silver, and colours; some by lithography, ehromolishography, surface printing, block printing, in the manner of calico printing, from woven wire, as patented by Mr. De La Rue, and also of papers covered over with real gold and silver, and imitation gold and brunze, embossed or grained by means of engraved rollers, dies, and plates, of varnished papers to imitate morocco, and numerous other descriptions. They are used for the card-board boxes now so generally adopted for packing goods, for wrapping and orm-menting superior fabrics, and for many other purposes, There were several English and foreign exhibitors: the There were several English and foreign exhibitors: the principal wee M. Andrash Cr. pp. 1169, 1170, M. Gensser (260, p. 1184), and Mr. Vardundorfera, of Paris (172, p. 1213); M. A. Dubart, of Archifesburg, Ibarari (2 Zolfe, 68, p. 1101); M. Firsten (6 Zolfe, 48, p. 1184); J. B. Weiner (2 Zolfe, 48, p. 1104); M. Statten (2 Zolfe, 48, p. 1105); M. E. Weiner (2 Zolfe, 44, p. 1128); and Weiner Buschman, of Golbech (6 Zolfe, 48, p. 1128); M. E. Pieritsen, of Golbech (1 Zolfe, 266, p. 1053); M. E. Montac, of Berlin (1 Zolly., 249, p. 1061); and Messrs. Dr. La Rue and Co., of London (pp. 541-543), at whose stall pattern-books containing many hundred specimens

of chaste and elegant designs, were exhibited.

Plain Surface Coloured Papers,—This description of paper is coloured by means of brushes similar to those employed by paper-stainers for decorating houses, but requires more care in laying on, smoothing, and finishing, as well as colours of a finer description. It is used by bookhinders, printers, button-makers, confectioners, and numerous other branches of trade, giving employment to hundreds of men, women, and children. The contributors were Messrs. DE La Rue and Co., who displayed a beautiful assortment of coloured papers arranged systematically on the plan of Chevreuil, to show the effects of constructing colours; these papers were placed in two rows, about one foot distant, so that as the observer moved they shifted their apparent position with regard to each other, a number of different effects of contrast being thus

Messrs, J. and R. Newbenky, Hemlock Street, Carey Street (148, p. 546), had well-manufactured gold and coloured papers in great variety.

ENAMELLED PAPERS.-The advance of chemistry as applied to colour-making is exemplified in the beautiful appress to consur-maxing is exemptated in the beautiful white glossy colour with which enamelied appers are prepared. Artificial sulphate of barytes, made from the mative earhonate, was for many years manufestured and sold by Mr. Hume, of Long Acre, at one guinea per llb., under the name of permonent white, and used by water-colour painters, who prized it for its unchangeable qualities. It was subsequently applied by Mr. De La Rue to enamelling paper, when the price was reduced from one so examemag paper, when the price was reduced from one guinen to sizence per pond. It is exclusively used by paper-stainers, both in England and France, for the ground of their fine satin paper-hangings. Enamelled, paper is used for printing in gold, boune, and other metals, and from its deficate and glossy surface it is also used for wrapping superior articles of manufacture. There is another and more expensive description of ensuel colour, with which the highly glazed invitation and visiting cards are manafectured. These cards were introduced in England about twenty years since, by Mr. troduced in England about twenty years since, by Mr. Sturz, on his return from Frankfort, in which city they were first made. Mr. Sturz obtained a patent for improvements in copper-plate printing, and described the material he need as the "best and purest while leaf." This proved fatal to his patent, for having obtained an injunction against Messrs. De La Rue, who manufactured cuamed cards with barytes, Lord Chancellor Lyndhurst held that the specification was too vague, and that the commercial name should have been given, namely, "Kremnitz white lead." The injunction was dissolved, with costs, and the manufacture of enamel eards thrown

open.
The enamelled boards, eards, and paper of M. Bondox, of Paris (6.3, p. 1174), were of excellent quality.
Zolleveria, M. Semanans, or Merceburg. Zoller, Zolleveria, M. Semanans, or Merceburg. Zoller, Zolleveria, Semanans, Cambridge and Joach of great boanty. M. Vitt. and Co., of Stuttard (4 Zoller, 45, p. 1117), had enamelled card-boards of excellent quality: and M. Wersen, in Offenboch, Grand Dechy of Hesse (Zoller, 43, p. 1128), exhibited enamelled

conti-dounts of average quality.

Messers, De La Ree and C., and T. Zenden (p. 247). Messers, De La Ree and C., and T. Zenden (p. 247). Messers, De La Ree and C., and T. Zenden (p. 147). Messers with Newhot this film, under the name of qualitate canast.

Merzaacz Selezonacze Selezon. The paper for this Person of the Company of the Person of the Person of the Person of the Arman of the Vertices and Person of the Arman of the Vertices and Person of the Arman of the Vertices and the Person of the Arman Co., who had a wastey bound in Rossin feather, moreone, stiff or desirable holes were Messers. De La Ree and Co., who had a wastey bound in Rossin feather, moreone, stiff or the person of the Company of the Coll Bailey, bad numerous good repetitions in a vice observed. Messers person of the Coll Bailey, bad numerous good repetitions in a data does not this messers dealers.

to admit loose documents.

Scarae-Boaze, "America Act and the elevation found seemed from the Section of the America Act and the elevation found to the elevation found of the America Act and the America Act

average quality.

Poarvol.tos.—There were twenty manufacturers of fancy leather goods, who contributed portfolios. The numerous specimens in papier-maché covers did not belong to Class XVII.

to the considerate of portfolios has resided a high degree of perfection in Germany, both or regards the ordered appreciace and the residence of the surplane degree of perfection in Germany, but in Germany, in the establishment of Neural Jacob and Commany, in the establishment of Neural Jacob and a standard property of the standard property of the size a standard property of the standard property of size a standard property of the standard property of f London (p. 543), calabilited perfection, registered mades the name of "McKades," in a review of rates satisfact the name of "McKades," in a review of rates satisfact of the contravant cannot be supported by the standard property "Household Weels," and other calabra voices. By recomtant of the contravant cannot be supported by the "Household Weels," and other calabra voices as the "Industry of the standard property of the standard proton of the contravant cannot be supported by the contravant of the contravant of the standard property of the perfect of the standard property of the standard proton of the standard property of the standard proton of the standard property of the standard proton of the standard property of the standard property of the standard property of the standard proton of the standard proton of the standard proton of the standard property of the standard proton of the stand

France.—M. LAUAENT, Rue Chapon (594, p. 1205), and Widow Sculloss and Baovinea, af Paris (1480, p. 1247), thad each seme good specimens.

Zolleverin.—M. C. Germanty, of Berlin (1 Zollv., 248, p. 1061), lind a portfolio in morocen and velvet, stamped in gold, and in relief, afexcellent workmassinjo. M. Kurus

p. (661), Ind. a portfolio in morecea and velvet, stamped in gold, and in relief, afexcellent workmauship. M. Kurns and Son (1 Zollv., 152, p. 1056), M. Mozama (1 Zollv., 401, 2014.) This includes a state of the control of the cont

264, p. 10052, and M. f. Sakaska, of Bremserk, I. Zalir, 800, p. 10543, and M. f. Sakaska, of Bremserk, I. Zalir, 800, p. 10543, and all sample of an everage summary of the production of the p

following makers, in addition to those already named, deserve mentions as showing the advanced progress of this branch of manufacture: MM. Brace Bustriess, Cally, 60, p. 1129; MM. Brass and Co. (6 Zellv., 84, p. 1129; j. 1129; MM. Brass and Co. (6 Zellv., 86, p. 1129; j. MM. ELEYTRISHAM, (6 Zellv., 86, p. 1129; j. and MM. SEELING and BEXERS (6 Zellv., 69, p. 1129; j. and MM. ALRIMS, ETC. manufacture of albums form on im-

SEELING and BECKER (6 Zollv., 69, p. 1129).

ALBUMS.—The manufacture of albums form an important item of fancy stationery, and admits of every variety of ornamental display in the bindings, from the cheapest to the most costly and claborate descriptions M. Hansxiert, at Vienna (376, p. 1029), contributed three specimens, which were in the Queen's bookcase in M. Leinsario Austrian rooms. One in dark-blue velvet, with silver mountings; me in green, with delicately with silver mountings; me in green, with delicately pierced work in ivory; and ose in tortoiseshell, with gilt and silver inlaid embellishments. These very beautiful covers are from designs by Professor Racener, and are of superinr workmanship. The other exhibitors from Vienna wero M. Raus (369, p. 1028), M. H. F. MÜLLER (372, p. 1028), and M. NEUMANN (373, p. 1028), whn all had albums deserving commendation. From Berlin, M. p. 1028), and M. AKDMANN (373, p. 1028), who all had albums descring commendation. From Berlin, M. LAISGOANO (1 Zollv., 149, p. 1055) exhibited an album in velvet, nearly gilt. M. GERHART (1 Zollv., 1243, p. 1061), M. SCHOENING (1 Zollv., 154, p. 1057), and M. KHOMANN and SON (1 Zollv., 154, p. 1056) had speciates deserving mention, M. W. BRIBBER, of Kothea (1 Zollv.). 748, p. 1091), had an album of coloured drawing-papers and a blotting-paper case, beautifully worked in velvet and gold. From Belgium, M. PARLYT (278, p. 1159) displayed Bevort's Album de Pomologie, containing written and illustrated descriptions of the most remark-able fruits. From Switzerland, M. Spottscan, of Schaff hausen (253, p. 1282), an album of wood-ents, the designs by Swiss artists. From France, M. Gonersov, of Paris (1722, p. 1258), exhibited a beautiful alhum of the Society of Literary Men, containing a collection of drawings and untographs, and M. Pillaur had an album with nearly embroidered covers.

In the English Department Mesers, De LA Rue and Co.

In the English Department Messrs. Dr. La. Ruz and Co., 6-430 jishpayed an ansortment of albums in carved wood and in morocco, Russin lenther, and veivet hindings. The tooling and gading were produced by the combination of four hundred tools, engraved in a new style expressly for the purpose from designs by Mr. Owen

Decert-Boots — This bruch of trade was coulled in the Markov of the State of the St

 The English exports of stationery in 1831 amounted to 401,304. This includes numerous small articles of manufactured leather goods. men; in Leeds, 9 men; in Halifax, 2 men; in Bradford, 3 men; in Dublin, 5 men; in Bristol, 3 men; and in Bath, 2 men. The principal English manufacturers in Class XVII, were Messrs. Dr. La Rux and Co. (pp. 541— 543), who contributed every variety of pocket-books, envelope-cases, card-cases, writing-desks in leather, velvet, and oak, a did sketch-books and drawing-blocks, despatch-boxes, wallets, blotting-cases, indelible diaries, and numerous other articles belonging to the trade of pocket-book manufacturers. Mr. Macui (45, p. 791), in Class XXIX., contributed a large and elegant variety of dressing-cases, blotting-cases, and every description of goods inpertaining to this branch. Mr. Shitti, Class X., had a case in the Main Avenue filled with a complete and elegant assortment of leather goods, consisting of desks, envelope-cases, blotting-cases, &c. &c. Mrs. Scherasinges, of the Old Jewry, had some pocket-books, letterclins, &c.

France,-Widow Schloss and BROTHER (No. 1480, p. 1247), whose manufactory in Paris is replete with presses, tools, and other appliances necessary for the production of porte-monanies and similar leather articles, had a splendid assortment of well-manufactured goods in their specialité.

CARTONNAGE-PAPER BOXES.—It is only within a few years that manufacturers in this country have adopted the mode of packing their goods in paper boxes. There is now a very large quantity of boxes manufactured in England, and although generally inferior in point of elegance to those made to France, some sorts are cheaper in England, notwithstanding the very high paper duty of 14d. per lb.
They are made principally in London, Manchester, Birminglam, Nottingham, Leicester, and other manufacturing towns, and, in Belfast, giving employment to a large

number of hands.

In Paris four thousand persons are employed in the manufacture of paper boxes. The trade is divided into six distinct branches. The first comprises the most elaborately-finished and ornamental boxes, for the display of artificial flowers, rich velvets, ribbons, satins, silk trimmings, medals, miniatures, and corbeilles for wedding The second class consists of boxes and small ornaments for confectioners. The third description is ornaments for confectioners. The turn description is used for packing glasses, trinkets, and such goods as are sold at 25 sous (1s. 04d.) Boxes for perfumery, for fans, gloves, &c., constitute the fourth branch. The fifth is chiefly applied to the manufacture of boxes for countinghouses, and large hoxes for shawls and ribbons for exportation. The sixth and last comprises pill-boxes, wafer-boxes, and boxes for small wares. The Cartomerie portation. of Paris is superior to that of any other country, both as regards the nentuess of execution, and the light and regards the neutrons of execution, and the light and elegant style of ornamentation. There is also a descrip-tion of cartonserie manufactured at Bordeaux for fruitboxes. The principal exhibitors from Paris were Madame MAYERS and Mr. DOPTER. From England, Mr. TAYLOR, of Nottingham, had a stall in the Machinery Department, where he exhibited a variety of paper boxes.

BLACK-LEAD PENCILS,-Plumbago (carburet of iron) is the substance known under the name of black-lend, although it contains no lead, the popular name having no nther foundation than the lead colour which it imparts when traced upon paper. Beckmann states that blacklead pencils were in use in 1565. The best plumbago is produced from the Cumberland mines. The pits are situated on the Borrowdale mountains, ten miles from the town of Keswick. The whole produce of these mines is sent up to London, where it is sold at an anction held once a month, at a house in Essex Street, Strand. produce of six weeks anuual working of these mines is said to be from 30,000d, to 40,000d.

Plumbago is found in the neighbourhood of Ronda, in Grenada, and near Malaga, in Spain, but it is hard and difficult to grind. The best substitute for Cumberland plambago is that of Hohemia and Bavaria. It is also found at Rhodez (Aveyron), France. As infe-rior kind of plambago is imported from Ceylon and Mexico. In 1822 the late Mr. Mordan patented the application of plumbugo in the form of very small cylinders, projecting from a cylindrical cone fitted to a pencil-case, which

soon became in general use, and of which there are now many inferior imitations. Mr. Brockendon, of London, has since patented a mode of compressing the dust of plumbago, imparting to it nearly the same firmness and quality as when in its original state from the Cumberland

The manufacture of black-lead pencils has been considerably improved within the last ten years. Partly by the purification of good plumbago, and partly by the admixture of other substances, good black-lead pencils are produced without Cumberland plumbago, at consider-ally reduced prices. The qualities necessary in a good lead peneil differ very much according to the purpose for which it is to be used; a deep black mark, combined with great softness, being required for some uses, and for others the greatest hardness, with the power of pressing lightly. The articles exhibited prove how completely manufacturers have met these requisitions, by the nu-

merous fine specimens in more or less elegant settings,

Among the best English makers who exhibited were Messrs. Banas, Soz, and Co., of Keswick (96, p. 544), who had specimens of pure Cumberland lend and composition used in the manufacture of black-lead pencils, specimens of the various stages of manufacture, from the raw material to the complete pencil, and pencils in various raw material to the complete pencil, and pesculs in various style of finish. Mr. Monran (58, p. 199a) exhibited combined mechanical appliances for the preparation of lead pencils. Mossrs, Wolff and Sox (68, p. 128) had specimens of pure Cumberland lead; specimens of com-pressed Cumberland lead; specimens of Cevion plumbago. as produced from the mine, and some prepared and compressed; specimens of Malaga plumbugo, as produced from the mines, and also some prepared and com-pressed. Messrs. Rowner and Son, of Rathbone Place Princed. Melers, помякт выи сол, от папасок запа-(Class I., No. 64, р. 128), Messrs. Впоокмам вид Langbon. of Great Russell Street (Class I., 64, р. 128), LANGIDON, OF Great Russell Street (Cass I., 64, p. 128), Mr. R. Anara, of Maryport (Class I., 66, p. 128), and Mesers. Referes and Sox (Class I., 66, p. 128), also ex-bibited black-lead peneils. Mr. Brockendon, of Queen Square (Class I., No. 65, p. 128), exhibited plumbago from Camberland, Ceylon, Davis' Straits, Spain, Bohemia,

Greenland, California, and France. France.-The well-known establishment of GILBERT and Co., in Giret (238, p. 1188), deserves mention. Sixty workmen, with an eight-horse steam-power engine,

are employed in this establishment.

Zellerrein.—The pencils exhibited by Messrs. A. W. Fann and Strin, of Nuremberg (2 Zelly., 81, p. 1102), Farix and Strin, of Nuremberg (2 Zollv., 81, p. 1102), were of the best description, and the prices extremely low. They employ upwards of 800 workmen. They export their peochs to Italy, Parix, Vienna, America, Russia, Great Britain, and other places, the demand better provided by the supplied of the places, and provided RIMBAC, and provided the provided provided by the provided RIMBAC, in Regerbourg (2 Zolly, 82, p. 1102), exhibited specimens of their pencils, well-known under the name of Reperabury pencils, fully maintaining their well-founded reputation. M. Birkwarn, of Naremberg 12 Zollv., 79, p. 1102), had some black-lead pencils of fair

Austria,-MM, L. and C. HARDMUTH had some speciens of pencils of excellent quality

The English exhibitors of black-lend pencils were not in Class XVII., and it was not until the Jary had nearly finished their labours that they were requested to exa-

finished their lations that they were requested to various these productions.

SEALING-WAX.—WAX appears to have been used in Europe for easiling since the earliest ages. It has been asserted that sealing-wax was invested by a Prench-man in 1640. Beckmann quotes that Francis Housean, but they have been asserted that the production of t his family, prepared scaling-wax from shell-lac, as he had seen it manufactured in India. By this article Rousseau is said to have gained 50,000 livres in a year. Mr. Jonns, known under the name of Jones, was the first manufacturer of sealing-wax in England. He had an apprentice about 1780, called Chanapante, who much improved sesling-wax, and became known at the beginning of the present century as a celebrated scaling-wax maker.
Messrs. Champante and Whitrow were long knuwn as

wholesale stationers and sealing-wax makers in Jewry Street, Aligate, even within the last 40 years. All fine wax was then called "Dutch wux," and although made in England, it was stamped with a Dutch brand. Some sorts are still called Dutch wax, but this name denotes sorts are statl entants Duten wax, out this same occurring an infrior description. Scaling-wax is composed of the best shell-like and Venice tarpentine; the red is coloured with vermilion, and the black with the best ivery-black. Other colours are obtained by mixing with it different metallic oxides. The wax used for the Great Scal of England is made up according to a recipe kept in the Lord Chancellor's office. It appears to be composed of a compound of oils and balsams, and has a whitish appearance. The wax of the Great Seal and Privy Seal of Scotland has been manufactured by Mr. Waterston, of Edinburgh, for many years. It is made from resin and bees'-wax, coloured with vermition. The Exchequer Seal is green. Seajs made of soft wax, like that now used for the purpose, do not last, nor does this soft wax yield so good and clear an impression as if it were made with the best shell-lac." There was, in a small case in the Portuguese Court at the Great Exhibition, some sealingwax bearing a close resemblance to that from ludia. Scaling-wax was common in Portugal about 1560, and is supposed to have found its way there from India. Neither the French nor the German scaling wax is so strong in shell-lac as the English. Camphor does not appear to have been added in the manufacture of scalingwax until the middle of the last century: there is only a small portion of camphor in the India wax. If camphor be used in the manufacture of wax, although it much improves the burning, it renders it unfit for use in fureign climates. Good impressions can be made with the fluest red wax at a temperature of 140° Fahrenheit, whilst 170° is required for Iudia wax. Charter wax, like that

of the Great Scal of Scotland, can be scaled at 118°. Shell-lac is bleached to a cream colour by chemical nus, and sealing-wax is made with it of a variety of icate shades. In the Great Exhibition the French delicate shades. and Belgian cases contained a variety in the most bea WATERSTON, of Edinburgh, exhibited the Charter wax, red and green, India and bottle-wax, and every variety of shell-lise wax, bleached, unbleached, embossed, and plain. The English manufacturers of scaling-wax have made great improvements within the last 15 years. The English vermilion being bright enables manufacturers of scaling-wax to impart great brilliancy to their wax. Messrs. Hydr, of Fleet Street, had some beautiful specimens in great variety. Mr. HENRY MORRELL, Fleet Street, exhibited various specimens illustrating the manufacture of scaling-wax, rough scaling-wax, sticks of scaling-wax moulded and partly polished, finished, and stamped; sealing-wax in packages and of various qualities. Messrs. Cookx and Sons, of Cannon Street, had specimens of coloured, embossed, and transparent scaling-wax, with various impressions. The East India Company with various impressions. The East Indea Company had some specimens of India wax.

France.—MM. Vincent and Tisserant. Rue Miebel-

le-Comte, Paris (730, p. 1215), exhibited specimens of scaling-wax of good quality. Belgium.—M. Zegelara (280, p. 1160) exhibited

various coloured sealing-wax. Portneyd .- M. MANOEL RODSIGUEZ LATA, of Lisbon (p. 1314), had some scaling-wax of different colours,

orely resembling Iudia wax.

Z. Horrein. - M. T. Manuel, Konn, of Main-Bernheim, Bavaria (49, p. 1100), exhibited specimens of sealing-wax. Most of these exhibitors were not in Class XVII.; the Jury had nearly completed their examination when they were requested to examine sealing-wax exhibited by contributors ont of their Class.

The Jury have awarded a Council Medal to the Impa-RIAL COURT AND GOVERNMENT PRINTING OFFICE OF VIENNA (Austria, 363, pp. 1025-1028), for their new processes in typography, galvano-plastic, and chemitypic printing: for the variety of their Oricutal types, and per-fect execution of the pusches, as well as for the general

excellence of the numerous specimens exhibited in stereotyping, electrotyping, printing, and bookbinding.*

Prize Medals are awarded to the following Exhibitors in the various departments of Class XVII.:-

ANGRAND, 59 Rue Mesluy, Paris (France, 7, pp. 1169-1170), for general excellence in ornamental, coloured, and faney papers.

ATRISSON, WILLIAM, dyer, Lamb's Passage, Finsbury, London (56, p. 541), for his superior finish of bookhinder's cloth. Banners and Co., bookbinders, Fleet Street, London (196, p. 550), for excellence in binding Bibles and Prayerbooks, and for the peatness with which every leaf of a

folio Bible is ornamented with blue edging.

Banks, B., engraver, 62 Rue Mazarin, Paris (France 40, p. 1173), for his superior engravings by Collas'

tracing machine. BESLEY, R., and Co., Fann Street, Aldersgate Street,

London (195, p. 550), for the variety, beauty, and origiuality of their types. BLANCHET BROTHERS and KLEBER, poper manufac-turers, Rives (Isère), (France, 1090, p. 1230), for general excellence in their white and coloured papers.

Boxe and Sox, Fleet Street, London (62, p. 541), for cheapness and excellence in cloth bookbinding. BROCKHAIN, F. A., printer and publisher, Leipzig (Saxouy, 178, p. 1112), for his collection of three hundred and fifty-six volumes, the whole printed at his

own establishment in the year 1850. BRADEUNT and Evans, printers, Whitefriars, Loudon (136, p. 545), for general excellence in various specimens

of printing.

Cattaut-Beliste, Novel De Tinan and Co., paper manufacturers, Angoulème (France, 788, p. 1218), for the good quality of various papers.

Caston and Co., type-founders, Chiswell Street, Finsbury, London (78, p. 543), for the beauty and great ety of well-finished types.

Crimto and Mixa, Turin, Sardinia (Sardinia, 89, p. 1305), for superior workmanship in a folio volume, the "History of Hautcombe Abbey," with woodents and "History of Hasteombe Abbey," with woodents and other borders, also for some printing materials. Classes, J., Frith Street, Soho, London (68, p. 541), for various specimens of bookbinding; the hand-tooling of which is well-executed, with great solidity in the forwarding. Some tree-markling on eall fresther is carried

to great perfection.

CLATE, J., printer, 7 Rue St. Benolt, Paris (France, 798, pp. 1218, 1219), for superior workmanship in wood-

eut and other surface printing.
Cnosa, G., 2 New Coventry Street, Leicester Square, London (88, p. 543), for a new mode of fastening the leaves of scrap-books without guards.

Cussons and Co., dyers, Bunhill Row, Finsbury, Lon-don (69, p. 541), for their bookbinders' cloth; the erimson and ultramarine blue are bright and beautiful, and show a marked advance within a few years in this ortant branch of manufacture. DEWDER, J., Collumpton, Devonshire (143, p. 546), for the excellence of his writing papers, and also for the

permanent dye of his blue papers for the use of starch mann facturers DERRIET, M., type-founder, 8 Bue Notre-Dame-des-Champs (185, p. 1183), for his improved music types and flourishes, and for the perfection of various founts

exhibited

* The following resolution was moved by M. Didot, seconded, and unanimously passed by the Jury, at the sit-ting of the 21st of June 1851.—

"That the following paragraph be inserted in their

"That the Jury regrets that the position of Mr. Dr.
La Rur, as a Juror, has not allowed this Jury to
recommend that the Council Medal be awarded to

recommend that the Council Medal be awarded to him, which in their upinion he so justive deserce, both as an inventor of acknowledged distinction, and for having exhibited a great number of spe-cimens of general stationery and playing earls, among which the Jury has specially noticed the papers of Mr. Richard Turner, of Chaff-ed, Kent."

DECANA, Il. L., printer, Berlin (Prussia, 148, p. 1056), for his Oriental and other types; for the excellence of his printing, as exemphiled in a large folio New Testament, and in the works of Frederick the Great, all of which are well got up, the paper, type, and ink, being

of the best quality.

Drawsan and Sons, Silkeborg, Jutland, Denmark (Deumark, 4, pp. 1355, 1356), for a specimen of creamhid writing-paper, well-glazed, in long lengths.

Desaosists, A., printer, Moulius (Allier), (France,

817, p. 1219), for general excellence, as exemplified in six volumes exhibited; a remarkable specimen of good printing, considering the disadvantages a printer labours under in a country town.

DODREAC, E., the Joint-Stock Paper-miking Company of the Marais and Ste. Matic Paper-bills, Jony, St. Moriu, Seuseet-Marue (France, 822, p. 1229); depte, 3 llue du Pont de Ledi, Paris; for the excellence of printing, writing, and drawing machine-unde papers. Downing, IL, Van Diemen's Land (Van Diemen's Land, 331 and 353, p. 999), for a specimen of Ta-manian printing, as shown in the Tasanasian Calcular and Tasmanian Journal.

DUPUNT, P., 55 liue de Grenelle-St.-Henoré, Paris (France, 181, p. 1182) for superior skill in producing fac-similes of old books, and for general excellence in printing.

Dezogrot, Messrs, Smyrna (Turkey), for excellence in writing-papers.
The East India Company (p. 917), for their valuable

collections of India paper, Enart Hauturners, paper manufacturers, Berlin Prussia, 145, p. 1056), for general excellence in papers, glazing-

boards, carton-pierre for rooting, and paper with watermarks for bank-notes. EGYPT, HIS HIGHNESS THE VICENOT OF (Egypt, 248, 374, pp. 14to, 14t1), for a collection of one hundred and saxty-five volumes of books, printed in the Arabie, Persian, and Turkish languages, at Boulae, near Cairo,

and likewise for a catalogue of all the books published in Evass, J. S., bookbinder, Berwick Street (8, p. 537), for the clean and superior figish of his binding in white

vellum, and the general excellence of the various specimens exhibited. Farea, A. W., pencil-maker, Stein, Bavaria (Pavaria, 81, p. 1102), for the perfection of his black-lead pencila, for sketching, engineering, and architectural purposes.

Fishira, J. H., Hoxton (10, p. 537), for a new and ingenious mode of printing from copper-plate in two colours at one operation, with a peculiar ink, which resists water, but is altered by the usual chemical re-agcuts, and which may be usefully applied to the printing

of bank-notes and cheques. Figories, V. and J., type-founders, West Street, Smith-field, Loudon, (124, p. 545), for the excellense and beauty of their types, and for the care bestowed in the finishing

of their types, and for the care bestowed in the limiting to insure correct justification. Fischus, C. F. A., paper-maker, Baulzen, Saxony (Saxony, 168, p. 1112), for the excellent quality of his plate, lithographic, printing, and writing papers; the engine-siring of the writing-papers is very superior. A specimen of a large machine-made millboard, I inch thick 3 feet while and 6, four hora-decree architecture. thick, 3 feet wide, and 6 feet long, deserves special

GAYMARD and GÉRAULT, 10 Rue Moutmorency, I (France, 518, p. 1203), for their specimen of ledger bind-The large ledger in rough calf contains no less than one thousand ruled leaves, is well bound, opens very freely, and is a specimen of excellent work.

freely, and is a specimen or excession wors.

Gilhers and Co., pecil-inakers, Givet, Ardennes
(France, 238, p. 1183), for the excellence of their pencils,

Gooss, I. L., and Sox, paper meanifacturers, Hay
(Litge), (Belgium, 284, p. 1160), for a harpe variety
of printing, arting, and drawing papers, in all of which great perfection is attained. Habencut, A., bookbinder, Vicuna (Austria, 376, p. 1029), for general excellence in bookbinding and in

porte-monnaies, and leather goods of a similar descrip-

HARDTMUTH, L. and C. pencil-makers, Vientia (Austria, 381, p. 1029), for the good quality of their pencils.

Hasseq, P. J., Mechlin (Belginm, 285, p. 1160), for his large collection of printed books, combining cheapness with good workmanship. His liturgies in red and black deserve notice,

Haase, G., and Sone, printers and type-founders, Pringue (Austria, 367, p. 1028), for the general excellence

of their types and printing. HAYDAY, JAMES, bookbinder, Little Queen Street, London (106, p. 544), for his superior workmanship, exemplified in the books exhibited by Messrs, CUNDALL

HEBBICK, J. K., stationer, New York (United States, HERBICK, J. A., SIRBORF, INCW TOTA (Unified Galler), 502, p. 1466), for his superior ruling of account-books. Hosto, B. C. and L., Zanadyk, Netherlands (Nether-lands, 59, 60), for specimens of superior parchiment, and

Howe, S. G., Boston, United States (United State 439, p. 1463), for superior characters for the blind, of an angular form, without capitals; this system is more simple than any hitherto attempted, and easier to dis-

tinguish by the touch. Hosen and Sons, paper manufacturers, Daren (Prassin, 392, p. 1072), for the ebeapness and perfection of their white and coloured writing and tissne papers, among which the black and rose-colour are of peculiar brightness, HTDE and Co., scaling-wax manufacturers, Fleet Street,

London (21, p. 557), for the general excellence of their wax, some of which is said not to soften under a temperature of 120' Fahrenheit, and is therefore adapted for hot countries, as at this temperature it still retains the seal impression. JOHNSON, WILLIAM, paper-maker, St. Mary Cray, Kent

(42a, p. 540), for the superior quality and finish of his writing papers. longitate and Venaton, Darmstadt, Grand Duchy of

Hesse (Hesse, 6, p. 1126), for letter-press relief coloured maps. The different minerals of each district are shown by appropriate colouring. (Medal awarded in Class I.)

Lawn, J., paper-maker, Newcastle-under-Lyne, Staffordshire (147, p. 546), for excellence in the manufacture

of pottery tissues.

Laboulave, C., and Co., type-founders, 50 Rue
Madame, Paris (France, 895, p. 1223), for great skill
exhibited in the finish of their printing types.

LEGRANN, MARCZLIN, type-founder, 99 Rue du Cherche-Midi, Paris (France, 584, p. 1206), for the general excellence of his types; for his specimen of cast-ing, wherein one hundred and forty letters are cast at once; for his collection of Chinese types; and for the beauty of various specimens exhibited. LACROIX BROTHERS, paper-makers, Angouleme, and

Rue Mazarin, Paris (France, 1636, p. 1255), for the great

Bue Mazaria, Paris (France, 1636, p. 1235), but no great perfection of their witing papers.

Lazaurros, J. and J., bookbinders, Brewer Street, London (24, p. 538), for specimens of good binding in various stages; for the perfection with which they make fact-similes of missing pages to valuable works; and the care and finish which are conspicuous in all they have exhibited.

Lawis, Mrs., Duke Street, St. James's (163, p. 547), for excellence in bookbinding. LORTIC, P. M., bookbinder, 199 Rue St. Honore, Paria

(France, 1652, p. 1256), for the taste and execution displayed in the finish of several works, among which a folio volume, "Ballus de Janus," in an illuminated style, deserves particular mention. The firances of the forwarding throughout the whole series of books exhibited by Mr. Lortic merits high praise.

MAURAN and VINCENT JOURNET, managers of the Joint Matham and Vincary Journal, managers of the Joint Stock Paper-Julking Company of the Souche, Voscer, and 5 Rue du Pont de Lodi, Paris (France, 377, p. 1195 and 619, p. 1207), for the general excellence of their printing papers, and more particularly for the parity of their filtering-paper for chemical purposes, hitherto a great desidera

great desideratum,

Manz and Co., Tours (France, 321, p. 1192), for the
extreme cheapuess and great variety of books printed,

bound, and published by them. Amongst others, "Le Paroissien Romain," 18mo, 636 pages, in Latin and French, neatly printed, with a vignetic border to every page, in boards, is published at "one shilling."

Mayes, Madame T. (France, 624, p. 1207), manufacturer of fancy ornaments for confectioners, 22 liue de

Incturer of Biney orininents for consecutorers, 22 fine or In Vieille Monnie, Paris, for general, excellence.

MILIANI, P., Rome (Romo, 12, p. 1285), for the high quality of his hand-made plate and writing papers.

MÖSETI and Co., Offenbach, Grand Ducby of Hesse (Grand Ducby of Hesse, 66, p. 1129), for general excellence in porte-monnaies, pocket-books, and dressing-

MONTOGLITER, paper manufacturers, Paris (France, 324, p. 1192), for the general excellence of their paper, and for their imitation of parebment, adapted, among a

and for their initiation of parebment, subspect, among a variety of other nordin parposes, no paid-besting, instead variety of the nordin parposes, no paid-besting, instead NATROAL PRINTED OFFICE (Finner, 544, p. 1204). The beautiful execution of their speciment Living on Edicin the Great volume of "L'Illistoire des Monopoles," and the first volume of "Billistoire des Monopoles every page in gold and colours. The ultramarine blue, printed as an ink, direct from the type, is pure and bright. Nrfinnis, J. E., Passage Dauphins, Paris (France, 665, p. 1211), for his beautiful specimens of bookbinding, over, y, ****, nor an ornautian specialeum of Bookhinding, in which taste, elegant finish, and solidity are combined.

ODENT, SONS, and Co., Contralin, Seine-et-Marno, OFFINE, 938, p. 1225), for general excellence in a variety of papers, and also for their paper called animal

PALSGRAVE, J. T., Montreal, Canada (Canada, 189, . 968), for a large and well-formed collection of printing

types, cast at Montreal.

PLOS BROTHERS, printers, 36 Rue da Vangirard, Paris
(France, 1395, p. 1243), for superior execution in different
descriptions of woodcut and other printing.

descriptions of woodcut and other printing.

RAUCH BROTHERS, paper-makers, Heilbronn, Wurtemburg (Wurtemburg, 44, p. 1117), for the excellence, good colone, and strong sixing of their writing-papers, and for their two-sided veneered opaque papers, and for their two-sided veneered opaque papers.

RENNANT, EDMONDO, and RENNANT, Paternoster Row, London (5, p. 537), for general excellence in design and workmanship, and novol opplication of materials in

bookbinding. RIVIESE, R., bookbinder, Great Queen Street, London (89, p. 543), for superior workmanship and finish in book-

RUBELAND DUCAL FOUNDOY INSPECTION at Prussia (780, pp. 1093, 1094), for specimens of stereotype plates in iron, and for the Bible printed therefrom.

SAUNDERS, T. H., of Dartford, Kent (36, p. 539), for a novel style of ornamental water-mark on paper, the water-mark giving gradations of shades. It was sug-gested by Mr. Oldham, of the Bank of England, at whose request Mr. Saunders applied it in the manufacture of

Paper.
SCHARUFFELEN, G., paper-maker. Heilbrenn, Wurter SCHAROTTELS, G., paper-maker, instancess, a usecan-burg (Wartemburg, 41, p. 1117), for the cheapness and good quality of his plate, printing, writing, and tissue papers. The water-mark is said to be put on dry, hy a

peculiar process, after the paper is made Sculoss, Widow and BROTHER, 15 Rne Chopon, Paris (France, 1480, p. 1247), for superiority in a large col-lection of porte-folios, porte-monnaies, porte-cigars, and other leather articles.

SCHREIBER, J. C. G., paper manufacturer, Merseburgh (Prussia, 753, p. 1194), for bis enamelled cardboards and paper, and for the general excellence of the various articles exhibited,

SINCLAIN, DUNCAN, and SON, Edinburgh (92, p. 543), for the general excellence of their specimen of printing

SILBERNANN, G., Strasbourg (France, 374, pp. 1194, 1195), for his specimens of surface printing in colours, ond general excellence in the various productions exhibited by him. (Medal awarded in Class XXX.)

SHITH and MEYKIER, Flume, Austria (Austria, 360, p. 1024), for their specimens of well-made writing-Schner Brothers, Paris (France, 380, p. 1195), for

their superior bookhinders' varnish. SPICER BROTHERS, wholesale stationers, New Bridge Street, London (42, p. 540), for their collection of papers, showing the present state of the paper manufacture of

England. STEPHENSON, BLAKE, and Co., type-founders, Sheffield

(182, p. 549), for general excellence Tmoxas and Sons, Cornhill, London (44, p. 540), for

account-books, combioing great solidity and excellence in paper, raling, and bioding. Vanoorxis and Bhottiras, paper-makers, St. Peter-hargb (Russis, 260, 302, p. 1375), for the excellence of

VEXALES, CHARLES, Clifilen and Soho Mills (with 149, p. 546, Class XVII), for the superior quality of plate, lithographic, and other printing papers.
VENABLES, WILSON, and TYLEE, Queenhithe, London

(149, p. 546), for the assistance they bave afforded the Jury by their ample collection of specimens of paper from the principal manufacturers of the United Kingdom, and for the chespoess of the printing papers of their own manufacture.

VENABLES, GEORDE, paper-maker, Cookham Mills, near Maideuhead (with 149, p. 546, Class XVII.), for the good quality and strength of his wrapping-papers, more particularly that which is used for paper bags.

VILWEG and Sox, printers, paper-makers, and type-founders, Brunswick (Prussia, 822, p. 1095), for the grent variety of useful publications, Watherford, Grober, scaling-wax manufacturer, Falia-

burgh (93, p. 543), for the great excellence and brightness of his scaling-wax WESTLEYS and Co., bookbinders, Friar Street, London (111, p. 544), for superior workmanship in the finishing

of a folio Hible, in green morocco, illuminated edges, WESTLEE, J., bookbinder, Playbouse Yard, London (48, p. 540), for general excellence in bookbinding. WILLIAMS, J., necount-book maonfacturer, Bucklersbury (53, p. 541), for the solidity and superior manufacture of a large ledger with iron back.

WERGET, J., bookhiuder, Noel Street, Soho, London (139, p. 545), for beauty of execution in veilum and ascroeco, in bliod-tooling and gold, and for superiority

in forwarding. The Jary desire to make Hosonrable Mention of the following Exhibitors:-

Bankas Brothers, paper-makers, Clessham (96, p. 544) for an improvement in the water-mark in paper.

Bankas, Sox, and Co., pencil-makers, Keswick, Cumberland (Class L. 69, p. 129), for black-lead pencils,

Bankars, J., Bexley Heath, Kest (189, p. 550), for specimens of type-metal casts from wooden mastrices,

applicable to calico and other printing. BARRAT, M., Chiloss-sur-Marne (France, 1067, p. 1229), for letter-press and lithographic printing.

Batter, D., Clapham Common (59, p. 341), for various pecimens of bookbunding. Battaota, G., Venice (Anstrin, 366, p. 1028), for some specimens of (ypography, with simple and convenient

binding. BEMAND, R., parchment-maker, Courtrai, Belgiom (Belgium, 478, p. 1166) for various specimens of white

and coloured parebment.

BERTHAULT, M., purchment manufacturer, Issoudon
(Iudre), (Franca, 56, p. 1174), for specimens of various
descriptions of veilem and parchment. (Prize bledal

owarded to Class XVI.) BERGE BROTHERS, Offenbach, Grand Duchy of Hesse (Hesse, 60, p. 1129), for cigar cases, leather purses, and other articles of a similar description Benous, C. H., Vienna (Austria, 380, p. 1029), for the

great variety of wafers in paper and gelatiac.

Boxnon, L., 5 Rue Grange-nux-Helles, Impasse St. Opportune, Poris (France, 63, p. 1174), for specimens of cuamelled paper.

BRADLEY, H., and Co., bookbinders, Boston, United States (United States, 473, p. 1465), for cloth binding and block gilding. Batano, J. H., Ixelles, Belgium (Belgium, 277, p. 1159).

for printed Bibles and Testameuts. CALLAGRAN, Mr., Attorney-General, New South Wales (4, p. 989), for a volume printed from types out and east in Sydney, and printed by John Rowe.
Cunpall and Apper, booksellers, 21 Old Bond Street

(106, p. 545), for a specimen book cover in pierced

DE SERLAY, C. G., paper-maker, Gueurs, Seine-Inferieure (France, 1484, p. 1247), for a variety of tinted papers,
Dirrotts, L., Boulevard Beaumarchais, Paris (France, 483, p. 1201), for his specimens of gold, silver, and other

funey papers Dorren, J. V. M., 58 Rue de la Harpe, Paris (France, 1194, p. 1234), for his specimens of lace and other fancy

Executere and Sons, Haarlem, Netherlands (Netherlands, 79 and 109, p. 1146), for printing-types and stereotype plates. ARINA, A., Turin, Sardinia (Sardinia, 47, p. 1304), for

mall punches and types.

Figure 1, J. B., paper-maker, Algiers (Algiers, 24, 1261), for eigarette and other papers manufactured

p. 1261), for eigenvetic ann some proper from the leaves of the dwarf palm-tree. FREUND, E. A., Offenbach, Grand Ducky of Hesse (Hesse, 38, for a variety of enamelled card-boards and

GASSETT, H., Boston, United States (United States,

420, p. 1462), for vellum bindings and railing.
Gauttins, jun., 14 Rue de la Parcheminerie, Paris
(France, 234, p. 1187), for brass letters for the use of GILLOT, M., 8 and 10 Rue du Chevalier du Guet.

Paris (France, 522, p. 1204), for a new method of etching plates for surface printing.

GLENISSON and VANGENECHTEN, Turnhout, Belgium (Belgium, 286, p. 1160), for chespness in cardboards, and marbled and surface-coloured papers.

Gnar, H., bookbinder, Altenburg (Prussia, 746, p. 1091), for block gilding on the covers of a large folio aitar

GRANGOTR, J. M. (France, 1256, p. 1237), for locks for pocket-books. Gauxa, Madame, 10 Rue de la Concorde, Paris (Franc 857, p. 1221), for bookbinding with carved ivory and

wood, and inlaid morocco, &c. GUESNU, M., 70 Rue du Temple, Paris (France, 250, p. 1188) for numerous specimens of ornamented pay

stationery. and statonery.

Hass and Co., Offenbach, Grand Duchy of Hesse (Hesse, 62, p. 1129), for pocket-books, porto-mounaies, and other leather goods.

HARKER, L., Musich, Bavaria (Bavaria, 47, p. 1100),

for hornished gold and other ornamental papers.

HANNEL, E., Berlin(Prussis, 284, p. 1065), for various

matrices, types, and printing.
HEYE, J. F., and Co., Berlin (Prussia, 44, p. 1050), for

HIDER, ELIZABETH, 15 Manor Pince, King's Road, Chelsea (17, p. 537), for fancy floral ornaments, as applied to valentin HIRSCHPELD, J. B., Leipsie, Saxony (Saxony, 180,

p. 1113), for coloured surface printing.

HILOT, A., Hotel des Mounaies, Paris (France, 882, p. 1222), for impressions from refievo engraved plates.

JANAS, A., Brussels (Belgrinn, 444, p. 1163), for his specimens of illustrated books and for woodcuts.

Kino, T. and J. H., Bartlett's Buildings, Holborn Hill, London (22, pp. 537, 538), for their new type music. Kutour and Hawkes, 13 Clerkenwell Green, London (107, p. 544), for stereotyping. Kocn, C. A., Gladbach (Prussia, 329), for writing and

plate papers KUHN, C. and Sons, Berlin (Prussin, 152, p. 1056), for

a collection of portfolios, pocket-books, albums, and porte-monnaies; and also for ruling for account-books.

LEBRUN, L. J., 126 Rue de Grenelle St. Germain, Paris, France, 506, p. 1223), for lookbinding, Lansmano, W., bookbinder, Berlin (Prussis, 149, p. 1056; for a specimen of block-gilding on velvet.

LEIGHTON and Son, Harp Alley, Shoe Lane (158, p. 547), for bookbinding.

LEPHARN, J., Berlin (Prosia, 147, p. 1056), for an ingenious mode of producing several impressions

from a mass of colour in which the various gradations of tint are an inch or more in thickness, and which, on being moistened with oil and subjected to pressure, yields Successive copies of the subject represented.

Maconie, A., and Co., bookbuders, 6 Percy Street,

Bedford Square (26), for their specimens of binding.
M'Adams, J. and W., Boston (United States, 482, p. 1465), for ruling account-books, and for some circular

MANCHEN and MOREL, 8 Wilson Street, Gray's Inn Road (128. p. 545), for novelty in the application of bitumen to the purpose of stereotype. Martin, J., London (29, p. 539), for a new mode of

siring paper, by which it is stated to be rendered water-Manson, A., stationer, 14 Cité Bergère, Paris (France,

609, p. 1207), for a general assortment of fancy, ornamental, and plain paper and stationery. Milliar and Picnor, Poitiers (France, 629, p. 1208), or their postage and other stamps. They exhibit a paper

MILLLY and FIGNOT, FOREST (France, 629, p. 1206), for their postage and other stamps. They exhibit a paper which they state precludes the possibility of forgery. Mxrm, F., 2 Rue de 'IAbbaye, Paris (France, 657, p. 1206), for his specimens of printed designs in fifty colours, from surface-blocks, in mintation of Berlin paterials.

MILLER and RICHARD, letter-founders, Edinburgh (150, p. 546), for a specimen of ruby type, in which "Gray's Elegy" is printed, thirty-two verses in two columus, occupying only three and three-quarter inches in

Mosrill. H., Fleet Street (Class IV., 58, p. 199*), for wax and wafers.

NERATORAY, J. A., 16 Rue des Fossés Montmartre, Paris (France, 661, p. 1809), for ledger binding. Ount, Bernand, and Co., Prouzel, near Amiena (France, 334, p. 1193), for black and other papers. PIETE, L., paper-maker, Dillingen (Prussin, 394, p. 1072), for various papers. Procuss and Co., 27 Oxendon Street, London (33,

p. 539), for specimens of stamping in relief on envelopes and writing-paper. Velars-sur-Ouche, Côte d'Or, (France,

Pagera, —, Velars-sur-Ouche, Côte d'Or, (France, 1893, p. 1843), for pasteboards. Rezracas, J. J., Regensburg, Bavaria (Bavaria, 82, p. 1102), for black-lead pencils.

P. 1002), nor osses-used pencis, RESCHOOLD, G., Stattgard, Wurtemburg (Wartem-burg, 39, p. 1117), for fancy leather goods, porte-monancies, &c. REGERS, 11. J., Rotterdam (Netherlands, 112, p. 1149), for bookbinding.

REVILLADOS, letter-founder, St. Petersburgh (Russia, 361, p. 1383), for a specimen of printing, and also for his Greek, Oriental, and other types. Homersca, C., Stuttgard, Wartemburg (Wurtemburg,

73, p. 1109), for a substitute for writing slates.

Rouston and Bnown, Old Broad Street, London (34, p. 539), for ledgers and other account-books. Schull, L., paper-unker, Duren (Prussis, 393, p. 1456), for white and tinted papers. Signil, and Morr. New York (United States, 339,

p. 1212), for their specimens of account-books. SINIEM, J., 38 Roo da l'Arbre Sec (France, 693, p. 1212), for bookbinding.

STARKE and Co., Montreal, Canada (Canada, 191, p. 968), for specimens of ornamental printing. STARR, C., New York (United States, 88, p. 1438),

for binding works for the blind, with thickened margins to prevent the embousing from being pressed out. The specimens exhibited are said to have been bound by the machines, 88, United States Department,

TURNBULL, J. L. and J., Holywell Mount, Shoreditch, London (45, p. 540) for drawing-boards.

VANDERDORPEL and SON, 3 Rue Chapon, Paris (France, VANDERDORPEL and SON, 3 face C. hapon, parts (*Praioc, 712, p. 1213), for various articles of fancy stationery. Vincexy and Tissmaxy, 21 face Michel le Comte, Paris (France, 730, p. 1215), for scaling-wax, fancy wafers, and writing-inks.

WALKER, E., and Co., New York (United States, 123, p. 1441), for a Bible elaborately bound and ornal control of the control of

mented, with a recess for a family register inside the

WATERLOW and Sons, 66 London Wall (46, p. 540), for Weber, J. B., Offenbach, Grand Duchy of Hesse (Grand Ducby of Hesse, 43, p. 1128), for specimens of marbled papers. Wordshardow, J., Portugal Street, Lincoln's Iun Wordshardow, J., Portugal Street, Lincoln's Iun Fields, Loudon (139, p. 547), for improvements in ledger was executed at his own bome, after his daily occupation, binding, by the introduction of patent vellum cloth by gas-light, in the winter; and notwithstanding these bands.

WOLFF, E., and Son, pencil manufacturers, 23 Church Street, Spitalfields, London (Class I., 68, p. 128), for crayons and pencils.

MONEY AWARDS.

The Jury have awarded the sum of 101, each to the undermentioned workmen, as the most appropriate recognition of their skill and taste,

Budgers, E., bookbinder, Cambridge, exhibitor, (97, p. 544). The workman who bound an album, claborately ornamented, in which taste and good work were displayed. Next, R., journeyman bookbinder, North Bank Street, Edinburgh (91, p. 513), for the care, industry, and per-severance displayed in binding an imperial 4to Hible in difficulties, a degree of excellence was attained,

> A. FIRMIN DIDOT, JOINT REPORTER. C. WHITTINGHAM, REPORTER.

T. DE LA RUE, JOINT REPORTER.

London, March 1859.

CLASS XVIII.

REPORT ON WOVEN, SPUN, FELTED AND LAID FABRICS, WHEN SHOWN AS SPECIMENS OF PRINTING OR DYEING.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers, and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.

Jury.

HENRY TECEPS, Chairmon, 30 Greeham Street; Slik Manufacturer

HAMA I TECTU, Commons, 30 Graham Street; Silk Manufacturer,
J. PLEND, Physic Chairman, Ernice; Probosor of Chemistry, at Print; Rember of Central Jury,
Enterts Diversa, Roperter, Maschester; Calico Printer,
Enterts Diversa, Roperter, Maschester; Calico Printer,
E. E. Chussan, Fance; Jember of the Inultite; Probosor and Director to the Museum of Natural History,
Jona Linontavia, Accringing, Lancaldin; Calico Printer,
ALAZANERI LINEAT, Glaspor, Lipper.

HENDY PARUD, Switzerland; Merchant C. SWAISLAND, Crayford, Kent; Printer

Dr. W. Schwanz, Austrin; Board of Trade, Vlenna. * CHARLES BOVET, Proxy for Mr. Pahad.

> Associate Jurors. - Manyas, Lyons, France. SAMUEL SMITH, Bradford.

THE Jury of Class XVIII., in accordance with their instructions, report as follows on the various specimens of printed goods placed in the Eshibition, the whole of of printed goods placed in the Eshilution, the whole of which they have carefully and minutely examined. The productions of the English and Scotch printers came first nader their observation. Ireland has now only one or two small print-works: she had some rather extensive ones within the last twenty years, but during that time they have been gradually closed. He fore remarking on the present productions of the English and Scotch printers, the present productions of the Eaglish and Scotch printers, the Jury can hardly help referring to the changes in the trade within the last-named period, dating from the repeal, in the spring of 1831, of the very heavy duty on printed cottons. The entire production of the trade in England and Scotland (Ireland paid no duty for home-consumption) was then, as shown by Parliamentary returns, rather more than eight million pieces per annum The reduction of a duty amounting on the average to fifty per cent, gave an immediate impulse to the trade, and within ten years from that date it uppears that the production of Great Britain was doubled. Since that period no materials easist which afford sufficient data for an accurate account of its progress; but it is calculated that the trade, which in 1830 produced eight million produces a see thate, where is 10.00 produces eight million pieces per annum, now probably produces not less than twenty millions yearly. Great changes in style and taste would necessarily be consequent upon such an increase in quantity. Very great improvements have been effected quantity. Very great improvements have even entering in the material priated apost. The regularity and even-ness of fabric, in calicos made by the power-loom, of all qualities down to the very cheapest, give the English printer a fabric for the use of the middle classes, which pisces him decidedly above the competition of the whole world in this most essential branch of his trade.

world in this most essential trainen of its trade.

The language given to the trade, followed perhaps by cacess of supply and strong competition, caused a great reduction in price. To meet this, mediane-work was growerally substituted for block-prinning. The engraver was stimulated (here, too, machinery tent its add), chemiwas stimulated (here, too, machinery lent its aid), chemical discovery (English and foreign) was not wanting, and the result was a large and cheap supply, chiefy of fluc class plate-work, bentifully and exactly executed; or in ose, two, three, or four colours, in permanent madder-work, is well as in a larger number of colours,

printed at once in more showy and facitive steam-These changes led to the encouragement of a less showy taste than that for chints block productions, and to a preference for goods of a more elegant and quiet character, Some of the staple productions, such as the navy-blue

print, largely consumed for domestic wear throughout the country, almost entirely disappeared, being super-seded by the very general use of the purple madder It should be observed that at this date the English printer borrowed extensively from the style of his French competitors. The printers of the then called Swiss prints competitors. The priaters of the then called Swiss priats (really French goods, produced in Alsace) were unri-valled in their pink and purple machine work. These articles, even for years afterwards, were invitated successfully by a few only of the first-class English printers; whereas sow the progress of the trade is seientific knowledge, so patent to all, has enabled almost every printer in England and Scotland to produce them more or less

These goods, which were exported by the French, and met with in almost every capital city of the world, are now supplied in much larger quantities by the English printer, and to them has been added the supply of a new and increased variety of low-priced prints of a similar class. It is an interesting and carions fact, that the taste in almost every market has changed and improved with the reduction of price.

The English printer has also drawn largely upon his Prench rival during the same period, for another trade which he has likewise, by the aid of the manufacturer and his muchinery, done much to make his own. France has long been famous for her beautiful fabries in fine wod, it wool and silk challes, and in destince. These exposite and costly gools, made of the finest wool, and requiring great care in execution, have been produced and elegance of the materials. With them, France supplied and led the taste of all the civilized markets of the control of the wool, in wool and sitk challes, and in delaines. These

fabric, and a beautiful substitute, at a low price, replaces the more costly all-wool material of our neighbours; thus obtaining the desired cheapness and beanty. Block-printing on this material (the English wool and cottonde-laine) was for some time the only mode adopted; but machinery has since been adapted to it; and the English printer now offers it at a low price, in every market, and creates a demand which the high-priced one would never have known. The cheaper article has brought with it no corresponding declension in taste: quite the contrary, the greater demand, and the increased power of execution obtained by machinery, have led to various novelties in

The English printers have naturally exhibited such articles as they thought would look best in an Exhibition, and be best appreciated by the public. This in a great degree accounts for the absence of the large variety of those cheaper printed goods which form, after all, the great hulk of the English print trade—the staple one, by which she commands almost exclusively all neutral markets, and maintains her position for superiority and cheapness of produce.

Some opinion will be expected from the Jury as to the causes of superiority in the face classes of French goods.
England received the art of calico-printing from France England received the art of calico-printing trons France at the end of the seventeenth century, derived previously by the latter from Central Germany, which had been for some time the seat of the art, originally obtained from Egypt and the East. The trade was first introduced into the neighbourhood of Londen; but after a period of about sixty or seventy years it gradually decreased there, and yielded to the competition from the then newly-established works in Lanenshire, which were nided by cheaper fuel and inhour. These assumed an importance as they extended themselves, in printing on the newly-discovered fabric of cotton calico, just becoming the staple mannfacture of that county. A few print-works yet remain in the neighbourhood of London, employed yet creasure in the nergenourroom or London, employed, chiefly on very fine shawl and silk-handkerchief printing. The English printer, encouraged by his abundance of fuel, cheap labour, and facility for obtaining the largest tues, enemp ascent, and mentally fostered a trade suited to supply of calloo, has attirnally fostered a trade suited to his machinery and capital, which is a complete contrast to the very different class best suiting the French printer to produce. The more limited and costly besseh of the trade has naturally found its chief market in France. and fashion has only a remote influence on inferior classe France is well supplied with cheap and skilful hauds, well practised in the manipulation of fine and deliente fabries upon which machinery caunot so well be brought to bear-in some measure, perhaps, because the orough to oeur—in some measure, persags, occusie toe demand does not repay a large outlay. Singularly enough, that country having the superiority in production in fine goods, possesses also an advantage over the British printer goods, possesses also an advantage over the British printer in demand, having our market free for her goods, whilst the English is probibited from hers, and is denied the advantage of manufacturing for French taste and con-

The French, in proportion to their productions, supply much more largely for the highest class—a class, be it remembered, influenced by fashion, eager for novelty, and tempted by variety. The English supply, in proportion to their production, much more largely for the wear of the middle and lower classes all over the world, many of whom have conventional and national peculiarities of garb not easily affected by novelty. Hence arises the very natural distinction between the tastes of the two nations. It will be admitted, perhaps, that in every article owning the influence of taste, much greater ndvance has been made of late in the productions suited for Value has been made of late in the productions swited for the use of middle class-cossumption, and mpon which the beantiful accuracy of mechanical skill has been bought to bear, than in the higher class of goods, in which manual labour is still thirty used. The blocked massim and the still the still the still the still the still the still contain the still the still the still the still the still the still exist of the still exist of the still eution, than the specimens of a hundred years ago.

Without referring to the samples shown by any parti-cular British Exhibitor, the Jury consider that there are

to be found amongst them very fine specimens of work and taste in burges, in woollen fabrics of different kinds, and in muslin goods,-very good first-class work blocked de-laine goods (the woollen and cotton fabric), equalling, perhaps, in brilliancy of colour, any specimens (either of British and foreign goods) printed on wool alone, showing a triumph of art justly due to the English printer, viz., the giving an equally sound colour un a mixed fabrie, composed of vegetable and animal substances. Choice specimens of machine-work on de-laine, in four, five, and six colours, are shown in some of the collections,-various assortments of the staple calico print trade, in madder-work, permanent and bright in colour, together with specimens of garancine dyed goods, in variety of machine work, all displaying considerable advance in taste, neatness of pattern, and execution; being fine specimens both of engraving and printing, and well representing the regular and standard productions of the houses exhibiting them. In the lower class of cheap machine-work, though an equally valuable branch of manufacture, as supplying a most extensive trade both for home and export, the Jury regret (owing to reasons they have before assigned) that no specimens are exhibited.

Some few good samples of English furniture-prints are shown. Perhaps it may be affirmed that this is a de-creasing trade (except in very low goods for export, of which there are no specimens); and that woven damasks of considerable beauty, and comparatively cheap in price have in some degree superseded the use of calico printed

A fact indicating the change in the English print-trade, before alluded to, may here be noted as further corroborating its progress in chemical science and machinery within the last twenty years. It will be admitted by the older members of the trade, that had there been an Exhiolder members or me trace, that mu there occus as assu-bition in 1831 of English prints, it would have consisted ebicity of fine first-class blocked madder-work, and been confined to the productions of a few printers, who at that time stood far in advance of their brethren, In 1851 the Exhibition shows scarcely a specimen of block-work on ealico, but a great variety of ingenious machine-work by

a number of first-class printers.

Special reference is mude to the variety of specimens of Turkey-red printed and dyed fubries, in the English, French, and almost all the coatinental assortments. ginally, as the name implies, it was a Turkish red, pro-duced at Adrianople. Its brilliant and permanent colon? secures for it a stendy consumption in many markets, and a high average of excellence is shown in its production

Another branch of the print trade, which has its chief seat in the neighbourhood of London, though also parrared in Lancashire, Cheshire, and Scotland, is that of printed silk handkerchiefs. This, too, is originally of castern origin, and is still an article of considerable import, both in the Corah cloth (the grey for printing quon), and in the finished printed Choppah and dyed Bandanna. Great changes have taken place in the relative imports: that of the printed handkerchief having gradually decreased in the last sixteen years to about one-fifth, whilst the import of the Corab has nearly trebled, an equal quality of the same description of cloth, and also an inferior one, being largely made in England—showing in this strict, also, a ogressively-increasing print manufacture.

This trade has been carried on for some years in Germany; but that country consumes chiefly English goods. France, too, within the last few years, has striven to France, too, witchin time has new years, mas striven to establish a trade in printing these poods, and has mude some progress in the inferior descriptions: previously she was indebted to this country (from which she still continues to import) for them. Selections are shown in the British department, excellent alike in fibric and execution, and embracing every variety of style in a trade demanding a regular supply, from the old imitation oriental colouring and patterns, to the fancy picture hundkerchief, delineating in the present instance, as its latest novelty, variously-tinted representations of the Crystal Polace.

The remarks of the Jury on the English print-trade naturally include so many references to the state of the French, as to limit very materially the separate notice which, from its importance, the latter demands.

The Jury have alluded to the high excellence shown in the finer goods of France. The absence of all middle, and lower class Franch prints in the Fathbitton, in finer of any spenmens of the productions of the city of Bouen, its remarkable, as confirming the views already expressed. The French printer has not the advantage of cleap and well-made calico; he is debarred by out from the advantages of extended foreign markets.

The Jury refer with pleasure to the contributions made by the French printers to the Exhibition, and commend the superior taste with which they are arranged—a taste doubless improved by the experience they have acquired at the periodical French Exhibitions.

The character of the French goods, of course, differs

from that of the English, as, being more confined to the expanive class, the tasts is necessarily of a higher order, and therefore present the transfer of the properties of the prime of mirror, the start per operating to the very fine prime of mirror, expanive allow proceeding to the very fine prime of mirror, expanive allow in taste and exerction; to some very bountful dresses of difficult and charge of the prime of the start per operation of the start of the start per operation of the start per operaducer from similar English prints of the same class, because produced on there and more costly eith. Here, to be a start per operation of the start per operation of the lower class, the start per operation of the start per operation of the lower class goods, withink to the wear of the artism and possant, it to be regented.

peasant, as to be regretted.

The Jury notice beautiful specimens of yorn-printed allo, printed on the warp thread before wavang—as article among the lines will ground relicate to linear printed and the special printed of the printed of the printed and t

Some statistical remarks on the progress of the French print-trade would have been introduced here, but the Jary regret that they have not been able to obtain any official information on the subject. Holding the first rank in taste, and second in amount of production, of the European nations, the progress and state of the French trade must from an inter-sting subject of inquiry.

trade and form an inter-traing adapted of adapting trade and form an inter-traing adapted of a dapting contain-linear form Switzerland, preceding to excellent specimens of multin and culico work, block and machine, some of them anongrassed in accession by any in the Exhibition. Tray are specially worthy of notice as the manufactures protection above. Till within the last twelve mouths, Switzerland had no duties on imported prints; lasterly, however, she has imposed a multi facile and salont 13 per interest, the process of the salont process of

various neighbouring markets in Central Europe.

The printed goods from Russis, Prussis, Austria, the
Zollverein, Hamburg, Sardinia, Portugal, Turkey, and
the United States of America, exhibit fewer varieties of
production, of nunequal merit, and each prepared chiefly

for their respective markets.

The Egyptian contribution of printed goods is enrious, as presenting nearly the rudest modern manufactures, the products of English machinery, and purily of English workness; exhibiting the germs of the revival of a

trade in a country which certainly prosessed tha art of printing and dyeing morbated colonism 1000 years ago, the contract of the contract of the contract of the contract choice of Central India; childred by the East India Company. They decree situation as the productions of a country the most andmat in the history of the printing of the contract of the contract of the contract of the things rejected them the three contracts, which so much supersolved the use of other fairles, as to speculate the contract of the contract of the contract of the product of the contract of the contract of the contract of the product of the contract of the contract of the contract of the product of the contract of the contract of the contract of the product of the contract of the contract of the contract of the product of the contract of the contract of the contract of the product of the contract o

One fact, highly creditable to the choracter of the Knthhitten, and the Exhibators of printed flabries, the Jury would wish to state. They believe that amongst the the warlety of British and foreign printed goods, there are no not to be found any specimens prepared specially for the Exhibition, or for above merely, but only such selections from the work of each house as honestly represent its averance produce.

The devicement of the Jury, on the merits of the articles articles of the Jury, on the merits of the article articles calabilistic, have been arrived as from a consideration of the wants of the consumer since, always remembering that is his takes the in its highest foreign, and not any critical is his factor in the highest foreign and analysis. The chief object of the Exhibition is not bright outgetter the finest articles already produced, so they presenting these side by side for comparison, to expect see Winner and varieties, and to induce an in-

In their report on the specimens of dyed goods placed before them, the Jury will remark, first, on those of

Great Britain (India included).

Here will be found dyed wrollen articles, as well as numerous specimens of mixed fairners twoollen and cotton, woollen and linea) in piece-goods of great variety and the piece-good of present variety and land, equally disvensifed in colour and in greatation of shade. The silks used in the manufacture of spitalfields, Maccleddeld, Manchester, Coverty, &c. The wools for the manufacture of carpets and worken and mixed fairler, Newvick, and cleavement. When the present the colour form of the piece-good of the piece-good of the piece-good Newvicks, and cleavement.

The French collection of dyed goods presents a beautiful variety of merinos, but none of mixed cotton and woodlen fabries. Varieties of dyed woods for the manufacture of Parisian shawls, and of silk in the hank, showing that purity of colours, especially in the lighter shades, which contributes so greatly to the success of the Lavouces manufactures.

Suzony, Prussia, Austria, and Russia, have sent many varieties of dyed yarus. In their respective compartments will be found tho

mericos of Saxony and Rossin.

Numberless varieties of woollen dyed yarns for the
Berlin carpets; and from Vienna, for the manufacture
of shawls and damasks,

Switzerland exhibits unmerous specimens of the dyed silk used in the extensive manufactures of Bale and

Chins, one of the earliest known silk manufacturing nations in the world, is represented on this occasion by a complete assortment of the dyed silks used in her manu-

Horizo jedný prierral to the spreiment of dystige, it was by te remarked ext the set has peringuised in the set of the se

Particular reference ought to be made to the great improvement in the bleaching or whiteuing the silk filter intended for the dye-bath. It is well known that the paler shades of colour caused be produced bright and clear unless on a silk of pare white. In presenting a list of the names of Exhibitors to whom

the Jury award the Prize Medal, in woven, spun, felted, and laid fabries, when shown as specimens of printing endyeing, it appears inexpedient to mention, otherwise than in general terms, the points of excellence upon which these awards are founded.

tese numrds are founded.

The greater number of Exhibitors show specimens of

printing on a variety of cotton, woollen, and mixed France, p. 1227), for printed cotton chintz colours for fabrics: reference however is made to those only which farmitures. appear most remarkable.

In printing,-The Prize Medal is awarded for various degrees of excellence, in design, execution, and brit-liancy or permanency of colour, or both.

In during.—The Prize Medal is awarded for brilliancy,

permanency, and uniformity of colonr. The Jury make these awards to printers and dyers only,

PRINTING.

The Jury award Prize Medals in this department to the following Exhibitors :-

BERNOVILLE, LARSONNIER, and CHENEST, Paris (1548, France, pp. 1250, 1251), for faucy fabrics printed in steam colours for dresses. BLACK, JANES, and Co., Glasgow (51, p. 556), for printed muslins, jaconots, and fancy fahrics. BLECH, STEINBACH, and MANTE, Mulhouse (29,

France, p. 1172), for prioted mouseline-de-laines (all wool), calicos and jaconots, in madder colours. BOCKMUIL BROTHERS, SCHLIFFER, and HECKER, Elberfeld (606, Prussia, p. 1084), for printed calicos

Bosst, J., St. Veit, near Vicana (239, Austria, p. 1019), for fancy fabrics printed in steam colours for dres Chocquekt, Louis, Labriche (90, France, p. 1175), for fancy fabries printed in steam colours for dresses

DALGLEISH, FALCONER, and Co., Glasgow and Manchester (27, p. 555), for machine-printed calicos.

DE LA MORINERS, GONIN, and MICHELET, Paris (1583, France, p. 1252), for faucy fabrics printed in steam

colours for dresses DOLLFUS, MIRG, and Co., Mulhonse (1191, France p. 1234), for printed muslins and jaconots, madder, and ther colours; prioted mousseline-de-laines (all wool) Evans, David, and Co., London (1, p. 554), for

printed silk handkerchiefs, and printed table-covers GODEFROY, L., Putenux (Seine) (1252, France, p. 1237), for fancy fabries printed in steam colours for dre-GROW OTHER, ROMAN, and Co., Wesserling (248, France,

p. 1188), for printed musiins and jaconots in madder and other colours; and printed mousseline-de-laines (all HARTMANN and Son, Munster (Haut-Rhin) (256, Fran-

p. 1189), for various fabrics printed in madder colours. Hower, Thomas, and Sons, Manchester (36, p. 555), for machine-printed calleos.

INOLIS and WARRITELD, Glasgow (4, p. 554), for ma-

chine-printed mousseline-de-laines and hareges. JAPUIS, J. B., and SONS, Claye (274, France, p. 1190), for printed cottons and chintz colours for farnitures.
KOZCHLIN BROTHERS, Mulhouse (1634, France, p. 1255).

for printed monselinc-de-laines (all wool), printed caliin madder colours.

LETTENBERGER, FRANK, Commanos, Bohemia (187, Austria, p. 1017), for printed calicos, in madder colours. LITTLER, MANY ANN, Merton Abbey (8, p. 554, as exhibited by Mr. Wilkinson; and 282, p. 500, Classes XII, and XV.), for printed silk handkerchscfs. Salk, J. N., Manehester (39, p. 556), for printed cotton

abirtings. SCHLUMBERGER, jun., and Co., Hant-Rhin (1481, France p. 1247), for calicos and jaconots printed by cylinder. Schwane and Co., Manchester (41, p. 556), for printed calicos, madder, and garancine work,

SCHWARTS and HUGUENIN, Mulhouse, Hant-Rhin (1003,

Simpson and Youxo, Manchester (47, p. 556), for mousseline-de-laines (cotton warps), printed by cylinder in six and seven colours; and calicos printed in steam

STEINER, C., Ribenavillé (383, France, p. 1195), for Torkey red, plain dye and printed. STEINER, T. and Co., Church, near Accrington (37,

STRINER, T. and Co., Church, uent Accompton (57, 555), for Turkey red, plain dye and printed.
Thomson Baothers, and Sons, Manchester (25, p. 554), for printed monsteline-de-laines (cotton warps).

Vaccure, Dr Pasquien, and Co., Cortailled (36, Switzerland, p. 1268), for calicos and jaconots printed by

WELCH, MARGETSON, and Co., London (7, p. 554), for printed silk handkerchiefs. WELCH, THOMAS, Merton Abbey (18, p. 554), for printed table-covers

ZEIGLER and Co., Winterthur (146, Switzerland, p. 1275), for plain Turkey red dye,

The Jury award Prize Medals to the following Exhibitors in this department:—

ARMITAOR, G., and Co., Bradford (146, Classes X11, and XV., p. 492), for Orienns and Cobonry cloths, mixed of cotton and wool

BERGHANN and Co., Berlin (106, Prussia, p. 1054), for Berlin woollen yarns, dyed in various colours.
FERU-BECHARD, V. A., Passy-près-Paris (Scinc), (198, France, p. 1183), for skein-dyed fine woollen yarns for

shawle FRANCILLON, -, Paris for merinos, exhibited by Pa-

rancialos, — rais to meritare cantacturers, trite-Lapin, Seydons, Sieber, and Co., manufacturers, Cotean (1381, France, p. 1242).

Genson, A. P., Lyons (1263, France, p. 1237), for skein-dyed silk in various colours; bleaching silk and the plication of picrique acid. Howe, J., and Co., Coventry (36, Class IV., p. 197*), for skein-dyed silk in various colours, Lr. Lievar, H., London (60, p. 557), for skein-dyed

black silk PARTRIDGE, N., Strond (212, Classes XII. and XV., p. 496 , for dyeing broad cloths of different colours

on each side. RIPLEY and Sons, Brailford, Yorkshire (148, Classes XII, and XV., p. 493), for Orleans and Cobourg cloths, mixed of cotton and wool.

VERSIERE, A., Putcaux, near Paris (720, France, p. 1213, for merinos. WEGNER, T. R., Bille (155, Switzerland, p. 1276), for skein-dved silk in various colours,

The Jury award the Prize Medal to Mr. JOHN MERCER, Accrington (48, p. 556), for the beautiful application of a scientific principle in preparing various textile fabrics, strengthening the material, and at the same time wonderfully increasing the brilliancy and intensity of the colonr when dyed or printed. The results are exhibited in the goods shown by Mr. Mcroer. A Council Medal has been awarded in Class II.

The Jury would have felt it a duty to recommend this inventor for the Council Medal, if his discovery had been extensively applied in manufacture.

EDMUND POTTER, ERPORTER.

June 1851.

CLASS XIX.

REPORT ON TAPESTRY, INCLUDING CARPETS, FLOOR-CLOTHS, &c., LACE, FANCY EMBROIDERY, AND INDUSTRIAL WORKS,

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLESTRATES CATALOGUE.]

Dr. Pour-ren Beizer, Calcione, Beltsched; Commissioner, Perra Grants, Physic Chrismas, 2 Oxford Street; Cryen Manufacturer, Rurann Banas, 86-sets, Nutlecham; Lace Manufacturer, Rurann Banas, 86-sets, Nutlecham; Lace Manufacturer, Armer Friedrich, Schriffering, Roseport; relical Cryer Manufacturer, Tuoux Nutson Lot, J. C., Arley Hall, Scorpert; relical Cryer Manufacturer, Faxcoca A. Wannas, Selgion; Merchant at Brussel, Manufacturer, Paxcoca A. Wannas, Selgion; Merchant at Brussel.

M. Farasses, Frankfort-on-the-Maine; Mcrchant. (Proxy for M. Falk, Zollvercin; Manufacturer.)
FELIX AFREAY, Paris; Merebant. (Proxy for M. Lainel, France; Inspector of Manufactures; Member of Central Jury.)

disposal, beg to append to their awards some facts and observations relative to the rise, progress, and present condition of the branches of industry that have come more immediately under their notice,

The Jury are of opinion that the products included in Class XIX., from many countries, are more namerous and various, and differ more widely in price, than those comprised in any other Class. Their task has, consequently, been one of much labour and difficulty, having occupied two months of nncessing attention in seeking out and examining everything said to belong to this Class (the goods from foreign countries not being classified in the Catalogue), and in many cases having to seek for them In other Classes, being most anxions that no omission on their part should be made, and that ample justice should

be done to the Exhibitors. The great variety of products before referred to will second for whet may at first sight eppear too great a ree of liberality in the awards

In deciding upon the merits of the articles exhibited, they have taken into consideration movelty of invention, novelty and beauty of design, excellence of manufecture or execution, cheapness, durability, and usefulness. They have recompensed those Exhibitors who lane

isplayed one or other of those qualities by Honourable Mention, and have awarded Medals to those who, in their productions, have combined several of them.

The Council of Chairmen having confirmed the recom mendation of a Council Medal in the case where the fabric was new, and of great beauty and utility, but not in those cases where great beauty of design was mited with the highest degree of excellence in execution, and applied to articles of commercial importance: the names of those Exhibitors whose productions were peculiarly distin-guished are referred to in the Report.

Having mode these preliminary remarks, the Jury roceed with their observations upon the various branches of industry that have come under their notice.

Tur. Jury appointed by the Royal Commissioners for modifications of the original stocking-frame); since that Class XIX. having completed their impection of the period, there have been incredible sum of money exvarious articles, and avariated the prince placed at their penched, many valuable lives searched by intense site. hundreds of patents taken out, and nearly as many differ-ently-constructed machines bailt for the production of plain and ornamental face of every description. It has been matter of astunishment to see how quickly one inventor has succeeded another, and by simplifying or modifying his machines rendered useless those of his predecessor. It may be stated, thet in none of the textile fabries have there been so many combinations of mu issues have there been so many communators of ma-chinery used to effect the purpose as in the making of lace, commensing with the stocking-frame, to which was added a Tickler machine, then the point-net machine, warp mechine, Mechlin plait machine, and many others. All of these (except the warp machine), disappeared for the purpose of making lace when the bobbin-set mechine was introduced, and its capabilities for making both plain and ornamental lace became developed. The bobbin-net machine is so called from the thread that makes the lace being partly supplied from hobbins, and partly from a warp, the boldins being made to pass from front to back, and back to front, while a lateral motion is imparted to and beek to Iroid, while a lateral monols is imparred to the were phreshes, thus cansing me series of threads to wrap reand the other. After innumerable attempts to much beliefulnes, the first successful machine was made and patented by John Heuthereal, in 1870. This machine, although movel in its construction, and the first nearling one series of threads to pass round the other was complain in its arrangements, as pass round the other was complain in its arrangements, as the property of the pass of the pass of the passes of the plete one hole, the same being now made with six. The cost, also, of the production was such as to circumscribe its use, for we find in 1915, when the machines of this description had increased to 140, one square yard of the produce was worth 30s.; the same quantity can now be purelissed for threepence.

But so rapidly, from this period, did the machinery increase and trade extend, that in 1831 the capital canployed in the bobbin-net trade, from eareful inquiries mate by a townsman, W. Felkin, Esq., was 2,310,000L, giving by a townsman, w. relatin, page, was 2,100,000 g. gring permanent employment to 211,000 persons. It is desirable to state that, up to this time, little less than plain net and quillings had been produced by the bobbin-net ma-chine. After repeated efforts on the Leaver, circular, Bolles Art Marines der, his es his loss collection of the removement her, his esh his coules, fine for her methemselme her, his esh his coules, fine his coules, fine his coules fine his coules fine his coules fine his coules for his coules fine his coules for his coules fine his coules for the his coules fine his coules for the his coules for the his ging-century. Fifty years app, her need by machinery san exceeding the his coules for the his coules and for the his coules for the his coules for the his coules for the his coules and his coules for the his coules and his coules for the his coules for the his coules for the his coules and his coules for the his coules for machine end then by another, was astonishing, each diseovery leading the way to something more novel. At this period, also, a patent was taken out by William Sueath, of Hyson Green, and sold to James Fisher, Esq., of Badfard, for spotting on the circular machine; soon ofter another was taken out by Mr. Freeman, of Tewkesbury, for spotting on the traverse warp; and shortly after e third by R. Birkin, of Basford, for the same thing on

the Leaver machine. Many efforts were made by Drapet, and others, to apply the Jacquard machine to the bobbin-net for the purpose of ornament. Several patents had been taken out for this purpose, but no successful arrangement bud been effected till about 1839, when a pusher machine was worked with cards the width of the net, by Mr. Wright, of Radford: the same application was made to the circular machine by Mr. Crofts, who has taken out several patents for various improvements in nearly every descrip-

tion of bobbin-net machinery. The application of the Jacquard still progressed slowly till 1841, when a plan discovered by Hootan Deverill was bought and patented by Messrs. Biddle and Birkin, for applying the Jacquard to the guide bars; and so rapid has been the application of the Jacquard since that period, that at the present time there is scarcely a machine at work without it (except those adapted purposely for plain net), either applied to the bars, or along the width of the machine, and from that period the trade commenced anew, producing every description of pattern on all the various descriptions of met kanwa, particularly on the plain-net, that had been made and patented in 1838 by Mr. Crofts, but was not extensively manufactured till the successful opplication of the Jacquard. Such an impetus did the trade receive from this, that bundreds of nuchines which were useless, or "worked bundreds of machines which were uncless, or "warked ng," as the trade termed them, were brought into active and profitable use; many of their owners, after spending from 801, to 1001, being able to realize this outlay in three or four weeks (if put on with a saleable pattern). No sooner was the Jacquard machine successfully subspect to the bobbin-net unachine, than new sources of inaunifies. ture gradually developed themselves, such as flounces, scarfs, shawls, window-curtains, &c., &c.; but, to succeed in these articles, tasteful and elaborate patterns were required, equal to the French and ather foreign productions of the same kind: manufacturers had in many instances to resort to those places for designs. This want of clever local designers caused the same enxiety to be manifested by the makers of machine-made lace that other manufacturing districts had evinced; and the same cordial assistance from the Government was afforded in establishing a school of design in Nottingham.

Though many for the first two or three years thought this school comparatively useless, it has proved that it was only sowing the seeds for extended unefulness, as young men, that have had no other means of learning desiguing, and creating a taste for the fine arts, ere now filling important situations, and receiving liberal salaries; and there is no doubt that at the present time

our local artists are capable of producing designs equal to the French, Swiss, &c.

We may be told, the display of lace goods in the Great Exhibition does not demonstrate this statement: but it most be borne in mind that the manufacturer of machinemade lace has to have his pasterns adapted to suit the various markets; and they know from experience, that patterns that would suit the French would not be saleable to any large extent in the English market (and English-made lace being prohibited in the French market, it is useless to adapt our patterns to their taste). In fact, there requires one style for the London market, another for the provinces; one for North America, a different one for South America, and so of all the various markets to which we export our produce.

It will, therefore, be perceived, that the French are

rarely employed in designing, except for the Parisian taste, where our designers have to suit the tastes of nearly all the markets in the world.

Judging, therefore, from the beautiful patterns now produced, their suitability to the markets for which they are specially designed, and the rapid manner in which this part of the trade has extended, we think it right to state here that the Government School of Design has materially assisted the enterprising manufacturer and

At the present time, amongst the infinite variety of erticles manufactured by the bubbin-net machines, are-1st. Black silk piece net ornamented, sknwls, scarfs, flources, trimming laces, bloudes in white and colours, some whally finished on the machines, others partly by

machinery, and embroidered afterwards Up to 1845, Saxony exported largely the lower class of these, and France the more expensive into this country;

but so perfect are they made, so much improved in design, so effective for useful purposes, and lower by from 75 to 99 per cent, than the class of hand-made articles they represent, that we not only supply our home market, but have exported 150,000i, worth annually, during the just four years, to foreign markets, principally the American. and not a few find their way into France, although wholly probibited by that country.)

2nd. Cotton edgings, laces, and insertions, lines been in imitation of white pillow lace, muslin edging and lices, fancy piece net, spotted net, plait net, in unitation of the costly Valencienues lace.

3rd. The third class is of curtains in imitation of the Swiss curtains, bed-covers, and blinds; and although this hranch of trade is new, heving only been introduced in 1846, yet from the extent it has already attained, employing above 100 machines, and from the display of goods exhibited, excellent in design and good in texts it promises not only to be an important but an improving department of the lace trade.

4th. The fourth class includes silk and cotton, plain net Mechlin grounds, blonde, Brussels, or extra twist: this is a branch of much importance, employing regularly upwards of 2,000 machines; one owner, J. Heathcoat, Esq., M.P., having 300, principally making silk act, or Paris bloode. To this gentleman the trade owes much Paris bloome. To this generalized in discovering the method for his zeal and perseverance in discovering the method of imparting that dress or fluish to his nets, formerly known only to the French, and the accomplishment of which is now giving permanent employment to many

thrusands of workpeople.

the Exhibition.

The numerous and various specimens of Nottingham manufactures in the Great Exhibition, their generally useful character and extraordinary cheapness, combined with very considerable taste in design and excellence in execution, must tend to still further develop the ingenuity and extend the trade of the locality. The description of machines et present in use are the

following : 1st. The "Leavers," so called after John Leavers, the original constructor of this machine; e specimeu of which belinging to Mr. Birkin of Nottingham, is et work in

Most of the articles included in the first and second class productions are made from this description of machinery

amery.

2nd. The "Paster" machine, so called from having
adependent pasters to propel the bobbins and carriages from front to back, instead of pulling or hocking them, as in other arrangements.

From this description of machine are made shawls, scarfs, flounces, &c., of a superior quality, which require to have the pettern traced afterwards with a thick thread hy won

3rd. The "Circular," so called from bolts or combs on which the carriages pass being made circular, instead of straight, as in the straight-holt machines, originally constructed by Mr. Morley, of Derby (late of Notting-From these muchines ere made the curtains men tioned in Class III., and the various descriptions of plain, spotted, and fancy nets.
4th, A few "Traverse Warp Machines," so called

from the warp "traversing" instead of the carriages, as in the circular and pusher machines. These machines These machines principally make spotted lace, blood edgings, and imitaon thread laces.

There is a smaller number of machines now than in

1856, owing to many of the old narrow noe having been broken up and replaced by others, wider, more speedy, and of a superior construction. Though numerically less, the power of production is materially increased: io addition to this, arrangements are now made in many of the contraction of the con

employed in 150s.

There are now in full operation 3,900 beloble-set machines; the total number of quarters \$4,500, giving employment to \$3,600 mem, \$4,500 mem and rehibers, polyment to \$5,500 mem, \$4,500 mem and rehibers, and the same and and one machines; and the office for itsil-throwing, cotton-pinning, dyyling, blenching, and dresting; for boundary to the same and also and carriage guada, comb and plotted to the same and the

Total capital 2,965,945l. Total number of hands employed 133,015. Annual amount of business returns 2,300,000l.

2,380,0004.
These statistics are the result of extensive and careful inquiries made purposely for the occasion; and are as accurate as such documents can be, considering the difficulty, in some cases, of obtaining all the facts from maonfac-

The "Warp Machine."—In addition to the bobbin-net machine for making lace, there is also the warp machine, several productions from which are exhibited on this occasion, of a novel and beautiful description. The invention of the ware frame about the year 1775)

The unrestine of the warp frame (about the year 1770), Working, John Man, Care, of Edinamon, were Lookon, Mr. Marsh, Morris, Mr. Care, of Edinamon, were Lookon, Mr. Marsh, Worting Hard, Warth, Worting Hard, Warth, Worting Hard, Warth, Warth

The first machines were about 16 inches in width, and they were merely the common stocking-frame, with the warp or new principle applied.

In the years 174-5, a person amond James Tarmit, a contained by impressed them by any his reductive to person outside the person of the person

This new manufacture rose to great importance, and large contract for the Admirstly were supplied. In the year 1812, 500 frames were said to be employed in the midland consider on this article, which is still innown as "Berlin," and its extensively used for the making of "Berlin," and its extensively used for the making of Tames were at work in the neighbourhood of Nottingham. About this period, two persons of the names and Bown and Plader, made silk lacer from what they termed

an upright-warp frame (from the needles being placed upright, and not horizontally, as in the ordinary warp frame). In the year 14th, 120 of these upright frames were at work in Nottingbam; and the wages of the workmen were very high, never less than 5th, nor week.

In a very abort period, lace was made from the horinotial warps; and the uprights were soon rendered nonless. The first lace produced was of a very inferiordecerption; and various attempts were made to improve it. At length, Brown and Copestake invented what was called Meehlin net, which, from its intrinsic excellence, soon entirely super-seed the point net; and in a short inter-80 frames were making it; the wages of the work-

soon entirely superseded the point net; and in a short time 430 frames were making it; the wages of the workmen averaging four guizeas per week; whilst the cotton used was 15 guineas per B. From this period the pointnet manufacture declined, notil the beame quite extinct; and the warp machine was in the ascendant. Soon after the introduction of Machine less an insite.

Soon after the introduction of Mechilin lace, an initiation of it was made by a Mr. Kirkland, which was known as "two-course" net; and another kind of silk lace known as "Honde," inverted by Dayceck, appeared about the same time. These two kinds of silk lace subsequently attained to great importance, especially the latter, which still forms a considerable brauch of the lace reads.

The blonde, soon after its introduction, became in great repute, and the workmen made enormous wages—it is said, as much as 10l, per week.

said, as much as 10*l*, per week.

In the year 1819, the Mechlin disappeared; and soon after the two-course and blonde greatly declined until 1850, from the large importations of French sitk-lace; the French method of dressing being much superior to

onr owo.

The bohhin-net machine, which was invented and patented in 1809, had now become the great rival of the

Critica "Mechiia" Ince apscully disuppeared before the more approved manufacture, belobin-rat; and what from this new competitor at home, and large importations of silk have from Prance, the warp rates may be considered in the construction of the machine might be bought for the price of old iron; and many were broken up as no longer or use. Such was the state of this branch of Industry when streetine was directed to the correspondent of the work of the streetine was directed to the correspondent of the construction of large or wholly plain, and was embroidered or "tamboured" ashevants by home

Driven from the plain by the bohbin-net, the warp was the first to attempt the ornamental; and has the credit of leading the way in what has become the most important branch in the lace trade. Boot, Roberts, Herlsert, and Copestake were the earliest in the field, and laces with spots and bullet holes introduced first appeared.

A new bilas of zer a sine was produced, which was called "much vasts, in instance or in read the holishment," much vasts, in instance or in read the holishment, which before was worthless, rose to a great called the produced by the state of the state o

greathy uppressure metaline again outrivalled its forerunner by producing superior ornamented laces; and Heathread's plain silk hobbin-net had now begun to take the place of Nottingham white silk blonds. Notwithstanding these, the unemployed warps found other and new channels. Some were making gimps, and a still greater number lace mitte and glivers, which, from 18:06 to 1846, were of great demands but these, during the last

few years, have nearly become obsolete.

In 1839 the Jacquard was applied to the warp by

Draper, of Nottingham. The increased cepability which this application gave, inspired new bope for the warp-lace trade of Nottingham. A new class of products of claborate design was manufactured, such as showls, searfs, mitts, falls, laces, &c.; but latterly the products of the Twist machine have to a great extent supplacted them.

Great improvements were made in dressing silk lace. Mr. Dennicliff first fullowed the French method of working the silk in the single thread, and in the raw state, instead of the organzine thrown which had heretofore been used. The result of this change was soon felt. ours was now equalled in whiteness and brilliancy; and at the present day, English-dressed lare is little, if at all, inferior to the best specimens from Lyons. Within the last few years, many new kinds of manufacture have been ettempted from the warp, which deserve a special

Elastic woollen cloth for gloves and other purposes is one of these. Henry Dunnington of Nottingham was the first who made it, and he has produced the best of this

Many new kinds of elastic fabrics for gloves, both in silk and other kinds of material, have been made by Messrs. Bull and Co. A patent for valvet lace was ob-tained by Dunnieliff and Dexter in 1845; but the making of velvet was not brought into practical operation until 1849, when Messrs. Ball and Dunnicliff, and Messrs. Haines and Hancock, succeeded in making piece velvet suitable for gloves, the product at the present time being entirely used for this purpose,

During the past year the same parties have had granted a patent for making velvet in combination with lece; and or other novel wesvings, specimens of which are shown in the Greet Exhibition.

These latter may be considered as the latest improments of the warp frame, which bring down our notice to the present period.

The number of machines now in operation, as far as

ean be ascertained, is about 1,400; 600 in the county of Leicester; 400 in Derbyshire, and 400 in Nottinghemshire, and are employed in the verious branches as fol-

> 150 blonde, and other silk laces. 150 cotton tatilings. 550 Leicester hosiery, &c.

lot lace gloves and mitts. 150 woollen cloth, hoslery, purses, and various kinds of fabrics for gloves, &c.

The average widths of the machines employed in the Nothinghem trade are from 90 to 100 inches (some few being as wido as 150), whilst those engaged in the Leicester hosiery trade, are generally from 44 to 72 inches, The number of persons employed in the warp trade is estimated at 10,000, and the capital invested 360,000. making a return per annum of 700,000/. On a comparison with former returns, it will be observed, that the number of machines employed in the lace branches is considerably less, whilst in the hoslery and other miscelconsiderably less, whilst in the nessery and other miscer-laneous articles the nembers have increased. A werp bloude-machine, 54 inches wide (which was about the average in 1830), would produce about 20 yerds or 80 racks per week, which, when dressed, would be equal to about 50 square yards.

The power-unchine belonging to Mesers. Ball, Dun-steller, and Co. in the Great Exhibition, illustrative of the warp-ince trade, is capable of producing-working 12 hours per day-800 racks per week, which, when dressed, would be equal to about 1,200 square yards. A yard of 4-quarter white silk blonde, which in 1830 sold for 2a, is now supplied for 6d.

LACE made by hand, as "Honiton," and "Thread" or Pillow Lace, also "British Point," Tambour, and LIMERICE LACES.

Honiton Love. - The description of lace termed "Ho-

pillow, and employing pins, bobbins, and spindles to twist and interweave thread in such a manner as to produce the required design. It was formerly confined to the production of simple sprigs and borders; bet during the past twenty years considerable progress has been made, resulting in the manufacture of fabries, displaying not only extreme delicacy of execution, but also beauty, and taste in design

The Great Exhibition affords ample proof of this in the specimens of flouncings, shawls, scarfs, handker-chiefs, berties, &c., which are there exhibited, varying

in price from ten to two handred guineas. This striking change has not arisen from fortnitous

circumstances, but has been mainly induced by eminent houses in the trude; who, to meet the taste required by their customers, have employed every means at their disposal to raise the character of this description of lace, They are fully alive to the conviction that the more the British manufacture becomes assimilated to the characteristics of the foreign (which are chiefly suitable, beantiful, and clearly-defined patterns, with refinement of execution), the more the demand for this lace will extend; and, proportionally with such increased demand, they will be induced to expeed still larger sums, in order to produce a higher class of designs. They are further encouraged in their exertions by the fact that, although the British lace cannot boast of design so exquisite, and execution so delicate, as Brussels Ince, it yet possesses remarkable and valuable qualities, inasmuch as it is produced perfectly white, does not change colour, and the price is very moderate.

The district in which illoniton lace is made extends about 30 miles along the coast of Devonshire, and about 12 miles ioland. A very large number of persons (from 7,000 to 8,000) are now employed in producing it.

or "Thread" lace, although made upon the cushion like ilonion lace, is distinguished from it by having both the pattern and the mesh made by hand, whereas, in Honiton lace, the pattern is made separately, and afterwards sewn on to machine-made net.

Not many years since a very considerable number of somen and children were employed in its manufacture throughout the counties of Bedford, Buckingham, Northampton, and Oxford; but the demend having fallen off (being subject to fluctuation, like all articles dependent upon fashion), has coused this branch of the trade to suffer severely. Contemporary, however, with the diminution in the making of white-thread lace, an increased requirement for black lace occurred; the manufacture of which was introduced into the districts enumerated, and has been attended with marked specess.

It would be difficult to supply any accurate statistics as regards the number of persons engaged in this manu-facture, as the nature of the article enobles the parties employed in producing it to earry on the operation agart from each other, and without interfering with a domestic or retired life. It is deserving of consideration, that the worth of the

actual material bears sech a small proportion to the value of the article itself, as to make the amount paid for the labour expended in its production to be almost the sole cost. This industrial product, therefore, cannot fail to enlist sympathy on its behalf, as it furnishes, in comparison with its price, a surprising extent of employment and maintenance, and these benefits, moreover, are afforded to a class of persons who otherwise would have a difficulty in earning a livelihood. In exemplification of which it may be said, that the poor in lace-making districts are comparatively well off, and better provided for than in other localities, British Point Luce.-British Point, tamboer, and

Limerick laces, possess alike considerable merit, as very similar in the mode of their manufacture. embrace the imitation of Honiton and Brassels lace, and are produced in shawls, scarfs, dresses, Court trains, suncings, lappets, &c., exhibiting a beautiful display of chaste, elegant, aed elaborate designs, and are well represented in the Exhibition,

"British Point" is chiefly made in the neighbourhood niton" is made by placing a perforated pattern upon a of London, and is very superior as an imitation lace,

"Tambonr" is made principally at lalington, London, Coggleshall in Essex, and at Nottingham. The "Limerick lace" is peculiar to Ireland, and has

The "Limerick lace" is peculiar to Ireland, and has been produced in considerable quantity. There is also another description of this lace, which has been brought to great perfection. It is made in

various articles, and prescots an excellent imitation of

the old Spanish point,

The prospects of those branches of the British lace trule are at the prevent time highly encouraging; and there is no doubt that by energial attention in producing properties design for Hamilton lace, and the entire and interest in the second of the second of the contract of this lace with the most successful in their exertions of worthy of the increased submiration of ballows of rank and the second of the second of the second of the second product when the second of the se

From the well-known character of the principal houses engaged in his enterprise, it may be considerily expected that Houton loce will assume a position in the highest class of industrial art, coulomed with nitily. Nor are the manufacturers of the other descriptions of lace montioned in this Report at all behind in an energetic application of their resources, in order to excel in their various productions.

The decided improvement which has been made in the black laces, now so generally worn, has led to the introduction of a new and important feature in the fabrication of pince goods, such as shawls, searly, vels, coffuers, Re., the manufacture of which in "black point lace" has commenced within the last twelve months, and is carried on in the southern districts of Beckinghammire. It has

on in the southern districts of Blockinghammhire. It has already been attended with marked soccess, and is descring of special notice. It is a gratifying reflection that the growing appreciation of the weilthy and refined class of the increasing merit of these really useful and ornamental articles of British manufacture gives suitable employment to a large

number of females at their own houses, thereby increasing their comforts, encouraging habits of industry, and adding to the general prosperity of the nation.

ENGLISH, IRISH, AND SCOTCH SEWED MUSILIN EMBROIDERY,

The national importance of this branch of industry, its rapidly increasing extent, and the progress made in its manufacture, as evidenced by the number of exhibitors from the United Kingdom, and the varied merit of their

from our Ornect suggestion, and construct our other productions, and for particular markets and for particular markets and for particular markets and for an art for, and Messrs, So, R, and T, Bnown, both of Glagow, and Messrs, So, R, and T, Bnown, of Paisley, are very grafifying proofs of the excellence attained both in descriptions.

In taking a retrospective view of the trade, it is difficult to fix the precise date of its origin; but there is no doubt that in the year 1770, in Scotland, and 1780, in Ireland, the germs of it were in existence. Towards the commercement of the present century the

manifative had so extended as to employ prefitably the attention of eight or two houses in Glugows, and also a few in Belfast; but the trade generally seems to have made but little progress during the sent twenty years, and the immufacturers principally confining their attention to the tambour branch of it (with the exception same light certical goods for foreign surface), in the and body lines.

in the of the creamstance which first pave a decided impulse to the manaferance was consistently the social revolution wronglet among the Scotch and Irish peasantly and particularly the latter, by the destruction of lines and particularly the latter, by the destruction of lines machinery. Previously the female population were so generally and profundly employed that it was with much difficulty their attention could be directed to "needlefacture by anachinery had nearly destroyed the occupation."

of hand-spioniog, and the softened hum of the "wheel' in ceased to be heard, both the women and girls of the country were left almost without any source of profitable labour, and a very serious change became apparent in the homes of the personatry.

In their trying elevantones a new field of labour, and admind to more than compensation approach to their adminds to be seen that no emperature are proposed to them projective exhibited as the contract to the projective exhibited at the contract to the administration of the contract to the administration of the contract to the administration of the contract the contract and enter their positions, but foregoing saided by individual philanthropy, selected active and their position and the contract their constraints and enter their positions, but foregoing saided by individual philanthropy, selected and still more extracted principle in the West of Sectional, and still more extractedly in the North of Ireland, the works that is a short precision in the West of Sectional, and still more extractedly in the North of Ireland, the work which is that so existence, the grint them, as now, principle of the section of the principle of the

I are compared or mooth attouch to, and the increasing skill of the workers, enabled the manufacturers to introduce, in lice of tambouring, the more costly, difficult, and beautiful "astin sitch," and other searcl enbroider; its cheapness and soperior elegance not only leading to its being applied to additional articles of ornamental dress, but also to more enlarged use and decanad, and to

a consequent increase in the trade.

In its internal operations few circumstances were more

levedicial to the manufacture, or tended so directly to the improvement of design, as the malaritation, about the year blow, of fithegraphy, for that of the old tediess provided the second of the second of the concept block varied from 5... for the cheepest design, to \$2. for the relevant, and the time required fee entires \$2. for the relevant and the time required fee entires to \$2. for the relevant of the control of the control of the constitution of the control of the co

when he some the second properties of the second properties and second properties of the second

The amount of employment in Ayrshire, and other places in Scotland, has uot probably increased, from the population being less dense, and their being employed in other branches of manofacture; but in Ulster and the West of Ireland the embroidery trade has become almost mivernal, and is the principal support of the female

production. The production is the state of the production of the state
depending in some degree on the prosperity or otherwise of the trade. Young and inexperienced workers will probably not receive leyond streece per week, the amount gradually increasing to 4n, 5n, and 6n, according to the dexterity of the worker; and a few first-class hands can occasionally earn as much as 10n, per week.

in the dexterity of the worker; and a few first-class hands can occasionally ear an sume has 10s, per work, hands can occasionally ear an sume has 10s, per work, he trade cannot be at this moment proceedy ascertained in wireasily estimated at from Tokowa to 1,000,000. The proteins at least tox,0000, the principal outlay consisting in labour) will be distributed in wares, the and in a shape the most beneficial, as they can thus, by and in a shape the most beneficial, as they can thus, by

their own industry, increase their comforts without endangering their morals.

The market for the industrial productions daily enlarges both at home and in the colonies, where there is ever a ready and secure demand. That of the United Rates ranks next in importance. A few years ago the Transulantie export of embroideries was mercky moniting;

now the United States take at least a quarter of a million's worth annually.

It is also a gratifying fact that, notwidensusing the prevalence of hottle tarifs, the boundary and cheapees of the Scotch and Irish embrodieries muse them to find an increasing said, even in the most relaised of the contition of the state of the said of the state of the totally inadminishle, they are nevertheless daily introduced, and one particular class finds extensive from in the findionable circles of Paris. Also, from various countries of southern Europe, a gowing demand in continuous control of the said of the said of the become on important as to lead to a further and valuable extension of this branch of industry.

extension of this branch of industry.

In the Exhibition the home embroidery trade is well, but not more than adequately represented, a great number of parties not having sent any of their productions; however, among those who compete are several who rank first in the trade, and in their hands the reputation of the

first in the trade, and in their manufacture is fully sustained.

While the foreign productions, exclusive of cartains, are chiefly conflued to cambric handkerchiefed, mustin robes, and funcy articles, such as coveriets, table-covers, amoval designs, the, the home manufactures exhibit largely every variety of collars, sleeves, crafts, caps, insertious, and trity and retained to some benefitted insertious, and trimanings; also some benefitted insertious on the constitution of the control
As regards the fature prospects of the trude, they are of a decidedly loopfed character; the manufacture may not in future progress in the same autoinshing ratio as hitherto, but here are sample grounds for expecting a further and important extens work, which is being affected, as well as on the important case of change labour. A great amount of this labour is in process of training, and will continue to be aboved to loop as the employment in will continue to be aboved as loop as the employment in energy agarantee for improvement in the work and consequently extensive size.

Much has been done already to improve design, the statestion of Government and of the trade being strongly directed to its importance. The Government schools, specially, by affording manufacturers and pureats genrally the opportunity of electing their children in described to the state of the state

inflet or severy manufactorous conditional reproduction. In conclusion, with a lattice of middlettimes popular for control production, with a lattice of control freshed and in Scotland, possessing a decided aptitude for the employment, and willing to labour for a moderate remaneration—the manufacture conducted on the largest scale, with all the advantages of capital, a home market, extended foreign relations, and all the other facilities of commerce—the embodiery trade may reasonably expect

not only to maintain its position, but look forward to an increase and prosperity hitherto unknown,

FRANCE.

Lace and Embroidery.

France, proverbially a lace-making and lace-wearing country, has, on this occasion, maintained its high position by contributing some of the most exquisite work, printed

cipally band-made, that has perhaps ever been exhibited, combining perfection of design with surpassing elegance. In proof of this, it is only necessary to refer to the articles exhibited by Mears: Vipacoq and Sinos, and Accurra Expragrate, both of Paris.

The amount of business done, and the number of hands employed in the manufacture of lace and embroidery, are

employed in the manufacture of lace and embroidery proofs of their high estimation in all countries.

Bobbin-net and Lace by Machinery.

The principal towns noted for the production of bobbinnet and lace by machinery in France, are Cambray, Lille, St. Quentin, Lyons, and, above all, Calais and its subnrbs, where there are more than 600 machines in active opera-

The manufacture of this article was introduced into France by English worknea, who, coming from Nottingham, established themselves at Calais, in 1817 and 1819, bringing with them a machine upon the "straight-holt" principle. This branch of Industry has continued to increase and prosper, baving always followed the progress and investions introduced at Nottingham.

Until the year 1845, the articles 'fabricated in France were only such as were known in the English market; but since that period this branch has been considerably improved by the application of the Jacquard system to the bobbin-net machine, more especially to that called "Leavers," and in consequence its production of articles of novelty bas greatly increased.

The following articles are manufactured in a superior style, principally at Calais and at St. Pierre-les-Calais: lst. The Neuville ground, with coarse thread, on

Leaver's machine.

2nd. The Malines. In order to imitate the lace of this

name, made on the pillow, it is puried, and the pattern embeoidered by hand.

3rd. The fine plat, made from 14 or 16 point machines.

3rd. The fine plat, made from 14 or 16 point machines, in imitation of the pillow-lace, called Valenciennes. 4th. The coarse plat made from 10 or 11 point machines.

At Lyons, a great quantity of silk net and black lace is made in initation of pillow-lace. At Cambray, also, is produced, with great skill, black lace in lengths, and in piece, for berthes, scarfs, &c. These stricks are made on the circular machine, and

are admirable imitations of the beantiful black lace of Caen and Chantilly, the patterns of which are most correctly copied, while the difference in price is 73 per cent, This manufactory is in full work, and has been steadily improving for the last three or four years.

Embroidery.

Emhroidery work of every description is of very ancient date in France: it gives employment to from 150,000 Familes, spread over more than twenty departments. 8d. to is. a-day is earned in the country, and double that sum in Paris.

This branch of ladustry is subdivided into several parts, which may be placed under two separate heads. 1. Embroidery in colours and fancy work.

Embroidery in colours and fancy work. White embroidery. Pancy work embraces on infinite variety of forms.

Fancy work embraces an infinite variety of forms, and is done in all colours, in all shapes, and on every kind of material.

The two chief seats of this manufacture are Lynns and

Paris. It is in the latter place particularly where that great variety of tasteful articles of every description, that occupies so large a portion of its industrious population, is fabricated; for example, embroider; in cotton, wood, silk, straw, gold and silver, thread, beads, &c. &c., and it is from the workshops of Paris that those magnificent fabrics are sent forth, from rich robes, shawls, and scarfs, to the smallest faucy article, such as purses, bugs, Greek caps, cigar-cases, &c.

If the enhroidery in facey articles is so considerable, much greater is that of white embroidery; in fact, this work is carried on in many different ways, hy hand, in a frame, with needle, or crochet, with passe or plumet, &c. &c. White embroidery is always done upon lace, muslin, or fine cambrid.

Embroidery for furniture is principally dune in crochet. The chief seat of this branch of manufacture is Tarrane, where lace and mustlin for curtains and window blinds are worked; as also monselline-de-lains for ladies' dresses, mantles, and pelerines, which is likewise in crochet. At Lanceville the work is principally done on talle with the needle, and ensisting generally of searts, dresses,

collars, peleriues, and other articles of taste and novelty. But the very fine embroidery in satin-stricts, for articles of laxury, is the most important part of this hearnesh. The seat of this beautiful manufacture was formerly Nancy; but for some years past it has extended to the departments of J.a. Mearnesh, La Moselle, La Meuse, and

departments of I.a Menelle, I.a Moselle, I.a Messe, and des Voeges (forming the ancient province of Lorenine). In these departments they formerly worked on the hand only; hut, for the last four or five years, frame embeddery has been more esteemed as giving greater neatness and perfection to the work, particularly in the extra fine. Special attention is now given to the instruction of the new hands in the use of the frame maly.

It is in the department of the Vogen that this were written to the contract of the Vogen that this were hand been streted with the most complete increas. The waters of this department lawe great againstic for the characteristic of the Frozenbouran is the remarkable mate the displays in her work. In this delicate, and the displays in her work. In this delicate, and the contract of the characteristic of the characteristic of the characteristic of these tasts and intelligence. The French work women of the characteristic of the characteristic of the characteristic of the characteristic proposed and as difficult to details. This resolution is an analysis of the delicate of the vision of the places of the characteristic of which here by bothing or eachly, pressulp known throughout France, and which offers so many pursues her work a those with the family, beving off when howehold affairs require her attention, and taking when howehold affairs require her attention, and taking owly many contract of the characteristic of the ch

Hand-made Lace.

The manufacture of lace by hand in France gives employment to npwards of 200,000 females, from six to seven years to a very advanced age; each individual earning, npon an average, for a day's work of 10 haurs, from 6d, to 1c, sometimes more, according to her skill, or the demand there is for the article.

All Freuch lace is 'made with bobbins, npon a small portable pillow or cushion, except at Alençon, where the needle is employed and working an parchagent.

needic in employee and we wang on parcialcon-This branch of industry has latterly increased to an immense extent, and nothing can be more admirable than the heavity of the patterns, combined with the purity of the work and delicacy of the web. Hand-spun linen thread, cotton, wood, silk, and often

gold and silver thread, mixed with the silk, are employed. The great expense in this manufacture is the labour, for in the cust of France, acting up work, and the purchase of material does not exceed, upon an average, 12 to 18 per cent, of the whole.

About twenty years ago all the white lace was made with

About twenty years ago all the white lace was made with lineu thread, spun by hand (called Malguinerie thread); ut present, however, it is rare to find any other used than cotton thread, Nos. 120 to 320.

White und black blonde and black lace are manufac-

White und black blonde and black lace are manufactured in the same manner as white lace, there being no difference in the work, the material alone being changed. Formerly white lace only was made, at present blonde and black silk employ half the workers. This branch is spread over a great part of France, extending from some to somb-east, through fifteen the opments. Each district has a peculiar style, and what is very remarkable, that, although made in the same way, with the same material, they are instantly recognised; beach the different appellations by which they are knawn, beach the different appellations by which they are knawn, following are the principal places where this manufacture. The following are the principal places where this manufacture is carried on in France:—

Csen and Bayeax.
 Chantilly and neighbourhood.
 Lille.
 Arras.
 Missourer

3. Lille.
4. Arras.
5. Mirecourt.
6. Dn Pay.
7. Boilleul.
8. Alchron.

For an explanation of the productions of the abovementioned establishments, a short notice of each is here

1. Core and Bayear (Calvados). The manufacture of lace in these phones is much the same, and is the most extensive in silk lace, in length nnd pieces, employing from 32,000 to 49,000 romen. The manufacture of silk lace at Caco, and particularly at Bayear, was formerly very little known; now, however, it is different, and searcely any other tissue is made.
The first silk bloode was made at Caco, and called

The first silk blonde was made at Cach, and called blonde, being made af andyed silk of a mankin colour; now they only use silk af the finest white, or of the finest black, with the exception of a few coloured blondes.

The blands manufacture had rapidly rices be great opportunition, and contrainable is but property; a demand for the article became every day dimitation, and the mostivey of the sovetone are now employed an black than mostly of the worker are now employed an black than the source of the source of the source of the source, bearing a source of the source of the source, the source, manufacture is not seen to so the source of classical seen are considered in this work, and are considered in the source of the departs of the source of classical seen extendably spice is this work, and so that the same is not seen to see the source of the source what flowered parts in one entire piece, so that the ansies in partners in the thin a much, with his cert for person, what flowered occupied a work-woman one whole year, what flowered occupied a work-woman one whole year.

2. Classifly—Though this is a same given to a particular late, else the place of its kith; its fisherison has been principally removed to the neighbouring district. This lace completely resemble that of Bayers, except has it has been offent to much reported preprince, consequently, range higher. Fewer hands are employed than at Bayers, but the improvements of the latter have been regularly adopted. The articles natingfured are less intended for grown me, thus no mittly the textures and much beautiful patterns.

textures and most beautiful patterns. Settle of the pattern of the

 Arras, Pas-de-Calais.—This manufactory is in the same condition as that of Lille. The lace of this place is, however, esteemed for its low price, but the designs require to be improved.

 Mirecourt, Vonyos.—Contrary to that of Arras, this manufacture is constantly introducing new designs. Nearly all the improvements and novelties in lace-making proceed from Mirecourt, which is renowned for the good taste and elegance of its productions. The same kind of lace is made here as at Lille and Arras, that is to se clear foundation, and "fonds de champs," in white thread-

They also produce here a lace, very much resembling the Honiton, called "guipure." Within the last four or five years flowers have been made and sewn upon that extremely fine net termed "Brussels net." This fabrie has, in two years, been so much improved that it now bears a close affinity to the Belgian, at Biache and at Brussels, and is greatly esteemed for its admirable white-

ness, its fine quality, and moderate price. 6. Pay, Hante-Loirs,-This town employs the greatest umber of workpeople in France, from 40,000 to 50,000 being spread through the neighbouring departments. The face made here is coarse, and not rich in texture, but of low price. At Puy all kinds of lace are also made in silk, thread, and wool, as well as point, clear point, point de Chacey, and point de Valenciennes. This town also produces black and white lace, hlonde, and other articles of every colour, and especially worsted lace, in pieces, shawis, scarfs, &c. This manufacture promises much for the future, being situated in a province where there are few other industrial resources, and where labour is con-sequently cheap. The workwomen of Puy and its en-virons are very skilful, and yet, up to the present time, they have only succeeded in ordinary srticles, for which

there is no competition. Builleal.—This is the only important town in France for Valenciennes: it produces lace of the same kind as that of Bruges (Belgium), but rather coarser. The lace of Bailleul possesses two valuable qualities, being the whitest and the cheapest. This lace, though somewhat

**Miles and the Outages. In a lact, is regarded as Almons, One.—The lace of Alençon is the only fidther of this description not made on the pillow, being worked entirely with the needle. It was introduced into France in 1660, by Colbert, who sent to Venice and Gônes for workmen, and they introduced the point de Gônes for workmen, and they introduced the posts de Fesies, which was at first named point de France, and afterwards point d'Alesgon, from the name of the town where it was made. This lace, however, does not re-semble in any manner the point de Venies, as it forms an exception to the others; for, while in the other fibrics one single worker is required to make the richest piece. the Alencon requires from fourteen to sixteen different workers, for the smallest size, even one-quarter of a yard, and the most simple pattern. It is the only lace made with pure linen thread (handspun). This thread is worth

from 100f, to 120f, per pound All the workwomen here are extremely skilful. The open work in the lace is made in a superior style, and every day new is made of great perfection. It is the richest, the finest, and the strongest, and consequently the prices are the highest. There are in France several other manufactures of isce, but the foregoing detail will be a resume of all

This braneb of industry, one of the most important, is ery interesting, particularly as regards commercial relations, and in a moral point of view.

All the females employed in making iace carry on their work in their own houses, under the surveillance of their parents or friends, who act as their instructors.

Switzerland has largely availed herself of the benefits held out by this Exhibition, and well sustained her long-enjoyed celebrity for both lace and muslin embroidery of every description. It will be seen by the numerous articles shown (displaying at once cultivated taste and excellence of work, combined with cheapness and utility). that her motto is progression, and, as stated by one of themselves, "Under the beneficial effects of free trade the Swiss sewed-muslin trade has made enormous progress." From the variety of articles manufactured, the excellence of the work, and the beanty of the design, the manufacturers send their productions to all parts of the globe, and find ready sale, even where they are met by

Switzerland are no longer sufficient to satisfy the demand. and the Swiss manufacturers are employing large num bers in the eastern provinces of Austria, and the southern provinces of the Duchy of Baden,

It would be difficult to state the exact numbers emoyed in this branch of manufacture, the hands not being in factories or large rooms, as frequently the case in this country-the pattern being stamped or printed on the muslin or net, and given out to workers at their own homes, so that many do their household work, and fill no their time with this embroidery; there cannot, however, be less than 40,000 earning their living by this branch of industry.

A good stendy hand can earn, in ordinary times, is, er day; second-elass hands, down to children, range from 3d, to 8d, per day. The needlewomen of Appenzell Rhodes interieures) are noted as the most skilful workers in sewed muslin, &c.; heoce the finest and most difficult work is done there, and the bighest wages are received.

Those articles in which chespness is the recommen-dation, are done by the needlewomen of St. Gull, Vorari-burg, and Baden. It is estimated that 100,000 pairs of rtains alone are annually imported into the United Kingdom of Great Britain, at prices varying from 3s, to 100s, per pair, paying a daty of 15 per cent. The Swiss manufacturers do not regard England as

their best enstomer; they export largely to America (North and Sonth), Germany, Italy, Spain, and other southern countries. The trade is steadily progressing, and is principally conducted by the manufacturers of the and is principanty colourated by the manufacturers of the canton of Appensell, a few only redding at St. Gall, where they have a Wednesday's and Saturday's market for the transaction of business.

The continued care for new styles, novel designs, and chempty productions, has evidently had the effect of de-chempty productions, has evidently had the effect of de-

veloping the skill and artistic faculties of the Swiss manu facturers, as may be seen by the unrivalled excellence of some of the goods in the Exhibition.

The productions of Mr. J. J. Setters and Mr. J. U. Tannes, both of Buhler, are here more particularly referred to, as being of unrivalled excellence.

Saxony has furnished a small assortment of lace and embroidery, mostly of a manufacture peculiar to the country, being heavy, firm, and well made, but of limited sale in the English market.

SPAIN

The exhibition of lace and embroidery is limited, aithough there are some articles deserving of notice, from their richness and antiquity.

Намилен.

There is little from this place, except some specimens of embroidery with hair, displaying much taste.

We cannot say much of the articles exhibited in lace and embroidery, as they are very few, and of a class that would not suit the British market.

There is little worthy of notice from Malta. LACES OF BELGIUM.

The description of lace peculiar to this country admirahly sustained by some of the exhibitors in this department, there being a valuable display of Valenciennes edgings and laces of Mechlin, and other goods of the most costly and superb character, representing some thousands of pounds in value, evineing at once the taste and perseverance of the Belgian mannfacturers, who are finding employment for at least a hundred thousand hands annually, by the production of this description of lace, used principally by the middle and upper classes of

Belgium still retains the pre-eminence it has long enjoyed, for the perfection displayed in the manufacture of the most beautiful laces; in proof of which the orticles exhibited by Messes. DURAYON-BRUNFAUT and Co., of Brassels and Ypres, may be more particularly referred to, as also those of other exhibitors. The laces chiefly manufactured are termed Brussels, Mechlin, Valenciennes, and Grammont laces, I. "Brussels"

I. "Brussels" produces two different descriptions of lace, known as "Point à l'aiguille," and "Brussels plait." The former is made entirely with the needle, the latter is made on the pillow, and "Honiton lace" very much resembles it.

The finest and most expensive kind is made of very fine flox thread, and some of cotton. Formerly the laces were made only on the "real ground," which is made on the pillow in parrow widths of from 1 to 3 ioches, and then joined with such admirable ingenuity as to be imperceptible.

It is of the most beautiful description, being remarkably soft and clear, but so costly as to be within the reach of comparatively few persons. Hence it was only worn at

Court, and hy the most wealthy.

Trimming lace of 4 inches wide varied in price from four to ten guiness per yard: veils, from twenty-five to one hundred goiness each, and other articles were proportionately expensive; but recently, owing to the great improvement which has been effected by eminent houses in the town of Nottingham (England), in prodocing a very superior net by machinery, the lace is now manu-factured at a much less cost; the flowers or designs being made by hand, and afterwards sewed on to the "machinemade" net. This description of lace is known by the term "application of Brussels," and its resemblance to the Brassels point lace is so striking as frequently to

deceive those who possess a good knowledge of lace.
"Brussels ploit" is in considerable use in France. Spain, Russia, and other countries, and is made of most

exquisite quality.

The "Point h l'aiguille" is more worn in Eoglond:

and since the great improvements which have been made in prodocing this beautiful lace at so considerable a re-duction in price, the demand for it has become very general, and it is now worn by nearly all ladies of rank and fashion.

In the manufacture of Brussels lines several classes of workers are employed, as follows:—1. Those who moke the flowers in plait. 2. In point, 3. The real ground. 4. The ground in the flowers, 5. The attacheoses (fasteners). 6. Those who apply on the net. 7. Those who work the point, and the new kind of real Brussels, &c. (the "gase point").

With the exception of the point d'Alençon (made in the

north of France), Brussels produces the most valuable lace that is known,

11. Mechlin laces are made at Malines, Antwerp, and in the vicinity, ond are of the lightest and most beautiful texture. They are all unde in one piece on the pillow, and their peculiarity consists in a plast thread surround-ing the flowers, and designing the autline, so as to give the appearance of embroidery. This manufacture has suffered very much from the caprice of fashion Valeocieunes laces are made chiefly in the following towns, and the surrounding villages, viz., Ypres.

Menin, Conttrai, Bruges, Ghent, and Alost. Although all made in the same manner on the pillow, yet the productions of the various towns named are so

characteristic, that a person necustomed to examine them, will readily distinguish where each piece of lace was

1. Y pres excels particularly in laces of the finest square grounds, of the widest and most expensive description, varying in price from 6d, to 5sd, the English yard, This branch of industry was commenced at Ypres about 1656; and according to a census made by Lonis XIV. in 1684, there was then one lace manufacturer, and 63 workers employed. It is only since 1835, that its trade has been so considerably developed: and now it is estimated that so considerably developed; and now it is esammated than the lace-dealers of Ypres purchase the produce of about 20,000 workers living in the town and its envirous. The bulk of the lace manufactured here is exported,

principally to England, France, and Germany, and a trade

has been opened with the United States; but a great barrier to its increasing development exists in the greetly-varying duties levied upon lace by different countries

2. Mcoin provides employment for about 2,000 or 3,000 workers,
3. Brages. The mannfacture in this town has im-

mensely increased, and a considerable trade is now carried on. The laces here are of a good, useful quality, soitable for trimmings, and are much sought after by

English buyers; but the number of persons ongaged here in the making of lace is not so large as in Ypres.
4. Ghent. The fobric of this place is extremely good, and laces of all qualifies are produced, principally con-sisting of the narrow and medium widths, employing in

their manufacture about 10,000 or 12,000 persons.

5. Alost possesses very excellent workers; but the designs are not equal to those of Ypres, and the colour

of the laces is inferior. IV. In the village of Grammont great improvements have been made in white-thread lace, also in black point

trimming laces. Recently, the manufacture of piece-goods, as shawls, scarfs, berthes, &c., has been commenced, and is carried on with great success. The quality and designs are not equal to those of France, but the prices are much lower,

and these productions are now in considerable demand. BRITISH LACK.

A Council Medal has been awarded to BALL, DUNNI-CLIFFE, and Co., Nottingham (19, p. 560), for velvet and Simla lace; being new patented fabrics, suitable for shawls, dresses, and for various ornamental and nacful purposes, and of commercial importance. Also imitation Valenciennes, and white and black point tulle, of great

The Jury award prize Medals to the following :---

ATERS, W., Newport Pagnell, Bucks (388, p. 573), for specimens of wide thread-lace of good useful quality. CLARKE, ESTHER, London (130, p. 565), for o Houiton lace flounce, of which the design and quality are meenalled in its class.

FISHERS and ROBINSON, Nottingham (2, p. 559), for imitation of Valenciennes Inces, black trimming loces, and patent spot-nets, all possessing merit as machine-fluished goods; also two tamboured net shawls, with a variety of excellent black Jacquard laces and shawls of

superior merit. FORDENT, JAMES and SONS, Dublin (45, p. 561), for jacket-flouncings, scarf, berthe, and handkerchief,

imitation of old Spanish point, with specimens of Lime-rick lace. The whole unequalled in their class. rick lace. GREASLEY and HOPCROFF, Nottingham (34, p. 561),

for very superior Jacquard shawl; also flouncings and falls, together with some needlework-shawls well executed, and truthful imitations of real lace GROUCOCK, COPESTAKE, MOORE and Co., London (3, p. 559-60), for Houston guipure half-shawl, flonneings, lap-pet, and trimming-lace, of excellent design and manufac-

ture. Double-flounced dress, with court train, tamboured on fine Brussels net, elaborately worked and well designed. Very wide Buckinghamshire lace of fine quality. Embroidered muslin low and high chemisettes, collars, cuffs, trimmings, &c., of superior work.

HEALD, B., Nottingham (269, p. 570), designer, for pastern for broad lace flounce, evincing good taste and snitability of design. HETMANN and ALEXANDER, Nottingham (25, p. 560),

for machine-made lace curtains in great variety; also, plain and fancy nets, remarkable for cheapness and Howett, James, and Co., London (5, p. 560), for

guipure Honiton lace shawl and mantle of very excellent manofacture. LAMBERT and BURY, London (4, p. 560), for Limerick

lace shawl and time dress.

LENTER, T., Bedford (236, p. 568), for wide white and black lace,

MALLETT and Banton, Nottingham (29, p. 561), for imitation black trimming-lates, and Valenciennes edgings, RECKLESS and HICKLING, Nottingham (32, p. 561), for shawls, scarfs, flonnces, falls, and trimming-laces, in imitation of black point lace. Also for white tamboured shawls, scarfs, flounces, and falls. The whole possessing great merit in design, as well as in execution

RIEGO DE LA BRANCHARDIERE, E., London (17, p. 560), for basket of flowers, rock, berthe, &c., in erotebet-work;

very beantiful.

Hoannon, Thomas, Nottingham (25a, p. 560), for machine-made lace curtain of excellent quality and graceful design, exhibited by Heyman and Alexander. ROLPH, JONAS, Coggeshall, Essex (282, p. 570), for double flonnee, scarf, and berthe; the design soperior, and the work unequalled in its Class

STERGMANN, IL., and Co., Nottingham (41, p. 561), for muchine-made lace curtains of great beauty of design and general excellence

TREADWIN, C. E., Exeter (55, p. 561), for Houiton mipore flounce, resembling ancient lace; the pattern, rom Government School of Design, is particularly commended.

Viccans, R., Padbury, Bockingham (235, p. 568), for Wide thread-lace of fine quality, Vickens, William, Nottingham (33, p. 561), for shawls, scarfs, mantles, falls, flounces, and trimming of great merit in design, and for their faithful

imitation of real black point lace, and at comparatively moderate prices. WEEDON, FRANCIS, London (6, p. 560), for British point lace shawls, lappets, and specimens of flourcings; designs very good

WHITLOCK and BILLIALD, Nottingham (27, p. 560), for imitation laces; an admirable copy of the real Mechlin.

The Jury make Honourable Mention of the following Exhibitors in this department :-

ADAMS and Sons, Nottingham (21, p. 560), for thread edgings, made on the traverse warp machine, being neat and useful goods. CARDWELL, C. and T., Northampton (122, p. 560), for pillow-lace of different widths. CLARRE, JANE, Regent Street, London (18, p. 560), for specimens of lace, copies of old Spanish point; the

work extremely fine and beautiful. GILL, W. L., Colyton, Devonshire (386, p. 573), for ecimens of Honiton lace, in imitation of Spanish and Venice point,

HEALD, HENRY (295, p. 570), student of Gove School of Design, Nottingham, for pattern of half shawl in good taste.

HERBERT, THOMAS, and Co., Nottingham (38, p. 560), for imitation blondes, laces, crochet-edgings, &c. latst Work Society, London (77, p. 363), for various descriptions of lace, knitted, notted, and croebet; also, various specimens of bosiery Ktontlet, I. (123, p. 564), for pillow-lace, narrow and

Ladies' Industrial Society, Dublin (213, p. 567-8), for infants' lace-robes, imitation of Spanish point; also shawl, mitts, parasols, &c., made from the fibre of sweet pea, nettles, and honeysnekles, an application of a new interial to textile purposes, Lacohen and Cosens, London (10, p. 560), for Honi-

Sts. C. J., Belford (301, p. 371), for two pair of lappets made no the pillow, an excellent imitation of Mechlin lace; also various trimming-laces.

TURTON, SAMUEL (179), designer, Nottingbam, for a design for lace enrtain.

SCOTCH AND IRISH ENBROIDERY.

The Jury award Prize Nedals to the following subiects:-

Barg, J., and Co., 189 Regent Street, London (24 Class XX., p. 578), for embroidered shirt-fronts, tasteful in design and of fine work.

Brown, Strangs, and Co., Paisley, and 18 Watling Street, London (37, p. 562), for embroidered muslin robe, of great richness of effect and splendonr of design. Brown, S. R. and T., Glasgow (58, p. 562), for rich book-robe, short cambric frock, cambric handkerchiefs, stomachers, and collars, with other articles of great beauty, ntility, and excellence; also, a number of booknslin collars exhibited for lowness of price. Holder, J., and Co., Belfast, Ireland (1, Class XIV

p. 510), for muslin insertions and trimmings, embroidered robes, and frock bodies; also, some fine embroidery in robes and jaconot, remarkable for cheapness and effect Mair, J., Sox, and Co., 60 Friday Street, London (59, Class XI., p. 482), for three muslin robes (sewed and

tamboured), very chaste in design and of excellent work. Macrossalt, D. and J., and Co., Glosgow (66, p. 562), for embroidered muslin robe, eap, and basinet; designs very graceful, and work exquisite, being the finest sample of sewed-work in English, Scotch, or Irish embroidery. This firm also exhibit medium and wide open-work flouncings, fine broad triannings, embroidered muslin robe, high chemisettes, and many other articles of merit in design, execution, and utility.

Salomons and Sons, 42 Old Change, London (305, Classes XII. and XV., p. 501), for embroidered guipane cambric cape and handkerchief, high chemisette, and collar, work of much excellence, and great novelty in the introduction of a new guipure stitch,

The Jary make Honourable Mention of the following Exhibitors in this department :-

Brown, Huon, Glasgow (64, p. 562), for muslin floonce and trimmings, embrookered robes, and eambric handkerchiefs.

BROWN, J. R. and W., Bangor (2, Class XIV., p. 510), for embroidered mustin robe, of good work. CAPPER and WATERS, Lendon (21, Class XX., p. 578), for court suit in work, lace frill and cuffs in imi point lace. ROBERTSON and SONS, Glasgow (62, p. 562), for cambric table-cover, collars, and other useful embroidery.

BRITISH THIMMINGS AND PRINCES.

The Jury award Prize Medals to the following sub-

Bennoch, Twenthmann, and Rigo, 27 Wood Street, Chenpsida, Loudon (394, p. 574), for a variety of gimps, fringes, and cause braids, showing general excellence. Danar, C. and T., 14 Coventry Street, Loudon (71, p. 562), for a variety of silk fringes, garniture for dresses, cord and tassels, and other trimmings of taste and novelty. Evans, R. and Co., 24 Watling Street, London, (74, p. 563), for silk fringes, braids, and fancy buttons,

HAMMUNGER, ROGERS, and Co., 30 King Street, Covent Garden, Loudon (186, p. 566), for epaulettes, military hats, and embroidery suitable for regimentals, of good design and exceution. LAMBERT, BROWN, and PATRICK, 236 Regent Street, London (83, p. 563), for equalettes and laces, embroidered waistcoats, masonic emblems, church decorations, fac-simile of Bible used by King Charles I. embroidered in

gold, and coloured silks; all of great merit, UPHOLSTERY FRINCES, TRIMMINGS, AND COACH LACES,

The Jury award Prize Medals to-

BUNGS, ROBERT, 42 Bartholomew Close, London (75, 563), for specimens of gimps, tassels, and ornaments, in fine taste, and well executed. JULLIEN, sen., Tours (Indre and Loire), (1280, France, p. 1238), for specimens of gimps, fringes, tassels, ornaments and glass frames, formed of silk rope, very taste-

fully and well executed LEES, R. and Co., 36 King Street, Cheapside, London (79, p. 563), for printed mohair velvet, of very handsome design and well executed.

SCHAESEF, R., Brieg (118, Prussia, p. 1055), for a large sortment of coach laces and trimmings, possessing a bigh degree of excellence in design and execution,

The Jury make Hononrable Mention of the following Exhibitors:-

ELLIS, SOPHIA A., Ireland (159, p. 566), for specimens of tatting in collars, berthes, chemisettes, &c., of very fine quality. GUILLENOT BROTHERS (251.France, p. 1188), for coach

and livery laces. Hannison, T., London (85, p. 563), for altar-cloth and eashions of crimson Genoa velvet, embroidered in gold,

KINGSBURY, LOUISA, Taunton (225, p. 568), for a basket of flowers, &c. ONION, E., Birmingham (56, p. 562), for an assortment

of good fringe, tassels and ornaments.
Puzza, Beamont Depot (1414, France, 1244), for face and trimmings for carriages, and livery laces, extremely good.

STANDBING and BROTHER, Manchester (239, Class XXIX., p. 802), for a good assortment of braids, laces, plaited lines, binding plain and figured, and fringes for dresses. WESTHEAD and Co., Manchester (275, Class XXIX.

p. 816), for a good assortment of tapes, and binding of various kinds, liues, &c.
Zetsto, H., Breslan (225, Prussia, 1060), for specimens of npholstery and coach trimmings of good workman-

FRANCE.-LACE AND EMBROIDERY.

ship

The Jury award Prize Medals to the following:-AUBRY BROTHERS, 33 Rne des Jenneurs, Paris (1344, France, p. 1250), for laces from Mirecourt, made in the ner as Brussels plait; double skirt-dress, half shawl, coiffure, lappets, also trimming lace, &c. Designs and work meritorious

BERR and Co., 17 Rue de Clery, Paris (54, France, 1174), for robe, shawl, scarf, veil, berthe, cape, &c., in imitation of Brussels lace, being superior to any others exhibited of their class.

DARNET. Rue Riehelieu, Paris (1578, France, p. 1252), for a great variety of shirt fronts, beautiful in designs, and of good embroidery.

DEBBELD-PELLERIN, and Co., 73 Rue Richelien, Paris (1173, France, p. 1234), for a magnificent counterpace (worked at Nancy). Beauty of design, excellence of work, and general effect.

DELABOCHE-DATGREMONT, 17 Rue de la Paix, Paris (267, France, p. 1189), for muslin robe, jacket, and a variety of cambric handkerchiefs and collars, all of much Foulquir, Mile., and Co., 20 Rue Hauteville, Paris

(1603, France, p. 1253), for collars, half shawls, neckerchiefs, and other articles of knitting work, possessing merit as regards novelty and chespness.

HEYLER, Mile. Maare, 36 Rue de l'Echiquier, Paris

(539, France, p. 1294), for silk-net mittens and gloves of very superior quality.

HUBLET, Madame JOSEPHINE, Mondeville, and 2 Rue dn Grund Chantier, Paris (268, France, p. 1189), for headdresses, and garnitures for robes, in needle-point relievo. Designs of high artistic excellence, and much novelty and

ingennity exhibited in their application for the purposes named.

Leyencar, Acouste, Bayeux, and 42 Rae de Cléry,
Paris (1646, France, D. 1256), for white threed-lace counterpase, black lace half-shave and sear? Alequop noint
lappets and sear?, and white bloods mantilla. The white
lace counterpane is a very beautiful production, and deserving the highest encomians for fineness of quality,
beauty, and elaboration of design.

Lehire and Son, 1 Rue des Feuillantes, Lyons (1649, France, p. 1256), for embroidery in gold, and the application of gold and silver to this purpose, evineing superior skill. (Prize Medal awarded by Jury of Class XIII.) MALLET BAOTHERS, Calais (599, France, p. 1256), for

ceimens of machine-made imitation Valenciennes lace and lappet. Fine ground and good patterns. Michells, T., 139 Rue Montmartre, Paris (641, France, p. 1208), for fancy ribbon trimmings for dresses and cloaks. Designs very tasteful,

MERAUX, J. H., 7 Rue de la Jussieune, Paris (631, France, p. 1208), for patterns for rich flounce, handkerchief, lappets, &c., in excellent and appropriate taste. Monkat and Co., 22 Rue d'Enghien, Paris (652, France, o. 1209), for embroidered shirt-fronts, of much merit, both

CLASS XIX.

in design and execution. Montano, Mile., 39 Rue Montmartre), Paris (655, France, p. 1209, for ince hend-dress, caps, tobacco-bags, net-purses, with various fancy articles in chain-stitch

MORTEUX, F., 31 Rue Mendetour, Paris (1362, France, p. 1241), for galloons, and buttons of superior quality,

and excellent taste. PAGNY, Paris (675, France, p. 1211), for black pointlace shawl and scarf. Design and quality deserving high

REPIQUET and Struker, Place de la Croix-Paquet, Lyons (1432, France, p. 1244), for a large variety of velvet and silk trimmings in very good taste. (Prise

Medal awarded in Class X111.) RANDON, L., Cuen, and 9 Passage des Petits Pères, Paris (1684, France, p. 1257), for white blonde flounce, scarf, berthe, lappet, and coiffure; also lappet in gold and silver. Decided merit in an effective and beautiful style

of design, with great richness of effect,

of design, with great richness of effect, VAUCOOR 30 ABSCORD 17 ACTOR, Now Massconseil, Paris (718, France, p. 1213), for gold and aliver embroidery. The VIERCOARD 65 STON, 58 Ende & Jesusern, Paris (7106, France, p. 1238), for Chantilly thaw), sextf, dress, domes, and suite of Alexon point-less. The magnificence of design, extraordinary bounty, and surpossing quality of the articles exhibited, merit the highest praise.

PRENCH LACE. &c.

The Jury make Honourable Mention of the following Exhibitors in this department:-

AUDIAT, F., Paris (1545, France, p. 1250), for embroi-dered imitation trimming laces, on Mechlin grounds, of good design and workmanship. DABARK-TAMPS, Olise (152, France, p. 1178), for a great variety of silk buttons.

DELCAMBRE, A., Paris (1584, Prance, p. 1252), for gold and natural colour silk lace, and black point-lace and scarf.

HOOPER, CARROZ, and TABOURIER, Paris (1625, France, p. 1255), for ince scarf, lappets, and berthe, in imitation lace. LAROCHE, E., Designer, Paris (291, France, p. 1190),

for pattern suitable for guipure lace. (Prize Medal awarded hy Jury of Class XXX.) LAURENT, J. B., Paris (902, France, p. 1223), for silk buttons and other articles of trimming.

MARTIN, C. A., Paris (613, France, p. 1207), for silk buttons, fringes, &c. Mencren, Paris (1354, France, p. 1241), for purses, Greek caps, reticules, and various other fancy articles,

evincing much taste and novelty. Sanuts, Joseph, Puy, Haute-Loire, and Paris (1008, France, p. 1227), for new description of black diamond open ground lace in half-shawl, mantle, and laces, TUISSANT Designer (France, p. 1200), for rich searf with guipure border, showing novelty in design.

SWITZERLAND,-LACE AND EMBROIDERY.

The Jury award Prize Medals to the following:-ALTHER, J. C., Speicher, near St. Gall (110, Switzer-land, p. 1273), for muslin curtains, embroidered in colours,

in good taste.

BUNESGER, J., Thal, near St. Gall (188, Switzerland p. 1278), for embroidered double-flounced dress, of great novelty in design; arms of England embroidered on cambric, with several other articles of merit. ERRENZELLER, F., St. Gall (191, Switzerland, p. 1278), for net and muslin curtains, very chaste in design, and of

superior work.

FISCH BROTHERS, Buchler, Canton of Appensell (192, Switzerland, p. 1279), for net curtain, decided novelty in design.

NCHLARFFER, SCHLATTER, and KERSTEINER, St. Gall (201, Switzerland, p. 1279), for two pairs of net curtains, of excellent design; with a variety of other useful articles.

SCHOCH, SCHIESS, and Sow, Herimu, Canten of Appensell (2012, Switzerland, p. 1279), for embroidered bandkerchiefs, of good work and rich design.

STANMALI-WILD, C., St. Gall (208, Switzerland, p. 1279), for two embroidered table-covers, window curtains, waistcoat piece, several handkerchiefs and collars: the whole

of Ibentiful design and superior work.

SCYTEN, J. J. Bibber, Chaon of Appennell (200,

SWIZETALD, p. 1279). For chiant look robe of great

Bouletten, p. 1279, bot chiant look robe of great

Banderchiefe, exquisite in design, illustrating various

object in natural bistory, combined with handreque views

TASNER, J. U. Bibber, Chaon of Appennell (190,

SWIZETALD, p. 1279), for embeddered coverlet, figure of

William Tell in the sterma. Pranado piece of needle
William Tell; cambrie banderchiefe of great beauty,

bouguet of flowers, in alk, with other articles of great

bouguet of flowers, in alk, with other articles of great

TANNER and KOLLER, Herisau, Canton of Appensell (206, Switzerland, p. 1279), two embroidered muslin dresses, rich cambric handkerebiefs, with other articles of merit.

The Jury make Honourable Mention of the following exhibitors in this department:—

HOLDREGGER, C., St. Gall (195, p. 1279), for embroidered curtain of good design and very effective. TANKER, B., St. Gall (204, p. 1279), for muslin in the piece, fine and well manufactured.

prece, fine and well manufactured.

Voxwiller, Ulric ne Gasp, St. Gall (140, p. 1275), for a variety of low-priced articles, suitable for the foreign market.

BELGIUM.-LACE AND EMBROIDERY.

The Jury award Prize Medals to the following:— Back and Sons, Courtray (324, Belgium, p. 1161), for broad and narrow Valencienness of good fabric. Defarking, Sorfite (316, Belgium, p. 1161), for Brus-

Dependency, Soffie (346, Beignan, p. 1161), for Brussels point handkerchief, of much taste and degance.

Delenate, A. (305, Belgiam, p. 1169), for "application of Brussels" flounce. Beal Brussels fall and scarf of good execution.

DUBLATON-BREYLET, and Co., Brauch and Fpres (314, Belgium, p. 1161), for wide and answey Valuencianus (314, Belgium, p. 1161), for wide and answey Valuencianus and handkerchief. The wide Valuencianus lands that and and handkerchief. The wide Valuencianus lands are not surpassing brauty, and unequalled as to quality and design. The Braucht shawl and handkerchief are most claborately worked, and possess much merit. HAKCH, J. (341, p. 1161), for a real Brausels plain

HAMMERATH, P. H., Ypres (337, Belgimm, p. 1161), for Valenciennes laces in great variety and beauty, both in design and quality. One piece, extremely wide for this description of lace, is deserving of much praise. HEXESCHEN VAN EXEMBERT, and DEMISSES (310, Belgimm, p. 1160), for two bobbin Brussels lace dresses, real Brussels fall, guipure handkerchief and cape, &c.,

excellent designs and quality.

MEJOTTE, E., Brussels (302, Belgium, p. 1160), for magnificent piece of gold embroidery of superior work,

NARTIENS, G., Brussels (308, Belgium, p. 1160), for bobbin Brussels berthe, coiffure lappet, jacket, falls, and flounces: the whole a good medium class, sud as such

possessing merit,
POLAK, F., Brussels (298, Belgium, p. 1160), for designs for black lace flouncings, scarfs, trimming laces, &c., in good and appropriate taste.

Reallies, Mile., Brussels (309, Belgium, p. 1160), for

Brussels point face handkerchief, made of flax thread, needle-wrought ground; for beauty, harmony of designperfect execution, and fineness, this article belongs more to the fine arts than to ordinary manufactures. SORNEN, F., Ypres (3.38), Brussels, p. 1161), for Valen-

Sourses, F., Ypres (538, Brussels, p. 1161), for Valenciennes lace handkerchief and lappets—excellent goods, STOOGEART BEOTHERS, Grammont (507, Belgium, p. 1160), for black point lace shawl, searf, lappets, flonne-

ings, &c.—much merit, taking prices into consideration. VANDER-KELLS-BERSON, Hrussels (313, Belgium, p. 1160), for Brussels lace handkerchiefs, artistic design: subject, the Boyal Arms of England, Glory, Industry, and Justice. Guipure flouncings and betthe of superior quality; with various other articles of much merit. VAS ILALIE, J. Brussels (303, Belgium, p. 1160), for

Vas Halle, J., Brussels (305, Belgium, p. 1160), for complete set of rich vestments, consisting of chasulle, cope, and dalmasics. Three figures, representing Bosset, Hislop of Meaux; Fricalon, Bishop of Cambray; and 8t. Thomas h Breket, clothed in episcopal robes of equipitic embroidery, studded with brilliants. The mitre is adorned with diamonds, rubies, and pearls. The alle in of real Brussels Iscc.

Van Kitt. Sistems, Mechlin (333, Belgium, p. 1161), for real Mechlin lace lappets, trimming lace, lace fall, and collar—much merit.

The Jury make Hononrable Mention of the following Exhibitors:-

Borsson DE VLIEGHERE, Bruges (328, Belgium, p. 1161), for two flouncings, imitation of Spanish point lace, of bold and effective style.

Dartwelle and Morsover (329, Belgium, p. 1161), for imitation Brussels scarf; Mecklin half shawl, &c. Evranary Strrams, Brussels (321, Belgium, p. 1161), for black lace shawl, dress jacket, and veils, good in quality and design.

Roy, C. F. (301, Belgium, p. 1160), for "application of Brussels" flounce; very bold and effective. Sr. Josepn, Establishment of, Verviers (322, Belgium, p. 1161), for Flanders guipure lace flounce, sleeve, and trianming-dace, of excellent quality and good style.

SAXONY,-EMBROIDERY.

The Jury award Prize Medals to the following:--BACH, G. F. and Sox, Buchholz (158, Saxony, p. 1111),

for faucy gimps and silk fringes; much merit in taste, excellence of execution, and chesparsa.

Hirrat, J. A., Dresden (1688 Saxony, p. 1112), for a seven tableaux embroidered in hair and silk, in imitation of engraving. The whole beautifully executed, particularly the portraits of the King of Saxony and Her Majesty Queen Victoria.

Quien Victoria. SCHERTE, G. F., Plauen (60, Saxony, p. 1107), for set of farmiture; easy chair, pillow, and custions, windowcuations, wall-beaket, table-cover, shades, letter-case, and pincension, embroidered on muslin; possessing merit, as showing a new use for embroidery. Designs and work well adapted for the purpose.

SECULIER, F. A., Dresden (71, Saxony, p. 1108), for pillow-lace guipure, berthe, barbe, in imitation of ancient lace, both possessing merit.

The Jury make Hononrable Mention of the following Exhibitors:--

BORRLER, F. L. and Son, Plauen (56, Scrony, p. 1107), for embroidered cambric handkerchiefs. Schnoss and Strinhaeusen (62, Saxony, p. 1107), for

table-cover of good design and work.
Scarcauxt, Mrs., Anasberg (156, Saxony, p. 1111), for a worked table-cover on net-lace, of rich appearance, and ingenious design.

DENMARK.

The Jury award a Prize Medal to-

WULFF, JENS, and Sons, Brede, Schleswig (5, Denmark, p. 1836), for lace collars, eaffs, thread-edgings, and laces; a good meful class of goods.

TUSCANT.

The Jury award a Prize Medal to-

PARLANTI, E., Borgo a Boggiano (102, Tuscany, p. 1298), for a piece of embroidery in imitation of engraving. Subjects embracing the map of Europe, Napoleon at St. Helena, portrait of Rubens, &c.

SWEDEN AND NORWAY.

The Jury award a Prize Medal to-

HAMRÉN, SOPHIE, Halmstad (28, Sweden and Norway , 1351), needlework embroidery, representing the Royal Palace of Ulriksdal, near Stockholm; extremely well executed.

SARDINIA.

The Jury award a Prize Medal to-

STEFANI, W., Turin (86, Sardinia, p. 1305), for two large silk embroidered tableaux of great merit,

SPAIN.

The Jury award Prize Medals to the following Ex-

FITER, J., Barcelona (221, Spain, p. 1343), for rich black blonde dress and mantilla, of superb appearance,

remarkable for the introduction of colonred flowers, evincing much taste and elegance. GILART, R., Madrid (237, Spain, p. 1344), for the royal arms of Spain, elaborately worked with coloured silks, having a rich and costly appearance, with the gold and

silver on erimson Genoa velvet. The work is beautifully executed, and produces a very brilliant effect. Also some exquisite embroidery on grass-cloth, being the baby-licen made for the late Prince of Asturius. MARGUENITA, Sefora (236, Spain, p. 1344), for rich dress from the fibre of pine-apples, embroidered by hand; very beantiful of its class, Exhibited by W. P. HAMMOND,

and Co., London, The Jury desire to make Hononrable Mention of-G. M. SENORA, Madrid (238, p. 1344), for a fine

HAMBURGH.

The Jury award a Prize Medal to-

GOMPERTZ, B. (33, Hamburg, p. 1137), for hair-em-broidered pictures of the Queco and the Prince of Wales, and of the Hamburgh Exchange.

The Jury award a Prize Medal to-

curionaly-embroidered shirt,

BENKOWITS, MARIE, Vienna (389, Austria, p. 1029), for embroidery of erape thread on white silk, representing Beneficence. An embroidery of wool and ailk, representing the Grave of the Fallen Soldier.

The Jpry make Honoprable Mention of-

BAUHOFER, F., Vienna (388, Austria, p. 1029), for the arms of England embroidered with gold and silver, well executed. Kaicki, E., Vienna (263, Austria, p. 1019), for a piece of embroidery, the arms of England in gold, silver, and

silk, well executed. RUSSIA.

The Jury make Honourable Mention of the following Exhibitors:

SHEKHONIN, ALEXIS, of Novgorod (275, Russia); Prize Mednl, Class XX., p. 1375). POPUNOFF, SOPHIA, of Tiffis (310, Russia; Prize Medal, Class XX., p. 1376).

NAKHITCHEVAN, Town of (274, Russia, p. 1373). All for a number of articles in leather embroidered with gold, adapted for caps, slippers, boots, &c., with many other articles possessing both novelty and excellence,

SARDINIA

The Jury make Honourable Mention of— Thomana, F., Genon (49, p. 1304), for several em-broidered cambrie handkerebiefs.

The Jury make Honourable Mention of Saras and Rangos, Athens (56, p. 1406), for embroidery in gold.

NEEDLEWORK AND EMERGIDERY.

The Jury award the Prize Medal to the following Exhibitors:

FAUDELL and PHILLIPS, London (165, p. 566), for abroidered hangings for a state bed, showing various kinds of embroidery in the curtain drapery, tester, and coverlet. The panel in the foot-board is a copy of the "Aurora" by Guido, very finely executed, from a drawing: for the centre of the head-cloth, a medallion finely worked from a cast, being a successful copy of Thorwaldsen's " Night."

HOLLDSWORTH, JAMES, and Co., Manchester (64, Class XIII., p. 506), for embroidery by machinery on cloth Sext, G. (Prussia, 657, p. 1086), for ornamental arti-

eles, and pictures in hair, most artistically executed. The Jury make Honourable Mention of the following:-

GRUNTHAL, Berlin (166, Prussia, p. 1057), for Berlin patterns for needlework Harrase, E. and G. London (195, p. 567), for a table-cover embroidered on new silk canvas, the inven-

tion of the Exhibitor; also three small pictures in teptstitch, finely executed. HELESONNER, R., London (199, p. 567), for specimen of a new style of needlework, of good design, and well

executed, Jackson, C., London (84, p. 563), for oppliqué em-broidery, forming the top of a table; well worked, and in good taste.

JANCOWSKI, W., York (48, p. 561), for a small picture roidered in tent-stitch, extremely well done. MEE, CORNELIA, Buth (51, p. 561), for banner screen, fings of all nations, well arranged and executed; embroidery suitable for borders to curtains or portières, the flowers well arranged and well coloured,

NEIE, F. W., Berlin (Prussia, 168, p. 1057), for Berlin pattern for needlework Paner, C. F. W., Berlin (169, Prussia, p. 1057), for a needlework carpet, of good design, and well executed.

PURCELL, FRANCES, London (88, p. 563), for an embroidered table-cover, tastefully designed and coloured, and exhibiting different kinds of needlework. Schlevss, H., Berlin (160, Prussia, p. 1057), for specimens of embroidery

SOMEGREELD, R., Berlin (173, Pressia, p. 1057), for an ssortment of needlework and embroidered articles. Topy, A., Berlin (171, Prussia, p. 1057), for Berlin patterns for needlework.

CARPETS. In reviewing the existing state of the manufacture of

in reviewing the existing state of the manifesture of carpets, the first specimens that claim our intention are those from India, Persia, Turkey, and Tunis. However great may be the differences in quality amongst the carpets from the countries mentioned, they are all made upon the same principle, and that one of great simplicity; hot which yet affords the means of

producing a more perfect, beautiful, and durable descrip-tion of carpeting than any other mode of manufacture more recently discovered or introduced. The manufacture is not carried on in any large establishmeets; but in pastoral districts, where it is com-hined with occupations of that nature, and engages a

portion of the time of the families employed in that

The bom consists of two perpendicular pieces of wood,

fixed at some distance apart, which support a beam or roller; at the top, upon which the warp or chain is wound, and about 2 feet from the floor, is another similar

beam, upon which the carpet is rolled as it is made. The work is done entirely by hand, and each tie p across the face of two warp threads round the back, and

servos the face of two warp threads round the loce, and has the ends drawn up between them.

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can be copied with great accuracy.

The design and colours of several of the carpets from India, Turkey, and Persia, are especially worthy of notice, and should be studied with a view to imitate their beauties by the manufacturers of other countries. There is one carpet from Cashmere, sent by Gholas-Stsoll to the Exhibition, made entirely of silk, that cannot be too highly praised for the beauty of its texture, and the softness and harmony of its colouring. In this carpet there are at least 10,000 ties in every square foot. There are other specimens of carpets of small dimensions, but very beautiful, and remarkable for richness and harmony of colours. The exceptions are where an attempt has been made to copy European designs; and there the failure is as great as is the success in those of the native

eastern style. The carpets from Turkey deserve especial notice, as there are, in addition to those made all in one piece, some in breadths, extremely well coloured and closely woven; and an attempt has been made at new designs with considerable success. The carpets from Tunis and Algiers are made upon precisely the same principle, and have the same peculiar character in colonring and design,

The most costly and magnificent carpets of Europe are and that large and beautiful earpet, sent from the manu-factory of the Gobelins to the Exhibition, is unde by the same process of weaving as the ordinary Turkey earpets; same process or wearing an our orannary in before a sho are those from Tonrnay, in Belgium; Deventer, in the Netherlands; Aubusson, in France; London, Wilton, and Millbridge, in Great Britaio. The manufacture at Aximister in Devonshire, and Mirfield in Yorkshire, of Aximister in Devonshire, and Mirfield in Yorkshire, of the control of this description of carpet, generally called "Axminster, ceased to exist about twenty years ago,

The chief seat of the carpet manufacture in France is the department of Creuze, at Aubusson, Felletin, and Manrissard, where there are probably not less than 5,000 persons engaged in the manufacture of carpets and

with the exception of the kind referred to, when describing the carpets from the east, the Aubusson carpets are all made upon the same principle as tapestry, and are consequently too expensive to be purchased by any hut the rich. The specimens of Aubusson tapestry and carpets exhibited by Mons, Sallannsoure DE Lanon-NAIX (1469, France, p. 1246) are especially worthy of notice, being second only to those of the Gobelins and Benuvais. Their merits are not recompensed by a Medal, in consequence of M. Sallandrouze de Lamornaix, as Commissioner for France, having withdrawn from competition.

The manufacture is well represented in the Exhibition, and deserves, for its beauty of design and ecolours, the highest praise. There is a considerable demand for this manufacture by the noble and wealthy of European nations, and occasionally by the United States. At Turcoing, Nismes, and Amiens, the carpet manufacture is also carried on; there being at these three towns nearly 600 looms; and the production is increasing. One of the festures of the Exhibition is the progress made by France in the mannfacture of moquette or velvet-pile carpets. This branch is of recent introduction in that country, dating within the last twenty-five years; and the specimens exhibited by Meson, Richtmatar, Rocenta, and Concepters, (143), and remains the contraction of the

SIER HAOTHERS, of Nismes, are very good. The same manufacture is adapted for foors or for covering farniture; hat fur the latter purpose, it is made very fine to imitate tapestry, with a velvet surface.

Moquette, Wilton, or velvet-pile, and Brussels ea

are all woven upon the same principle; the only differ ence being that in Brussels the wire, by which the pile is raised, is drawn out, and in velvet cut out by a knife. The pattern is formed by having frames placed over each other, and filled with bobbins of worsted, each frame

having for the ordinary width 260 bobbins.

The manufacture of Brussels carpets was first introduced at Kidderminster, about 90 years ago, by workmen brought from Tournay, and has been steadily increasi up to a recent period, when the introduction of Whytock's patent tapestry carpets, together with two other descriptions of carpet, put a stop to its further extension. It cannot be said, huwever, that the manufacture has been superseded to any extent, as nearly the same number of ens continue to be employed.

The colours in each frame are different, and some of the frames are striped, or planted, as it is technically called, with various colours, when the design to be executed requires it, as in flower potterns, and drawn up by the Jacquard machine now generally used, instead of the old mode of drawing up by hand,

The number of colours, or shades of colour, that can be used in a line is limited to the number of frames of worsted, which rarely exceed five in England, but more frequently extend to six or seven in France. Within the last 20 years, three new kinds of carpet have been in-veoted, and brought into extensive use in Great Britain,

all of which are well represented in the Exhibition,
The first in order is Whytock's Patent Tapestry, which has been brought to great perfection within the last five or six years, and now employs about 800 looms, which are not adequate to supply the existing demand. The peculiarity of this manufacture is the unlimited number of shades or colours that can be introduced, so that the most chaborately-cotoured designs, with flowers and scrolls, can be executed. The saving of worsted is also very important in an economical point of view. The appearance is the same or similar to Brussels earpet, but the manufacture is more simple, each thread being coloured sepa-ntely, at spaces, with the various shades as they follow each other in the design. The process by which this is accomplished is beautifully simple and ingenious, but requires much care in placing and arranging the threads, and putting them on the beam. It is also necessary to the economy of this manufacture, that a large quantity of

each design should be made. This invention was patented about 18 years since, and a renewal of the putent granted for a further term of five years, which expired on the 8th September, 1851.
The specimens exhibited by Mesers. HENDERSON and WIDNELL (p. 567), and Mesors Crossler and Sons (p. 565), show in an eminent degree the capabilities of e manufacture as regards design and colouring. The next is the "Patent Axminster" of Templeron &

Co., of Glasgow, (p. 565) of which there are some excel-lent specimens exhibited in carpets, rugs, and table-covers. The object of this invention was to give the beautiful appearance of Axminster, or Tournay, at less cost; and it has been very successfully and extensively applied to the manufacture of rugs, as well as curpets.

The last is a description of carpet, having the same appearance as Brussels, or tapestry, which is woven plain by steam power, and afterwards printed by the same

It is woven at Rochdale hy Bright and Co., under Sievier's patent, and printed near Macelesfield, by Burch and Co., by a machine invested and patented by Mr. Burch. This manufacture has already found large sale, more especially for exportation

Another novelty in the Exhibition is a carpet, rugs, and hangings for walls, of patent wool mosaie, the carpet

The rapid extession of the carpet mannfacture in Great Britain is proved by the fact, that within the last seven years, not less than 700 additional hand-loness have been put in operation, for one of the new fabrics referred to; and loons worked by steam-power, equal to the production of 300 hand-loons for another, without lessening the demand for former fabrics, being an increase of full

30 per cent. in seven years.

Not only has the bome consumption greatly increased, but new foreign markets have been opened, and old ones extended.

Several patents have recently been taken for the application of steam-power to carpet wearing, in addition to that referred to of Sieviera, and no doubt now exists of this having been successfully accomplished; at all avents, for wavning patent tapestry carpets, if not for Bransels of price, and, counciperally still further attinuate consumption. In fact, there is scarcely any branch of our mannfactures that wears a more promising supper for the

future.
The principal seat of the carpet manufacture is Kidderminster, in which there are about 2000 looms, chiefly occupied in waving Brassels carpets; while the earpets called "Kidderminster" are made extensively in the neighbour/hood of Glasgow, Kilmarnock, Bannockburn, neighbour/hood of Glasgow, Kilmarnock, Bannockburn,

and Aberdeea.

They are also made in Yorkshire, Durham, Lincolnshire, and Westmoreland; the largest carpet manufactory in Great Britain being at Halifax.

The number of looms of all kinds may be estimated at 4000, and the value produced at upwards of 1,000,000L sterling.

The average earnings of the operatives will vary from 16s. to 28s. per week.

The specimens of carpeting from Austria, Portugal, Sardinia, and Prussia, show that the manufacture is

making progress in those countries, and is evidence of a growing taste that must ultimately lead to a large increase of consumption on the Continent of Europe.

The numerous exhibitors of Bertin work and their contributions, show that this is still a fashionable occupation among our fair country women, and in addition to those who follow it for anusement, affords employment to

and a large number of females.

Some of the specimens exhibited are very beautiful; in fact, every description of needlework may be said to be well represented in the Exhibitium, and one specimen worked from a cast, and another from a drawing, without the aid of ruled paper, exhibited by FAUDLL and PHILLER.

are especially worthy of notice.

A specimen of tapestry by a lady (Mrs. Alderson) is also highly creditable to the taste and ingenuity of the exhibitor.

exhibitor. The contributions in embroidery of various kinds from India, Turkey, Tunis, and Persia, are extremely interesting, beautiful in tacte, and displaying the highest degree of excellence in execution.

SCPPLEMENT.

SINCE the Jury closed their labours and separated, some specimens of Brussels and ent-pile carpeting, that merit particular statention, have been placed in the Exhibition by Mr. Biorlow of the United States, and hy Mr. Faverry of Kilderminster, as well as hy Measrs. James Hurwarans and Sous of Kilderminster.

The specimens of Brusse carpeting cabilities by Mr. Bigglow, are worten by a power Jonon increated and Righdow, are worten by a power Jonon increated and wovers thus any hand-leons good that have come under the notice of the Jury. Task, however, in a very small control of the Jury. Task however, in a very small control of the Jury and the procedure diseased in substituting stame, power for manual labour in the manufacture of the procedure of th

culty, as well as of great commercial value, must be awarded to a native of the United States.

askeded to a native of not a larged value.

In this country, and two manufactures are preparing under different patents to weare Whytock's parent tapestry carpeting by selection-power. This, however, is much expected to the control of the parent patents to weare Whytock's parent tapestry carpeting by selection-power. This, however, is much selection to the parent
took to norvantage wound result from it. The error of this opinion is demonstrated by Mr. Bigelow, whose foom will wave 20 yards per day on the average, including toppages, and requires only the attended of the extraction of the average only fire yards per day, and requires on the average only fire yards per day, and requires in addition to the waver, the assistance of a bey or girl to draw out and put in the wires by which the pile is raised.*

raised.*
Hesides the great economy in labour, there are other advantages. The goods are woven with more perfect regularity, and by means of an invention for weighting the bobbias equally, and at the same time more heavily, the tension of the worsted being thereby increased, a smoother and more even surface is produced, and by the same means a suring in the material effected.

same means a surrigi to the material elected.

There are in the United States, 28 of Mr. Bigelow's looms at work upon five-frame Bruss-els carpeting, 50 upon tapestry carpeting, and 450 upon ingrain carpeting (as it is called in the Uoited States), the same description being called Scotch, Kidderminster, or super carpet, in

this country.

The invention of Mr. Fawcett is of a different nature, hat also important in its results. In Bigelow's, the main feature is a saving in the cost of labour, in Fawcett's a saving of material. The specimen exhibited is cut-pile, but there is little doubt of the principle being applicable to Brussels carpeting also.

As Mr. Fawcett has a patent in progress, the results only and not the mode by which they are obtained are here noticed.

here noticed.

In Brussels carrys made with five frames of recruce, in Brussels carrys made to the surface is a 5 to 8, and in cuylar of a verage quality as 6 to 8 of the whole quantity used.

By Mr. Favestir mode of waving, the very important saving of one half of the worsted that is at the back of the expet is effected, without diministing the quantity when the carryet is effected, without diministing the quantity what closper; and another devantage is, that two-frame will be worse as swill as five upon the method-in third in the property of design, and the introduction of soil the improvement of design, and the introduction of soils.

tional colours to give proper effect to them.

There is little doubt that Mr. Bigelow's loom can be applied to Mr. Fewcett's invention as well as that of Measrs. Humphries and Sons' improvement, and these two plans combined will produce a much more beautiful fabric than has hitherto been made, at a greatly diminished cost.

The Jury of Class XIX., coujointly with that of Class XXX., have awarded the Government Manutacrous or Gonetin and Bearware Tarsure (1808, p. 1241) the Council Medal for the originality and beauty of design of the different specimens exhibited for furniture, and the extraordinary excellence of execution of most of the productions exhibited.

The Jury award Prize Medals to the following subjects:-

BRAQUENTÉ and Co., Paris (435, France, p. 1199), for

 To prevent misapprebension, it is perhaps necessary to state, that the ingentions invention of M. Sievier, for weaving carjets and other terry fabrics scibbout a wire, is in extensive operation for the manufacture of the plain fabric to be printed in the piece. Auhusson carpet, tapestry, portières, and table-covers; good designs, colouring, and execution. Bainton and Sons, Kidderminster (110, p. 564), for ecimens of patent tapestry carpet, velvet pile, and

Axminster rugs.

Azminster rugs. Bencat, J. and Co., Crag. near Macclessfield (118, p. 564), for specimens of velvel-pile and Braussic carpent, p. 564), for specimens of velvel-pile and Braussic carpent, p. 564, for specimens of velvel-pile and Braussic carpent, p. 564, for specimens of Craussic, (82, p. 564, for specimens, p. 117, p. 564, for specimens of Braussic August (158, p. 564), for specimens of Braussic and velver-pile carpets.

The design is unique and well coloured, the style mediseval. CROWLEY and Sons, Halifax (142, p. 565), for the

great beauty of their patent wool mosaic rugs and table-covers, in design and colours, and also their perfect exeeution. For the design, colours, and execution of the carpet of the same manufacture, and also for its being the first large curpet ever made upon this principle, and for the designs and colours of the specimens of Whytock's patent tapestry carpets.

patent tapestry carpets.

Disculsons, A. F., Berlin (175, Prussia, p. 1057), for soft carpets well designed and executed, and for cloths.

Dovg, C. W., and Co., Leods (155, p. 565), for specimens of five-frame Brussels carpet, of good bold design, and well coloured; also a specimen of five-frame tweethers, of good design and cultural five-frame five-

FLAISSIER BROTHERS, Nimes (Gard), (204, Fra p. 1183), for moquette or velvet-pile carpets, and fine

HARRIN, G. and Co., Stonrport (192, p. 567), for three specimens of velvet-pile carpet, ten frames; excellent in

quality. quality. Hixderson and Widnella, Lastwide (201, p. 567). Specimens of fine tipestry, velvet for table-covers and portibres, patent rugs, and Whytock's patent tapestry carpets. The patent rugs are almost a new article, and as beautiful as any hitherto produced at dooble their as beautiful as any interto produced as cooler teers price. The first large carpet of ecuire design ever made upon the principle of Whytock's patent, showing a very ingenious application of it at a small increase of cost. For the merit of the designs and colours of the patent tapestry carnets, especially the dark grounds, which are well executed.

KROONENBURO, W. F., Royal Carpet Manufactory, Deventer (43, Netherlands, p. 1141), for a large carpet of Persian style, of good quality, and well coloured.

Fernian tyle, of good quality, and well coloured. Lapworth. 4 (132), p. 568, for specimens of velver-pile capet, one of which is very give specimens of a parent Arminette capet of Penian design. Newcosts and Jossa, Kidlerminster (237, p. 368), for Newcosts and Jossa, Kidlerminster (237, p. 368), for and shading, with the use of only five frames. O'PERAS and DELEVIOUR, Tournal-Strongeric (247, p. 168), for Belgium, p. 1100, for Tournal-Strongeric capet, of ser, Belgium, p. 1100, for Tournal-Strongeric capet, of ser,

fine quality; carpets of the same manufacture, in initation of Smyrua carpets; velvet-pile carpets, centre design and bordered

PARDOE, HOOMANS and PARDOE, Kidderminster (263, PARTY AND THE PROPERTY OF THE

1244), for moquette, or velvet carpet, excellent in design and colours; also fine moquette for furniture, and Anbusson tapestre SHITH (TURNERVILLE), BOYLE, and Co., 9 Great Marlborough Street, London (318, p. 571), for patent tapestry carpets, excellent in design and execution.

TEMPLETON, JAMES, and Co., Ginsgow (315, p. 571), for several patent Axminster carpets of good designs, and well coloured. Also rugs and table-covers of the

VICTORIA FRAT CARPET COMPANY, LOVE Lane, Wood Street, London (327, p. 572), for a specimen of printed

felt carpet, combining utility and cheapness.

Warson, Bell, and Co., 35 and 36, Old Bond Street, London (337, p. 572), for Axminster carpet of first-rate quality, good design, and well executed. Bordered Brussels carpet, of Persian design, with contre, extremely good and well coloured

WHITWELL, J., and Co., Kendal (345, p. 572), for specimens of Kidderminster carpet, and twilled Venetian carpet of great utility and cheapness, well designed and ured.

WRIGHT, CREMP, and CRAME, Kiddermin p. 573), for a velvet-pile bordered carpet, five-frame; a Brussels carpet, Persian design; a Brussels carpet, shades of crimson and oaks, &c.

ZCFFINGER, T., Wacundorf, Canton of Zurich (Switz-erland, 209, p. 1280), for his invention in weaving chenille into carpeting, by which the ontline of the design is more correctly given.

The Jury make Honourable Mention of the follow-

BROWN, M'LAREN, and Co., Scotland (114, p. 564), for specimens of velvet carpet, and three-fly Scotch carpet. DAUTRIAS, B. and Co., Portugal and Madeira (853 and 881, p. 1315-16), for two very good specimens of Kidder-

DUCKEL and Son, Amiens (France), for a moquette rpet, centre design and bordered Haas and Son, Vienna (Austria, 619, p. 1038), for a

considerable assortment of moquette carpets; good both in colours and design. HENDERSON and Co., Durham (200, p. 567), for very

good specimens of damask Venetian carpet, and velvetpile stair-carpet, H:MPHRIDS, THOMAN, Kidderminster (210, p. 367), for a seven-frame velvet-pile carpet, of good quality and design, and well coloured.

LADIES' CARPET NEEDLEWORK (379, p. 573), for the design by Mr. Papworth.
Lanoger, Sons, BROTHERS, and JAQUEMET (904,

France, p. 1223), for Anhusson carpets of good design and colouring. LAWRANCE, A. and A., and Co., United States (453,

p. 1464), for a specimen of Kidderminster carpet of excellent quality.

LECUN and Co. (1306, Prance, p. 1239), for Tapis

Ecossais, good in quality and design Monron and Sons (252, p. 569), for several specimens of velvet-pile carpets. NEWTON, JONES, and WILLIS, Birmingham (258, p.

569), for specimens of church carpets and hangings, and episcopal robos. RET BROTHERS (35, Sardinia, p. 1303), for specimens

of thick coarse carpeting, of good designs. Sencox, G. P. (London and Kidderminster) (502, 571), for specimen of three-thread Brussels carpet, exhi-

ted for cheapnes Wilson, J. and W., Scotland (331, p. 572), for speci-mens of Kidderminster (or Scotch) carpets. Woodward, B. Hiootins, Kidderminster (354, p. 572), for five-frame Brussels carpet, centre design, and bor-

dered, with other specimens. Floor-cloths.

The Jary award Prize Medals to the following Exhi-

ALMO and Horr, Elinbeth Torn, Nex Jersey (Taited States, 182, 1849), for specimen of floor-ce and the state of the state of the state of the Bencemany and Soos, Berlin (164, Prussis, p. 1057), for printed molenkin table-covers, floor-cloths, and painted window-binds; a very large and good assorment. Hars, Jours and Ca, Bristol (196, p. 866), for four large specimens of oil-cloth, the designs, colours, and qualities of which are first rate.

Jones, Jun., Brussels (306, Belginm, p. 1160), for printed moleskin table-covers, of great variety and cheapness; floor-cloths, and waterproof fabrics of great excel-

Lr. Crossier, - (1305, France, p. 1239), for table-

covers, varnished and printed, on cotton, moleskin, imitation patent leather, and imitation flock. ROELLER and HUSTE, Leipzig (161, Saxony, p. 1111)

for painted table-covers, and floor-cloths; generally good in designs and well executed. Sain, J. A., Strusbourg (1009, France, p. 1227), for enamelled floor-cloth, waterproof fabrics, toiles and cotton; excellent in quality,

The Jury make Honourable Mention of the following:-

BARNES, R. Y., floor-cloth manufacturer (95, p. 564) for three specimens of oil-cloth, well designed, and good tapestry. in quality and colours. BISIEUX, Paris, (767, France, p. 1217), for oil-cloth,

painted imitation of marble and wood on moleskin. INN, FERDINAND (46, Grand Ducky of Hesse, p. 1128), for printed and painted moleskin table-covers, of good

designs, and well executed. LEHRANN, M., Berlin (Prussia, 167, p. 1057), for painted moleskin table-covers and floor-cloths, of great variety.

SMITH and HABER, London (371), for one large speci-

men of oil-cloth. In concluding the Report accompanying the decisions of the Jury, I have to acknowledge the kindness of-

Robert Lindsay, Belfast, for that portion relative to the Irish and Scotch embroidery. D. Hiddle, Oxford Street, London, for English and Belgian hand-made lace.

Felix Aubry, Paris, for French lace and embroidery.

- Faessler, London, for Swiss embroidery.

P. Graham, London (Vice-Chairman), for carpets and

JUROSS.—The following Exhibitors being upon the Jury, all notice of the articles exhibited by them has been omitted:-RICHARD BIRKIN, of Nottingham, machine-made lace. D. Bippia, of London, hand-made lace.

P. GRAHAM (Jackson and Graham, London), carpets.

RICHARD BIRKIN, REPORTES,

July 1851.

CLASS XX.

REPORT ON ARTICLES OF CLOTHING FOR IMMEDIATE PERSONAL OR DOMESTIC USE.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OTTICIAL DESCRIPTIVE AND LILESTRATED CATALOGUE.

Jury.

WM. Felkin, Mayor of Nottingham, Chairman, The Park, Nottingham; Lace Manufacturer. Philippe Waltrien, Deputy Chairman, Switzerland.
T. Chairry, Reporter, 30 Gracechirch Street; Beaver and Silk Hat Manufacturer.

F. BEUNOVILLE, France, T. BROWN, 40 Wood Street; Straw Hat Manufacturer.

ELLIOTT CRESSON, United States.

— Hülse, * Zollvereln.

E. Smyrn, 60 Old Broad Street, City; Clothier.

Associates. ROBERT DIXON BOX, 187 Regent Street; Boot and Shoe Maker.
E. BLABA, 10 Trump Street, Chespidler; Merchant.
WILLAM BEGENT, 29 Chespidle; Merchant.
ALEXANDA CHANNO, 101 FOR STREET, IF WARRINGSTON, ALEXANDA CHANNO, 101 FOR STREET, III, Warrhousseman.
STREET LIDOUXINO, 45 Threadmedile Street, 101; III food and Green.
WALLAM ELECANDA, 56 CORDINITY, 500 and Show Maker.

* E. Blank, Merchant, 10 Trump Street, Chespelde, Proxy for M. Hülse.

Tux extreme variety of the articles submitted to the inspection of this Jury rendered it a task of no small difficulty accumpantly to appreciate them; and when it is remembered that textile finites, or other asbitances suited in the state of the world, wrought up into "articles of descent" or personal use," suited to the bahits of the various nations of the world, with the property of the second of the property of the property of the property of the second of the property of the inspection of this Jury rendered it a task of no small have responded to the invitation, and have sent very valuable, and in many instances highly suggestive, con-tributions to "The Exhibition of the Industry of all Nations."

JOHN BAPTISTE SOLDI, Southwark,

HOSTERY.

In 1589 the hosiery knitting trude originated, through the invention of the stocking-frame by the Rev. W. Lee, at Nottiegham. It is carried on in Nottighamshire, Derbyshire, and Leicestershire, at Godalming, and at Tewkeshary, in England; at Balbriggan in Ireland, and at Hawick in Scotland; at Chemnitz and its neighbourhood, Hawrick in Scotland; at Chemnitz and its neighbourhood, in Saxony; at Paris, Gauges, Arignon, Ornape, &c., in France. Stocking frames are spread over almost every district of France, Spain, Netherlands, Germany, and Italy: these serve for the production of hosiery, chiefly used in the neighbourhood if the machines. Goods for sale, knitted by hand, are made in Kendal, Aberdeen, and the Shetland Isles, &c. England exports all kinds of and the Shetland Mos, &c. England exports all kinds of honeity; Pirasse chiefly alls hoisety; Saxon exports are for the most part low-priced coston and woolden hosiery. According to an actual custom that they fair. W, Felkini, of stocking-frames in the United Kingdom. The assumal return from them ass. 24,555,004, on three books of the consistent of 305,000d, imported raw materials, and dou,000d, for finishing and predist. Wages were then all the control of the control of the control of the State of the control 35 years. Since 1844 the number of machines has been

increased to at least 50,000; raw materials have advanced 30 to 50 per cent, wages have risen about 40 per cent,; and profits have accumulated in proportion. The returns of the hosiery trade of the United Kingdom in the last year were probably about 3,500,000/,; and it is satisfactor, to have to state that the average trade. factory to have to state that the export trade is extending nacroy to have to state that the export trade is extending to all parts of the world; but the chief increase in de-mand has been for home consumption, amongst the most numerous classes of the community. The number of English hands employed in this manufacture, either con-stantly or as an addition to domestic duries, is, when trade is good, about 100,000, consisting of a nearly equal num ber of each sex. Until a few years since, frames were entirely worked by hand in the dwellings of the artisans, entirely worked by hand in the dwellings of the arrisan. They are now shotly collecting into Reinches, in a few of they are now shotly collecting into Reinches, in a few of rotary frame stands in the Depthi compartment of Manney in Montin in the Fibblichian qualitation of the state of the s 75 to 100 dezens of small women's hose. A specimen of these hlenched cotton stockings is in the Exhibition, ready for the market. This is certainly one of the most remarkable instances of the power of improved machinery to cheapen production ever seen. The lowest price of English cut-up cotton hose made from the old wide frame. which is shown in the Exhibition, is 3s. 7d. per dozen, weighing 173 ozs.

The colours dyed in Nottingham do not generally equal those of the coloured cotton and silk goods dyed for the London, Manchester, and Coventry trades. This deserves the serious attention of the dyers and manufacturers in

that locality. Improvement is certainly practicable, as there is water in the district well adapted for securing brilliancy of colonr. The bleach and finish of Notting-ham cotton hosiery is unequalled. Leicester hosiery is surprisingly diversified in colour, shape, and adaptation of the articles to every market. One house sends to the Exhibition specimens sufficient to represent fairly their own production, comprising 12,500 articles with prices, employing about 4000 hands, and distributing about 1400 weekly in wages. This spirit of adaptation and improvement in machinery, and diversifying its products to suit the wants of the world, pervades the Leicester trade, and has resulted in the population of that borough being quadrupled in 40 years, having risen from 16,000 to 64,000. No means are available for ascertaining the extent of hosiery production in France. French cotton hosiery is generally of uneven materials; but their silk hosiery is of superior materials. The machinery is in less perfect order than that of the English. The eneven-ing of their embroidered hose is very beautifully designed and executed. In the Saxony Catalogue of goods in the Exhibition, their machines are stated to be about 30,000, employing 45,000 hands. Their lowest specimen of cut-up small women's hose is at 3s. 6d. per dozen, weighing 181 ozs., half hose 1s. 10d., and cotton gloves 1s. 6d. per zen, all made no doubt with a view to exportation, This trade has been remarkably rapid in its progress, having risen from a trifling amount to its present extent within the present century. Saxony hosiery, as compared with English, is, from the machinery being too often in an imperfect state, liney, short-looped, and therefore fiver for gauge; but less clastic and less durable, from the same cause. There is less substance in hand than, from the actual weight of materials used, there ought to be, the actual weight of materiaus steel, there ought to be. The materials are less even in quality than those em-ployed in the English trade. Honourable Mention has been occasionally spoken of in the following recommend-ations, as suitable for the meritorious workpeople referred to, and in a few instances for exhibitors who have sided the completeness of this Class. It will be observed, that no recommendation is offered for the Council Medal. The Jury do not think any of the productions exhibited present originality or inventive power justifying the award of that medal. But the merit of promoting excellence of quality, diversity of metal products, low prices of goods mitable for the mass of consumers at home and for exportation, and consequent increase of employment, has been eminently exhibited in this Class.

The Jury award Prise Medals to the following Exhibitors, and for the subjects indicated :-

ALLEN and SOLLY, Nottingham (100, p. 583), for sound and well-made articles, and a selection showing the im-provement in the hostery trude, especially in the materials sed at the dates 1700, 1790, 1804, 1810, 1812, 1815, 1826, and 1848.

ANGRAVE BROTHERS, Leicester, Manufacturers (202, 588), for drawers and shirts of excellent quality. Broos, H. W., and Sons, Leicester, Manufacturers (203 p. 588-9), for the general excellence of the specimens of siery, adapted to every market where worsted and lowpriced cotton stockings, gloves, and woollen shirts are in

BILLSON and HANES, Leicester, Manufacturers (201 p. 588), for the excellence in quality of Thibet wool, and a great variety of socks. CARTWRIGHT and WARNERS, Manufacturers, Leieester (196, p. 588), for worsted yarns prepared by them from Meriuo and Vigonia wools, and for general excellence of

the articles manufactured therefrom COCHOIS and COLIN, 7 Rne des Déchargeurs, Paris, France (124, France, p. 1177), for good quality and em-Pay, J., Godslming (193, p. 588), for Lisle thread ho

of excellent make, and very regular materials, and for well-finished Segoria goods. GLAISER, J. S., jun., N. Chemnitz, Suxony (72, 83, p. 1108), for women's coloured cotton gloves. Hausis, R., and Soxs, Leicester, Manufacturers (198,

p. 588), for an extensive collection of examples of horiery

of every kind, adapted to the most varied markets, for superior excellence in production, alike as to pattern, colour, and finish, and as a recognition of the ence ment of inventions and adaptations of machinery in the anufacture of bosies

HOLLAND, T., and Co., Godalming (194, p. 588), for fleecy hosiery, having special reference to medical uses, and the comfort of invalids, and for Merino and Segovia

goods of the most superior quality. Hunsr and Sons, Nottingham (99, p. 583), for the excellence of a general assortment of articles suitable for the

bome and export trade. LANDGRAFF, GOTTFRIED, Hobenstein (Saxony, 72, 83, p. 1108), for women's single-thread cotton-hose LAURET BROTHERS, 19 Rue des Mauvaises, Paris, and Gauges (903, p. 1223), for embroidered silk-bose of very

high quality; also for embroidery in colours and general excellence of production. McDougall, D., Inverses, Scotland (83, p. 582), for knitted hosiery, &c., and as a recognition of his efforts to create habits of self-dependence and a love of labour amount the pensantry of the Highlands of Scotland.

The Jury consider that this exhibitor is entitled to this distinction as much for the superiority of the articles he exhibits, as in consideration of the circumstances under which they are produced. The peasants of Argyllshire, Ross-shire, &c., are afforded employment in knitting while attending flocks, and during other desultory employments. Cotters, once half starved, he states, now possess money, thus earned, placed in the savings-banks. The wool is tions earned, placed in the savingst-banks. The wool is cleaned, combed, and prepared by the possants; dyed by themselves, where colours are desired; brown, from a lichen called crotked; yellow, from the tops of young heather; black, from alder bark; lemon, from furze flowers; and olive, from the roots of the water-lily. All flowers; and olive, from the roots of the water-lily. All substances are at hand and well known to them, Stockings and socks of various patterns and qualities, thus knitted from home-dyed or self-coloured wools, are exhibited, as well as pieces of Tweed woven from the same materials. This exhibitor pays 300d, to 500d, per annum for socks alone; and all this class of products are exported to Hong Kong, Shanghal, and other distant parts, at from 12s to 24s, per dozen pairs, besides being used in Scot-land Itself somewhat extensively. The Jury desired to have recognised the first preparer and dyer of wool, together with the best and most thrifty knitter, had it been

possible to have ascertained this with accuracy.

McKexzie, W. B., 126 Prince's Street, Edinburgh (142. p. 585), for Shetland knitted shawls and hose. The former are of very fine materials.

Mainer Browners, Oelsnitz, Saxony (72, 83, p. 1108), for woollen shirts of excellent make and good colour, for exportation.
MEXECUTE and Sons (639, France, p. 1208), for extra fine white embroidered silk-hose, and excellence of ankle

embroidery in colours.

Milius, S., Bunhill Row, London (89, p. 582), for an extensive collection of articles of dress. MILON, P. D., sen., 98 Ruc St. Honoré, Paris, France

(930, France, p. 1224), for superior workmanship of hose, and for excellence of embroidery.

Montary, J. and R., Nottingham and London (101 p. 583), for great excellence in the manufacture and finish of silk and cotton hose, suited to the best demand of the London and other markets, and for slik gloves of superior make, colour and finish. The exhibitors send from the coarsest to the finest ganges in silk and cotton hose, the latter requiring a considerable magnifying power to discern the loops, and though a dozen of the silk hose weigh only 34 or., they are perfectly made in quality, and of the most regular materials. The silk in each pair cost 1s. 3d., the workmanship 15s. NACKE and GENERABECK, Chemnits (72, 83, Saxony,

p. 1108), for women's ent-up white cotton hose of fine NETHER, P., Chemnitz (72, 83, Saxony, p. 1108), for white and brown cotton hose, adapted to exportation from

their low prices. NEVILL, A., and Co., 121 Wood Street, London (20, p. 578), for excellence of production in ladies' underof housery.

clothing, to fit the shape, and gentlemen's pantaloous and drawers of similar character; also for excellence of quality and make of Saxony wool sbirts, and hose manufactured for the Spanish and other markets.

factured for the Spanish and other markets.

Solbato, F., Chemnitz (72, 83, Saxony, p. 1108), for adaptation in price to export demand in certain qualities

Tayloa and Co., Rochdale (127, p. 587), for plushes mannfactured from waste silk, and the use of that material, which is of comparatively small value for the mannfacture of articles of general utility.

THRESHER and GLENNY (79, p. 581), for a fahric for under-clothing in warm climates. THURMANN, PROOTT, and Co., Nottingham (92, p. 583),

THERMANN, PROOTT, and C.D., INDAMIGNAM, AND PROPERTY OF THE ADDRESS OF THE ADDRES

Wand, Sturt, Sharp, and Wand, Belper, Derbyshire (195, p. 588), for examples of nearly every class of stockings and gloves, made from silk or cotton yarn, of great excellence, whether as to make, colour, or finish, or adaptation to various markets; and also for the lowest sample of cut-up hose in the Exhibition.

WEX and LEMDER, Chemita (72 and 83, Saxony,

WEX and LINDNER, Chemnita (72 and 83, Saxony, p. 1108), for hosiery of great excellence, sultable for general use.

Wilson and Son, Halbriggan, Ireland (183, p 587), for excellent thread basiery, with lace fronts.

The Jury make Honourable Mention of the following Exhibitors:—

Human Louis Leigester Manufactures (2017 p. 500)

Hiddle, John, Leicester, Manufacturer (297, p. 589), for warp in hares'-fur, and Saxony wool goods, spun silk, eloth, hares'-fur gloves, and Vicuán wool articles. Coman, H., and Soxa, Leicester (208, p. 589), for the

very ereditable character of their contributions.

HAODEN, A., and SONN, Aberdeen, Mannfacturers (134, p. 585), for specimens of dyed wools in every shade of

HUBBON, JANES, Leicester, Mannfacturer (199, p. 588), for good Vigonia hosiery, black worsted bosiery, and an imitation of Shetland half-hose.

Inflation Johns and Sox, Nottingham, Inventor and Manuffecture (81, p. 88), for articles of eleching finhiumed to fit the best and waist of the weaver, and registered gusset to band, 700 lace insteps of No. 290 yars. The workman who made the latter article also deserves commendation.

MUSSON, R. and J., Nottingham, Mannfacturers (97, p. 583), for superior plaited gloves, and good plain silk gloves.

POPE and PLANTE, 4, Waterloo Place, Pall Mall, Lon-

don, Manufacturers (6, p. 576), for surgical elastic belt, sock, &c.

SHAW, JOHN, Radford, near Nottingbam (91, p. 582), for bis application of the principle of the Jacquard to the stocking frame.

stocking frame.

WHEZELER, T., and Co., Leicester (206, p. 589), for the application of the stocking frame to weaving shawls.

application of the stocking trains to a strong trains to The Jury also make Honourable Mention of John Richands, Jun., Riste Place, Nottingham, the maker of the silk hose, No. 1000, exhibited by Messrs. J. and R. Morley (105, p. 582), for the great skill displayed therein.

BOOTS AND SHOPS

Roots and aboes have been exhibited manufactured from almost every description of material, and from most parts of Europe and the United States; in some instances great novelty of construction and adaptation bave been manifested, but we bave chiefly to remark upon the greater or less amount of skill attained, in producing an article of fashionable ne.

On review of the whole of the hoots and shees of every class and description exhibited to the Jarons, the conclusion arrived at is, that the improvements which have been made during the last five or six years by the English manufacturers have enabled them to compete with the foreign; the introduction of foreign leather

s since the alteration of the tariff a few years back, as well as frowign boots and shows at a lower rate of duty, has bad the effect of rousing the energies of the English mannfacturers, and of calling forth the requisite takes to re bring about the results before alluded to; and not the least remarkable part of the question is the fact, that the increase in the consumption of English boots and show has not been less (in the period before named) than

30 per cent. From Prance, it must be observed, that in many cases, exhibitors have shown goods remarkable for qualities more esteemed in the country for which they are registed than in our own; and such goods must not be regarded entirely with an English exhibitor.

The Jury award Prize Medals to the following Exhibitors:-

ADDINGTON, W. H., Norfolk, Virginia, United States (471, p. 1465), for very strong shoes for mining purposes, ATLOTT, J. G., 69, New Hond Street, London, Inventor (32, p. 578), for a novel and economic plan of cutting, by which a short boot can be made at nearly the same cost in material as a shoc.

BATHIER, V. (Creuse), France (22, France, p. 1172), for novelty and cheapness in the production of wooden shoes, with leather applied to the top of the soles; and for the taste displayed in the manufacture.

for the taste displayed in the manufacture.

23.7, Austria, p. 1923, for strong and excellent workmanship.

CLARKE, CYRES and JAMES, Street, near Glastonbury, Inventors and Manufacturers (48, Class XVI., p. 520),

Inventors and Manufacturers (48, Class AVI., p. 529), for clongating goloshes, clastic insertions on the instep, both useful and novel, and an excellent assortment of ladies' shoes in various styles.

DESCHAMPS, N., 14, Galérie d'Orleans, Palais National,

Paris (1185, France, p. 1234), for his plan of cutting without block a front in one piece of leather. Derrossica, sen., 13 Rue St. Dominique, Paris (1200, France, p. 1235), for solid and excellent work. The Jury consider that Hononrable Mention ought to be made of the workmen who produced the best,

made of the workmen who produced the best,
Difference and Mixinotrix, 20 Rue de la Paix, Paris
(1201, France, p. 1235), for excellence of workmanship
in boots and show. Honouruble Mention is also due to

the workmen who produced the best articles.

Geleration and Co., 13 Old Bond Street, London (179, Class XVI., p. 525), for riding-boots, of excellent manu-

The strong and Exert, Derby (150, Class XVL, p. 525), Termingtones, or excellent manufacture, produced with great care and attention.

GRONKOFF, GRONGE, Vienna (343, Anstria, p. 1024), for strong and good boots and shoes, of excellent work-manship.

HEFFORD and Exert, Derby (150, Class XVL, p. 525),

for clased Wellington hoots, of excellent worksmanking, etaborately and beamifully "stablect." Honourable II, Mention is also due to the workness who produced them. Httessos and Soxs, 30 West Smithfield, London, Mynourabeture (192, Class XVI., p. 526), for general excellence of the lighter kind of export and other great conditions, Jonns, 66 Bond Street, London, Manufacturer (114, Class XVI., p. 523), for the apperior workmanking, he

great excellence, and boauty of ladies' shoes.

JETTERS, W. H., 467 Broadway, New York (116, United States, p. 1441), for a case of ledies' boots and shoes, of excusiste workmanship; the Prize Medal to be awarded to the workman, and Honourable Mention to the mann-

KUNUSTH, ANYON, Vienna (333, Austria, p. 1023), for magnificent slippers in the Turkish style, of excellent

work and elegant appearance.

LEXEMENT, J. P., 14 Rue dn Paradis Poissonnière,
Paris (578, France, p. 1205), for a remarkable intrention
for making boots and shoce by means of brass screws, the
work belong present diopether by an extraordinary pressure,
thereby preventing damp from entering. There are,
also (by the same exhibitor), other mechanical com-

and the property of the same extension, other incentions are as a short, combining great novelty and utility.

Massez, — 24 Re. Auhyle Boneber, Paris (1347, France, p. 1240), for excellence of production relative to price, the articles being at once cheng and well made.

METER, F., 17 Rue Froncliet, Paris (1352, France, p. 1240), for the great execlience of the workmanship of ladies' shoes, and beauty of fluish. The Jury also desire to make Honourable Mention of the workman or workmen who executed them.

worknen who executed them.

Monra, W., Berlin (186a, Prussia (1, Zoliv.), p. 1058), for elops of light and elegant quality, and for kind boots, for elops of light and elegant quality, and for kind boots, Class XVI., p. 243, for greened excellence.

Parker, J., 35 Dame Street, Dublin, Manafacturer (249, Class XVI., p. 227), for excellence of work in strong boots, and the great erac evineed in the light boots. It is desired to make Honormble Neutrino of the

workmen who produced the stout work PEPLOW, W., Browning Street, Stafford (157, Class XVI., p. 525), for workmasship of a high character, and

the application of an elastic spring. Pointen, P., Châteaubriand (Loire luferieure), France (1398, France, p. 1243), for the excellent quality and make of self-coloured leather boots, for very hard wear. These articles are highly esteemed in France, and fulfil the peculiar requirements of the market for which they

POPINOTE, SOPHEA, of Tiffis (310, Russia, p. 1376), for shoes, slippers, and other articles of usual and useful wear. The Jury also desire to make Honourable Mention of three workmen.

SHEKONIN, ALEXIS, Government of Novgorod, town of Novotorjok (275, Russis, p. 1375), for embroidered boots and shoes, and other goods, of the highest class of work-

mauship in boots. THERRY, C. A., 301, Rue Gré, Paris (391, France, pp. 1196-97), for gentlemen's boots of great excellence. The Jury desire to make Honourable Mention of the best

workmen by whose skill these were produced. THOMAS and Son, 36, St. James's Street, London, Maaufacturers (211, Class XVI., p. 527), for high-class

workmanship in boots.

Walsir, William, 7 Bockingham Place, Fitzroy Square,
London, Maanfacturer (207, Class XV., p. 526), for welted cork soles of high merit as to workmanship. WENNER, J. (3, Luxemburg, p. 1130), for the excellent quality of shoes for labouring men, and for cheapness, and a novel principle in the uniling.

The Jury make Hononrable Mention of the following

ADOLPHI, C. F. W., Berlin (172, Prussia (I. Zollv.), p. 1057), for a case of well-made ladies' boots and shoe ALLEN and Son, Pembroke, Wales, Manufacturer (149, Class XVI., p. 524), for a stout-made boot. Ileann and Jerrs, Parade, Northampton, Manufacturer (11s, Class XVI., p. 524), for "stabbery" of the very-highest class. The workman who executed it is deser-

iug of Honourable Mention.

BECKETT, GEORGE, 41 Fenehureh Street, Manufacturer (220, Class XVI., p. 527), for well-made hoots and shoes. BRIDARD, J., 53 Rue Vivienne, Paris (1115, France, p. 1232), for strong boots and shoes,

BAKDIFF BROTHERS, 5 Rue Colbert, Tours, Manufacturer (73, France, p. 1175), for strong and very good shoes. Barrn, N. A., and Co., Lynn, Massachusetts (411,

United States, p. 1462), for very good shoes for children. Cam-Fryaira, Mannfacturer (263, Belgium, p. 1159), for boots for exportation, and their excellence relative to

CLARK, B., Whitehaven, Cumberland, Manufacturer (154, Class XVI., p. 525), for a lady's loot "clumped" with wood.

COWLING, , Riehmond, Yorkshire, Manufacturer (142, Class XVI., p. 524), for easy shooting boots of excellent workmans Carar, James, Wisbench, Manufacturer (141, Class

XVI., p. 524), for stout boots. Coulings, (1569, France, p. 1252), for varnished skins and boots made therefrom.

Doe, W., Colchester, Maunfacturer (145, Class XVI

p. 524), for very strong and well-made invigator' boots.

Done and REINHARDT, St. Worms (33 Grand Dueby of Hesse, p. 1128', for two pair of excellent boots FRIEDL, LEOFOLD, Vicuna (332, Austria, p. 1023), for ladies' boots and shore

FROMONT-CLOADS, 15 Rue Nerve St. Merie, Paris (2008, France, p. 1183), for boots and shoes, and well-made wooden shoes, adapted to persons obliged to work

in the wet. GARNER, D., 41, Finsbury Market (230, Class XVI., p. 521), for "lasts

p. 521), for "lasta," Goabon, E., Ga Prince's Street, Leicester Square, London, Manufacturer (212, Class XVI., p. 527), for well-made served champs solid boots, "pegged waist." IExta, Jonx, Vienna 331, Austria, p. 1023), for an accordance of failed's boots and shees, antible for the class. of wearers for whom they are intended

Ilturar, C., 292, Regent Street, Manufacturer (194, Class XVI., p. 526), for indics' and gentlemen's boots, and a indy's boot made from a single piece of leather. Jacons and Drevas, 32 Rue de la Paix, Paris (886, France, p. 1222), for ladies' boots and shoes suited to the bigher classes of society, very well ande.

LANGDER, J., Vienna (329, Austria, p. 1023), for good examples of boots and shoes, LEBRUE, Petersburg (311, Russia, p. 1376), for clore

and goloshes. LONGBOX, R., and SONS, Derby, and THOMAS SMITH.

Bedford (119, Class XX., p. 584), conjointly, for the in-troduction of the elastic welt into boots and shoes. Millara, jau., Warsaw (234, Russis, p. 1374), for ex-ceedingly light well-made boots, weighing only three **OUDCES**

NORMAN, SAMUEL WILLIS, 4 Onkley Street, Lambeth (167, p. 586), for excellence of work in lady's cork-soled

PEAL, NATHANTIL, 11 Duke Street, Grosvenor Square (197, Class XVI., p. 526), for two pairs of very good fishing or hunting boots of excellent workmanship. RAPP, C. F., and Son, 22 Rue Feydeau (974, France, p. 1226), for tasteful-looking goods.

ROBERT, A., 123 Regent Street, London (224, Class XVI., p. 527), for excellence of workmanship.

A. L., p. 537', for excellence of workmanship, Schuwaczusz, jun., Mayone (47, Grand Duchy of Hesse, p. 1128', for well-made gentlemen's boots and shoes, "spring-fastened." Scott, S. T., Union Street, Sonthwark (228, Class XVI., p. 527), for a "hast" with an adjustment to clongate the model of the foot; a very useful and ingenious improvement,

Susga, II., Nautes, and La Morinière (Loire-Inférieure) Notation of the Community of the Communi

duced by the peasants of the country VANDERGOST, M., Brussels, Belgium (427, p. 1164), for

boots of excellent quality.

Viault-Esté, J. J. J. B., 17 Rue de la Paix, Paris (725, France, p. 1214), for a very handsome case of ladies' shoes.

WILSHIN, S. B., 86 Albany Road, Camberwell (205, Class XVI., p. 526), for a method of fastening skates to

GLOTTEL

The article of gloves, on the manufacture of which so much skill and talent have been of late years brought to bear, employs a large amount of the population of the United Kingdom. We have to report many very valuable and highly important contributions, prepared with great skill, and exhibiting this branch of industry in every form in which it can be presented. France, particularly Paris, many cities included in the Zollvereiu, and some in Denmark and Switzerland, have also contributed specimens of gloves. It will be needful to remark, in the first instance, upon the great talent of the Freuch dyers of hid skins: in one case as many as 94 different colours are exhibited in the article of ladies' kid gloves; and varioua other descriptions are shown, particularly in lamb and sheepskin gloves, wherein great skill is exhibited; but it appeared to the Jury, that French gloves being so very largely imported into this country, some of the more im-portant foreign manufacturers possibly considered that their articles were sufficiently well known, and did not think it worth while to send any contributions to the Exhibition. The Associated GLOVERS at Prague have forwarded a highly-interesting contribution, which illustrates the state of this branch of industry in their city, in a mauner highly ereditable to their skill. In conclusion, we may observe, that since the alteration of the tariff, and the importation of French kid skins, a rapid advance has been made by the English manufacturers, their skill and energies having been greatly called forth thereby,

The places at which gloves are chiefly unde, are, Lon-don, Yeovil, Worcester, Woodstock, Torrington, Hexham, and Witney; and the value of the yearly produce is estimated at about a million sterling. Total of hands employed in England is about 46,000,

The Jury award Prize Medals to the following Exhi-

Ball, W. Y. and Co., 32 Wood Street, Chenpoide (80, p. 581), for a variety of kid gloves, remarkably well

Chosson and Co., 63 Rue Montmartre, Paris (1150, France, p. 1233), for ladies' and geutlemen's kid gloves. ALLCHOFT, and Co., Worcester (78, p. 581), for very handsome and interesting collection of gloves showing the various kinds produced in England; with very few exceptions, of the highest class of workmanship.

Exson, T., Milborne Port (185, p. 587), for two-finger gauntlets, and various gloves, exhibiting very good

FOSTER, PORTER, and Co., 47 Wood Street, Cheanside (2. p. 575-6), for plush plumage gloves of good quality, forming a variety of acvel and fashionable articles. FOWNER BROTHERS, 41 Cheapside, London (82, p. 552), for Irish kid, English dressed men's round seam gloves, of good quality

HOUSIGANT-CHARDIN, Rue da Faubourg St. House (1627, France, p. 1256), for an assortment of gloves of excellent quality and colour, and very well sewed. Joeven and Dovon, 8 Boulevard Bonne-Nouvelle (1279. France, p. 1238), for a great variety of kid gloves of minety-four different colours, JOUVIN (Widow , Xavier (893, France, p. 1222), for

many specimens of gloves of very good quality, LAYDET and Co., 27 Rue de Greuelle St. Honoré (226, Frauce, p. 1191), for a case of gloves very well sewed. France, p. 1121; no a cased or govers very well seven.

LECOG-PREVILLE, 50, 52, 53, Passage du Sammon,

Paris (1393, France, p. 1239); for an assortment of lambit
kid gloves of good quality and taste.

Prauer, Glovers' Association of (336, Austria, p. 1023),

for a very handsome contribution of gloves of various de-

Whitne, E., jun., Yeovil (186, Class XX., p. 587), for habit lamb-skin gloves, of a superior quality and very well made, the trade being prettily illustrated in the manipulation.

HATS.

In this branch of industry, examined by the Jury and Associates, important from the large anmber of persons employed in its various ramifications (scarcely less than 60,000), there have been aumerous contributors; Loadon, Manebester and other parts of Lancashire, Cheshire, Germany, France, particularly Paris, the Netherlands, and the Zollverein, have, at considerable cost, forwarded illustrations of their aunufacture. The specimens may be divided into four different classes-1st, The old make of beaver hats, with nap; 2ud. The silk plush hat on foun-dations of cotton, linen, and other fabries; 3rd. The felt but (some specimens were shown in pure beaver fur), chiefly of hare's for, or rabbit's for; 4th, Hare's for or rabbit's fur, mixed with lamb's wool, for lower or cheaper qualities. In all these descriptions of goods, the manufacture of each country is necessarily in conformity with the taste, style, and habits of the people; whence the various productions in this Class are highly suggestive sible to give a summary which will do justice to the

and lateresting. In the British contributions there are several very novel styles introduced, wherein the manufacturers have given considerable latitude to their faucy; but in an article of fashion, and of such constant use as hats, it does not appear to be easy to change the habits and tastes of the wearers, or to induce them to adopt a new costume. The specimens, where attention has been chiefly directed to excellence in quality and vory high finish, are commendable, and form an interesting feature in this section of the Exhibition.

The manufacture of lists ranks as one of the oldest of the staple manufactures for which England is eclebrated, and at an early period hats were articles of considerable export. They have been the subject of many legislative engerments; and it was not until the close of the last eentury that they were freed from Government interference, by the abolition of the stamp duty, which up to that time was chargeable upon them,

CHRISTY and Co. (35, p. 578-9), of 35 Gracecharch Street, Londou, and of Stockport, near Manchester, have ecutributed a most complete and interesting illustration of the manufacture of hats, both in beaver and silk, con-sisting of materials in the raw state, prepared for use, and in the different stages of numufacture up to the finished state, as made for the home, colonial, and foreign markets, together with the tools used in the manu-Although this exposition completely fulfils the object

proposed in the Exhibition, and the manufactured specimens are of the highest class, the Jury are unable to award the prize to this house, from the circumstance of its being one from which a Juror has been selected,

The Jury award Prizes to the following Exhibitors:-BERNE and MEZZARD, 56 and 57 Great Guildford Street, Southwark (103, p. 583), for a case of hats of various styles, well manufactured. CHENARD BROTHERS, Paris (87, France, p. 1175), for a

beaver last, and two hare's for lasts, made upon the old Flemish principle, and very well done.

COUPIN, J., Aix, Rhone, Rue de l'Aigle d'Or (1162, France, p. 1233), for some felted hats "in the rough, very well felted, and good in quality.

Sawsowns and Woodsow, Oldham (105, p. 583), for a selection of felt bennets of good quality, and handsomely got up, in pure beaver and other furs,

The Jury have made Honourable Meation of the following Exhibitors :-Baron, W. and Sons, Rue St. Avoie, Paris (1069, France, p. 1129), for hats made of bare's fur, on the Flexish principle, and exemplifications of the various

stages of manufacture. BRAUND, J., 26 Mount Street, Grosvenor Square (66, p. 581), for a cap with transparent tale peak, useful for travellers.

Lyons, J., 12 and 13 Artillery Place, Woolwich (67, p. 581), for military caps, which will resume their shape after having been folded in a knapsack. MELTON, IL. 194 Regent Street, Manufacturer (54, 580), for a lady's elegant laveuder-coloured riding

P. S Pearson, J., Stockport (126a, p. 584), for a child's boanet and feathers,

ARTICLES FOR GENERAL OR PERSONAL USE. The almost infinite variety of articles in this class, although possessing great merit and excellence, do not, except where specially noticed and recommended by the Jury, exceed what may be obtained in the ordinary way of trade, and although many of these contributions are valuable, and exhibit great skill and talent, serving to complete this department of the Exhibition, it has not been deemed accessary to do more than meation them in general terms,

Upper Clothing.

Considering the vast extent and variety of this brane of industry in every part of Europe, it is almost impor-

talent and ingenuity displayed by many individual con-tributors. In the fishiounble articles of dress presented, not only from the metropolis, but from many of the largest towns of the United Kingdom, great skill is exhi-bited; and when to these are added the leather coats richly embroidered and lined with skins and fars from the northern parts of Europe, the richly controllered dresses of Hungary, Russin, Tartary, Turkey, Egypt, Chioa, and India, of exquisite workmanship, and in mar cases made up with the greatest ingenuity to repel th cold, it is imperative on the Jary to call attention to the high merit due to the contributors of this vast assemblage of merchandize, and to bear testimony to their great and persevering industry. The cursory observer passing from section to section, may indeed admire the various pro-ductions of art; but those about whose duty it has been to visit every individual contribution, and examine it in detail, can justly appreciate the vastoess of the effort by

which it has been made. The importations of wool for home consumption in the manufacture of cloth, exclusive of that of our home growth, was, in the year 1849, 279,472 bales, or about 56 millions of pounds. It is not possible to estimate the number of yards of clith into which the said wool is wrought, or the various articles made therefrom; but it is evident that the working up of cloth ioto clothing "for immediate personal or dimestic use," must necessarily employ a large mass of the population. In Loudon sarriy emptoy a rarge mass or the population and alone, it is estimated that there are 30,000 persons employed in making up clothes for men. It must be ployed in making up clothes for menremarked and regretted, that the Exhibition has received un contributions adequately representing either the British or foreign superior "miloring department," or the article produced by the ready-made and slop-selling departments, employing so many thousands of hands, in which also a large capital is embarked, and from which sources, whether it regards Great Britain or foreign countries, the army, may, and other Government iostitutions, public bodies, the commercial marine, and, to a great extent, the colonies, derive their sopply of clothing.

The Jury award the Prize Medal to the following Exhibitors:

BUCKMANTER, W., and Co., 3 New Borlington Street (14, p. 575), for a very bandsome blue frock cont, and varitus articles of Court costume; exhibiting great taste and improvement in this kind of dress.

KRACH, Iluothers, Prague (391, Austria, p. 1029), for double pilot-cloth, to form a cont either side ontwards of a different colour, and coats of excellent workmanship. MALATINZEY, E., Hungary (594, Austria, p. 1029), for richly-embroidered over-esu

McGer, Jso. G., and Co., Belfast, Manufacturers (118, p. 584), for several extremely elegant waistcoast piece the patterns for which were produced in the School of Design, Belfast OPIGEZ and CHAZVELE (336, France, p. 1193), for very

excellent embroidered silk, wrought up into dresses of elegant style. Singer, J., Posth, Hungary (392, Austria, p. 1829), for several very good dress conts.

Welch, Mangerson, and Co., 17 Chearside (212, p. 583), for a very elegant contribution of braces, carriage rugs, ties, cravats, handkerchiefs, shirts, robes, &c.

The Jury make Honoarable Mention of the following Exhibitors :-BALLY and Co., Schoenenwerd (210, Switzerland,

p. 1280), for a display of braces, of merit and moderate BRIGGER and PERSIER, 22 Rue Jeau Robert, Phris (1116, France, p. 1232), for a case of elegantly-wrought

FARRANCE, Miss, Bray, County Wicklow (176, p. 587), for some very beautifully-knitted stockings.

HARDING, T., 108 Regent Street (211, p. 589), for real agate battons, good both in style and taste. HARBIS and TOMRINS, Abingdon, Berks (111, pp. 583-4), for two smock frocks, exceedingly well made by two made.

cottagers.

Holmes, J., and Co., 171, Repent Street (84, p. 582), for n very elegant showl clock, of new design. Herr, Widow, Rosen (270, France, p. 1189), for a great variety of clastic very well made.

Kraner, T., Lanerick (175, p. 587), for a novel plan
of inserting India-robber in articles of dress.

RADOURDEN, 88 Rue dn Marsis, St. Martin, Paris (1416, Fraoce, p. 1244), for elegantly-made braces, at very moderate prices

SAYCK, J., and Co., 57, Cornhill (307, Classes XII. and XV., p. 501), for a very light evat called "Piuna Coat."

Solonov, Mrs. S., 52 York Road, Lambeth (86, p. 582). for an embroidered ball dress,

STEWART, JANE, Templetrine Globe, Bunder, Ireland (1774, p. 587), for some very elegant knitting. VINCENT, RICHARD, Glastonbury (177, p. 587), for R suit of clothes made of black dyed and prepared sheep skins; a new application of this unserial.

WALKER and Bans, 306 Strand (63, p. 581), for an alpaca cout sufficiently light and portable to be carried in the pocket.

Shirts

On carefully examining the shirts, our opinion is, that in the finer quality, into which embroidery enters largely, the French are superior; there is but a small exhibition from wholesale houses, and scarcely any of a low quality; the collection, therefore, embraces only the higher class of goods. This branch of our industry is an article of fashion, and the number of persons employed in much ou the increase. In the better classes of work, the hands obtain for their labour prices which afford them a fair livelihood, their earnings amounting from 9s. to 12s. per week: the shirts for which wages of 2s. each shirt are paid, enable the quick workwoman to earn about 2s. per day; but it must be observed, that by the division of labour, an increased amount of wages is carned relatively, and the work is thereby considerably enhanced in quality and skill. Thuse observations apply solely to the higher class of shirt-making.

The Jury award Prize Medals to the following Exhi-

Docca-r and Ducarac, A., 21 Rue de la Paix, Paris (147, France, p. 1178), for shirts, embroidered with crests and mones, of good shape and make; and for various other articles HAIGHT, Mrs. W., New York (365, United States

p. 1461), for a plain shirt, of good shape, and very good wark; a light material, suited to bot climates. Moneau and Co., 22 Rue d'Engheio, Paris (652, France. p. 1209), for some exquisitely-embroidered shirts of good shape, suitable for French wear.

The Jury make Honourable Meatlen of the following Exhibitors in this division :

Burn and Co., 189 Regent Street, London (24, p. 578) for attached shirt collar to a waistcost; the waistcost of excellent shape. (Prize Medal nwarded in Class XIX.) DARNET, Rue Richelieu, Paris (1578, France, p. 1252 for very elegantly-embroidered shirts. (Prize Medal

HAYEM, -, sen., 38 Rue du Sentier, Paris (1265, France,

HAITM, —, sen., so not on center, I BIN (1400, FIRECO, p. 1237), for exceedingly benedifial remains.

Scott, P., Edinburgh (141, Class XX., p. 585), for fine-t-resided shirts, nod several collar-shirts.

SNITH, J. F., S Lawreec Lane, London (29, p. 578), the control of the co for a shirt without seams or gathers; and Moravian needlework.

SOCIETY OF NEXDLEWOMEN (147, p. 586), for a enlice-ion of shirts of good shape, and very firmly worked, Exhibited by a benevolent lady.

VALTAT and ROUILLE, 70 Rue de Ramboteau, Paris (709, France, p. 1213), for a quantity of good shirts, well made, and very cheap

WHEELER and AMEET, 23a Regent Street (22, p. 578). for a shirt, claborately embreidered, and very well

Cornets.

On reviewing the articles of corsets, as produced by the Exhibitors, the Jurors and Assistant Jurors converse with the trade, after carefully examining every case, find but few specimens in which there is novelty combined with useful improvement: there are several combinations of anatomical bandages, or supports, with the corset, as an article of dress; with these exceptions, it does not appear that any very great advance has been made in the higher class of corsets beyond the attention which is unconsingly given to an article of such universal and fashiotable use. In the instances before alluded to, the improvements have been pointed out. In the general trade, within the last four or five years, the make and shape of these articles have been greatly improved, so that there can now be obtained by all classes, a well-formed and good corset at a very moderate price; a large quantity are now woven by machinery.

The Jury award the Prize Medals to the following Jose, Madames, Spitens, 45 Rue Neuve St. Augustin, Paris (892, France, p. 1222), for a cornet of very novel

JOSSELIN, J. J. (551, France, p. 1204), for corsets.

ROBERT WEELEY, and Co., Bar le Duc, Meuse (1444,

France, p. 1245), for corsets of excellent manufacture and nnexceptionable shape. VAN BENEREN-BRUERS, Brussels (345, Belgium, p.

1162), for stays of good description, without seams and of excellent workmanthip. The Jury make Honoarable Mention of the following

Exhibitors in this Department :-

Benorn, Mndame, Brussels (349, Belgium, p. 1162), for a variety of excellent stays. PIPER, T. F., 4 Bishopsgate Street Without (41, p. 579), for the hygienic child's corset; of novelty and great

advantage.
Shith, Mrs. Charlotte, Belford (119, p. 584), for a corset of construction,

South's, Hypotite, Madame, Paris (1492, France, p. 1248), for corsets of good make,

Steam Plait and Bonnets. Though the manufacture of straw-plait and bonnets in England may be considered of recent date, its origin being about one hundred years ago, it has now nrrived at a state of great perfection in all its varied branches: this may in a measure be acconoted for by the circumstance of the whole female population wearing bonnets; which, with the exception of North America, are but partially used in other countries. At the present moment, it is calculated that from 60,000 to 70,000 persons are engaged in the production of this article; and it is considered that the yearly return canoot be less than from \$60,000L to 900,000L. With regard to straw goods of foreign manufacture, we have to mention, as most prominent, those of Tascany and Switzerland. The Leghorn hats, formerly in so much demand, are now but very partially worn, and the same remark may also be applied to the Triscan plait, which, at the present time, is not indepted in fishionable wear. The Swiss fancy straw-plaits and triomings occupy a prominent place in this branch of industry, are of great importance to the localities where they are produced, and great taste is displayed in their design and execution, so as fully to meet the constant demands of fashion. Germany and Lombardy have also a limited share in the straw manofacture, of whose pro-doction a few specimens are exhibited. We regret to be onble, from want of sufficient data, to state the extent of the amount of the annual returns, or of the employment furnished by the foreign branches of this trade. The Jury award Prize Medals to the following Exhi-

bitors in this department :-Apr BROTHERS, and other exhibitors (227, Switzerland, p. 1281), for straw plait,

ALLEN, JAMES, and Co., 158 Cheapside (13, p. 577), for ladies' and children's straw hats and bonnets, principally of British materials, some of which are very good.

GREGORY, CURITY, and Co., 15, Aldermanhury (8, pp. 576-7), for an assortment of hats and bonnets, with specimens of various kinds of straw and plaits, forming an interesting exhibition of this hmuch of jodustry, Loxo, George, of Loudwater, Bucks (16, p. 578), for

hats and bonnets made on the pillow-lace principle. MCHS, CONNELL, and BRODIE, Luton, Bedfordshire (173, p. 587, and 215, p. 589), for bonnets made from rye-straw, grown in the Orkney Islands, in imitation of

the Tuscan plait. NANNUCCI, Florence (81, Tuscany, p. 1297), for a case of very fine Leghorn hats and capotes of good workman-

SCIZEBERGER and AKERMANN, Meisterschwanden, Switzerland (234, p. 1281), for n variety of Swiss straw plaits and trimmings of good kind, exhibited in six glass

Vysz and Soxs, 76 Wood Street (11, p. 577), for a case of bonnets of various sorts, in good taste and well mann-

Vysz and Soxs, Prato, Florenec (79, Tuscany, p. 1297), for a selection of very fine Leghorn hats and capotes

WELCH and Sons, 44 Gutter Lane, London (12, p. 577), for a case of hats and bonnets, made of foreign and English materials, of good style and manufacture Womler and Co., Canton of Argovie (227, Switzer-

land, p. 1281), for a large assortment of Swiss straw-plait and trimmings, of all descriptions; together with articles showing great skill in this branch of industry. The Jory make Hononrable Mention of the following

Exhibitors in this department CLARAZ, A., Fribourg, Switzerland (228, p. 1281), for a variety of straw-plaits, hats, and bonnets, illustrating

the peculiar description of industry of this canton. (Prize Medal awarded in Class XXVIII.) DEFIERRE BROTHERS, Heiden, Canton of Appenzell (189, Switzerland, p. 1278), for embroidered straw bonnets, got up with great taste.

MILWARD, JANES, and SONS, New York (93, United States, p. 1439), for bonnets made of cotton-braid; commendable for being a new application of this material. Various articles of foreign manufacture, not easily classed with the European goods, have been considered by the Jury in reference to the producing countries,

Tunn

Magnificent dresses for Turkish ladles (page 1414), of rich silks finely embroidered in gold and silver; dresses for gentlemen, and also richly-embroidered woollen dresses woren in one piece. The strength of thread fabrics, and the excellence of the wearing, entitle them to notice as highly-interesting specimens of woollen manufacture.

The Jury make Honourable Mention of the following articles exhibited in this department :-

(41, Tunis, p. 1414), silk wrought as a separate article, of great substance and beauty, highly remarkable; and the woollen bernous for common wear, and that for the higher classes, are both very excellent.

(48, Tunis, p. 1414), for dresses of the country, in eotton and silk; also dresses in woollen and mixed materials, exhibiting great strength and excellency in tho weaving.
(10, Tunis, p. 1413), for various articles of dress, for caps, and many shawls made of worsted, and other materints, very strong and durable, and colours remarkably

(12, Tunis, p. 1413), for a variety of slippers adapted for use in that country, and some richly-embroidered

TURKEY.

The admirable examples of costumes, collected by order of the Turkish Government, and exhibited by 11st Highness the Sultan, were found worthy of the highest commendation by the Jury; but anfortunately, from the system adopted in the collection of these examples by traders, from the dwellings of the poor in the more useful domestic articles, and the larens of the wealthy in those 212

of fancy embroidery, such as slippers, veils, &c., it is impossible to recognise, either by Medal or Honourable Mention, many of those to whom such distinctions are justly due, as no names are given whereby the Jury can take cognizance of the articles. Those cases which the Jury have been enabled to recognise are selected as much from the facility for giving such recognition as for the high merit displayed in the production, is assuuch as there are others deserving of the same consideration, could the Jury have discriminated amid the vast collection of

The embroidery and fashion of the costumes are of the highest class, and extremely eastly. These dresses, although the costume of the country, are very suggestive; the style of the embroidery is of the highest order-an art which appears peculiar to the country: the slippers also are very elaborately wrought; the veils are richly ornamented with gold and pearls, several of them valued at 25/, each,

The various articles of ladies' attire in silk are ver richly embroidered; erasse dresses, embroidered scaris of the most exquisite description, not only as regards the material, but also the design and the combination of colours with the arrangements and disposition of the various materials employed; rendering many of these

specimens of the utmost value to our manufacturers Mnny articles of dress from Damascus are not only for the higher, but for the industrious classes; and when it is remembered that many of these are the domestic production of the people, and made in their own cottages, too much praise cannot be bestowed on the skill, elegance, great usefulness, and darability of the goods exhibited

The hosiery is of various kinds, the honsehold produce of the Angora women. Some of the socks are as high as 10s, per pair, while the commoner ones, for the workingpeople, are produced at exceedingly low prices.

Prize Medals have been awarded to-

His Highness the SULTAN OF TURKEY, for the collection (p. 1436). FERUVELANCE, The (Tailors' Association) of Janina (408 to 413 in the Turkish Catalogue, p. 1390), for Alba-nian costnmes, male and female, of rich effect and excel-

leut workmauship.
Sorialioglou's Daughter, Constantinople (874, 875, 876, in the Turkish Catalogue, p. 1393), for veils, em-broidered in gold and pearls, with silver fringes.

London, July 1851.

The Jury make Honourable Mention of the following persons, whose works are exhibited in the Turkish Department: BUKUPGY (THE GIRL), Constantinople (988, 989,

piskidoly (1 im Gint.), Constantinope (998, 991, 17th/sis Catalogue, p. 1394), for enbroadered slippers, called ship-ship and filar, Cananaris Wirr, Constantinople (991, 995, Turkish Catalogue, p. 1394), for embroidered slippers, escreux (7 im Gint.), Constantinople (98, Turkish Catalogue, p. 1394), for embroidered slippers, called Signer, p. 1394), for embroidered slippers, called Trazaris Wirry, Constantinople (986, 994, 996, Turkish 996, Signer). Catalogue, p. 994), for embroidered slippers, called ship-

GREECE.

Greek dresses are exhibited in blue and silver; also red and gold dresses from different islands, of very good work, and elegant patterns,

The Jury desire to recognise the articles exhibited in this division. These consist of cloth of real cashmere to a division. I nese consist of coun of roal casinore wool, extremely light, thin, and fine; various dresses oxhibiting the Indian costume, in gold tissue and embroidered. There are also articles of dress from Cashbroidered. There are also articles of dress from Cash-mere, richly embroidered in needlework; and mustin, the produce of the country. The silks are stated to wash perfectly well. Acknowledgment is due to the Hosoura-ABLE EAST INDIA COMPANY (p. 857), for this contribution,

The Jury desire to make Honourable Mention of-Anams, W. H. F., Muntreal (331, Canada, p. 968), for cloth made in Canada; his own production. Barbeau, J., Quebec (Canada, 110, p. 965), for boots

made of deer skins, very excellent in quality, cheap, and CHINA.

waterproof.

Hanourable Mention is due to the Exhibitor of the magnificent dresses for the higher classes of Chinese, in silk, very richly embroidered (28, p. 1424).

The Jury desire to record their opinion, that if Council Medals are awarded in similar cases, then they are emipently due to His Highness the Sultan of Turker (p. 1385), and His Hinness The Bet of Tunis (p. 1412), for the valuable contributions which they have made to the Exhibition.

T. CHRISTY, REPORTER.

CLASS XXL

REPORT ON CUTLERY AND EDGE-TOOLS.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.

Jury.

Right Hon. Lord Wilsinglift, Chairman and Reporter, 28 Lower Brook Street. Joseph B. Denham, Depaty Chairman, 456 Oxford Street; Cutler. C. Karmascu, *Zoliverein; Director of the Polytechnic Institution.

NUBAR BEY, Egypt.

Alderman Charles Peace, Sheffield: Inte Cutlery and Edge Tool Manufacturer.

J. Le Plat, France; Engineer-in-Chief of Mining School, and Professor of Metallurgy, Paris.

Associates, THOMAS DE LARCE, 110 Bunhill Row; Ornamental Stationery Manufacturer. (Juror in Class XVII).
THOMAS HETHINSOYON HENRY, F.R.S., 18 Lincoln's fam; Amblytical Chemist.
JAMES ROOS, Scheffelt; Science Manufacturer.

C. VENABLES, Plomer Hill House, High Wycombe; Paper Manufacturer. (Juror in Class XVII).

* Dr. Schafhautl; Professor of Metallurgy. (Proxy for M. Karmarsch).

characteristics of the Class submitted to their judgment, and to offer such general comment and analysis as may serve in some degree to present a connected view of the information therein conveyed, with respect to the progress and position of this species of industry among the

countries whose contributions compose it. There is one point upon which an explanation should There is one point apon which an expansion strong be given at the outset. Two important sections of those articles which would ordinarily be comprehended under the designation of "Cutlery," are not here included—those of surgical instruments and of weopons of war. The objects therefore referred to this Jury consist of such as are designed either for common and domestic use, or for

various manufacturing operations. It appears, according to the information laid before the It appears that there are altogether about 368 RARDONOUS this Class, distributed, very unequally, among tweety-two of the geographical divisions contained in the Offici Catalogue. The United Kingdom, as was to be expected, assuming to not less than 45 that there are altogether about 368 Exhibitors in has farnished a proportion amounting to not less than 45 per cent, of the whole list; and amoug these are to be found many contributors, on so extensive and varied a scale, that its share in the total display of these articles is much larger than the above numbers would imply. The second place is occupied by Austria, whose Exhi-bitors constitute 27 per cent, of the entire sum. After her the Zollverein States of Germany, furnishing about 8 per cent.-France about 3 per cent,-Sweden and Norway in nearly the same proportion. A very small number of Exhibitors from the remaining countries complete the list, though some of these national collections nowever confined to few individuals, contain objects well worthy of attention

These results must not be taken as any certain indication of the comparative proficiency of the respective countries in the production of commodities of this kind, or of the value of their contributions. It is probable that In some degree they may show the character and nature of the manufacture as carried on in these different states. and correspond with its subdivision among more or less numerous hands in comparison with its total extent. In Anstria, for instance, we find by the Catalogue that the collections specified as assignable to each Exhibitor consist for the most part of one kind of mannfactured article, scarcely any of more than two or three; and we may therefore perhaps venture to infer that the high number of these, as compared with some departments where they

THE Jury for Class XXI, think it desirable to preface are individually more comprehensive, arises from a very their Report by some remarks on the extent and general different distribution of capital among their separate establishments in this branch of industry.

But this is not to be considered as a disparagement to their contributions. Such a condition of the manufacture may be best adapted to the supply of the particular demand for which it exists; and, as regards the present occasion, even apart from such considerations, the appearance of a numerous list of exhibitors from any one asset of a numerous net or exhibitors from any one country may be reasonably taken as a gratifying evidence of the interest and activity awakened there by the invi-tation to co-operate in a display of the works of universal

industry, and of an active desire to share in its bonours, The characteristics of the different national collections are, however, interesting in more than one point of view. We may detect in various instances indications of the peculiar condition and habits of the people whence they come, of their social and industrial wants and nime, as

well as of their natural or acquired advantages. In England the close proximity of coal and iron, together with abundant facilities for converting the latter into steel, gave, at an early epoch, to this branch of its muo suese, gave, as un earry epoen, to this ornaces of its manafactures remarkable energy and importance. Its steel wares had a wide-spread reputation even in the middle ages. The authority of Chausers assures as that in the floarteeath contrary the "Stelffield whittle" was an article of choice estimation; and, within their respective spheres, the blades of Toledo and Damascus were scared more valued than the more homely entirey of England. This pre-eminence the Jury can have no hesitation in pronouncing that she still retains to a very remarkable degree in the present Exhibition; though the general statement must now admit of modification, and it would be untrue and unfair to make it without adding, that she has in certain branches of the manufacture some for-midable rivals. Still, the long-established trade of this country in steel goods of every description, and her ancient practice of forging them for the supply of all markets, are shown in the great variety as well as excellence of her contributions, which comprise specimens of almost every conceivable article of this description. But in other countries, where the manufacture has been of m other countries, where the manufacture has been of more recent growth, it is evident that the energies of their artizans have been directed, by a natural consequence, to the production of those particular article more especially called for by their individual position or exigencies. One of the chief objects of the German Custump of the Custump of the Custom toms Union, for instance, has been to encourage the supply from their own workshops of those commodities

of general and ordinary use, which were formerly in great part derived from importation. From the Zollverein States, accordingly, we find a mixed collection of that character, consisting mainly of common cuttery and simple tools, together with some few objects of the plainer kind for certain foreign markets. From Austria, where the mines and manufactures are in the immediate neighbourhood of a large agricultural and pustoral population, it is to be observed that the collection con largely of scythes, sickles, and the simpler implements of In Switzerland the traditional manufacture husbandry. of fine watch-work renders delicate files a matter of primary necessity, and there is therefore a predominance of these among the better articles in this department, The Belgian collection is distinguished by "spiral entwoollen fabrics for which that country has long been famous. In France we of course find a very miscellaneous collection; but it displays in a marked manner productions indicating, on the one hand, the highest scale of social eivilization and of manufacturing skill in certain spheres and localities, and, on the other, the simplest wants of a primitive provincial population; while in the United States and Catalan, where the occupation of the population is an incessant war upon the forest, the manufacture of axes and woodmen's implements assumes an importance which has raised them to the bighest perfection, and renders this class the most perfect part of the transatlantic exhibition. But it appears advisable to add some more precise notices of the peculiar contents of each national collection; and for this purpose it will be most convenient to take the two great divisions in the order

adopted in the Official Catalogue, First, then, with respect to the United Kingdom, we find that articles in the Class of Cutlery and Edge-tools have been sent from a great variety of places. In England, from London, Sheffield, Birmingham, Warrington, Sourbridge, and a few other towns of less note; from Glasgow and Eliaburgh, hat chiefly from the former, in Scotland; and from Cork, Clonnel, and Limerick, in Ireland. Among these seats of the manufacture there is none, as might naturally be expected, which for extent, variety, and excellence of collection, can compare with Sheffield,
—its most ancient home. We here find every article,
from the most exquisite razor down to the plainest pocketknife, and from the finest saw or file to the most ordinary chisel, displayed, with various degrees of merit it is true, but with a large proportion of the highest. From this collection, the Jury have thought themselves justified in awarding for one remarkable object a Council Medal Messrs, Spran and Jackson (123, Class XXII., p. 606) have exhibited, among an assortment of edge-tools of great excellence, a cast-steel circular saw, of the large size of 5 feet diameter, and of such signal beauty and perfection that it stands far above comparison with any other in the Building. The mere excellence of its quality and workmanship, however, would not, the Jury are aware, have enabled them to distinguish it by a Council Medal, if they had not been able to satisfy themselves that its merit is the result of a new and peculiar process of manufacture. But they entertain no doubt, from the information they have received, that me chanical ingenuity of a novel and special character has been employed by these manufacturers for the production of such articles, without which they could not be carried to equal perfection; and they therefore consider them justly entitled to the highest mark of distinction.

There are two other contributions to which the Jury would have felt themselves called upon to award a similar honour, if they had been at liberty to regard singular excellence of workmanship and quality as of itself a sufficient title. Messrs, Traron and Sons, of Sheffield (190, p. 614), and Messrs, Strans, of Warrington, (39, p. 392), each display a complete assortment of files of various sizes,—the former, for ordinary manufacturing purposes, the latter, for the finer operations of the watch-

the highest assignable reward in respect of these points of merit. Prize Medals, bowever, have been nwarded to them, in common with a number of associates not nuworthy of their company. It will be found that the list of these contains a series of names of which many are of high note in the estimation of the public, and whose con-tributions—some extensive, nud comprising in a high degree almost every variety of excellence, others limited, hut of marked merit throughout-display the choicest productious in the most finished cutlery, and the finest mechanical tools.

The attention of the Jury was particularly called to one overty exhibited by Mesers, BLAKE and PARKIN, of Sheffield, (193, p. 614-15), consisting of the union of two qualities of cast steel, hard and soft, in the same article : having carefully examined these specimens, which were manufactured with much skill, they have no reason to doubt that the process is peculiar to the Exhibitors; but they cannot satisfy themselves that it involves any clear advantage over the combinations of cast and bar steel, and of cast steel and from the methods of cementing which have been long known and practised.

The contribution from London is of course on a more limited scale than that from Sheffield; but it consists of that superior order of cutlery for which the Metropolis has a long-established reputation, and contains articles of high merit in this Class. Among the Exhibitors from London, Mr. Dunnan, of Oxford Street, (46, p. 593), would have been considered by his colleagues deserving of a Prize Medal, if his consent to act as a Juror had not equalified him from accepting it.

The facer descriptions of curlery are nearly confined, in England, to the Sheffield and London departments; but there are a few articles contributed by individual mannfacturers from other places, whose names will be found in the Award List; and there are some also furnished from Ireland and Scotland, which, though not equal to the best from the chief seats of the manufacture, are still of cousiderable excellence.

Manufacturing tools are supplied largely from Eirmingham, and sparingly from Scotland; scythes and files from Stourbridge and Warrington; which latter place furnishes the beautiful collection of watch-files by Messrs. Stabbs, already mentioned.

On the whole it appears that the British manufacture

of cutlery remains still, as heretofore, mainly scated at Sheffield, though it has been established also to a limited extent in some other quarters. The same gradual change of eirenmentances which has operated to transfer, in a great degree, the silk and some other trades from London to the provinces, has had the effect of withdrawing much of this branch of industry from the espital; though a portion, chiefly directed to the production of the higher order of articles, still retains its footing there, and sustains its reputation. On the other hand, the manufacture of the coarser goods, such as tools and mechanical implements, is now extensively shared by several localities which afford the requisite facilities for its successful prosecution, and where the various other forms of industry which surround it create a continued demand for its

productions. Extending our survey beyond the limits of the United Kingdom, from its provinces to its dependencies, it will be found that these present aspects so very different, that certain distinctions are indispensable, with reference to a proper estimate of their position as exhibitors

It is not to be expected that in infant communities, such as most of the Colonies, properly so called, a manufacture of this kind could have attained any considerable growth or perfection; though the greater progress and development of some few have easiled them to meet cereasyment of some few mare entired them to meet their peculiar local exigencies with considerable aucees, We find in this category a read! contribution from the Cape of Good Hope, by the Missionary Sastion at Ganthedal, consisting of various forms of knives adapted to the uses of that country; and from Nova Scotia mother, of cultery made of Nova Scotia steel, though mannfactured in Sheffield! John are creditable to purposes with the cone for bary dimensions, and the local purposes with the cone for bary dimensions, and the lother for minute delicacy, combined with the attention through mannfeatured in Sheffeld is other executable to strongth and efficiency of material, for surpass any other lother colories. While from Canada (West) there is a objects of the man class. They would have described larger assortment, constitute entirely of axes and tools, the former especially of excellent quality, and proving the skill and power of her artisans to supply those particular articles to which her physical exigencies give

the highest importance.

On the other hand, there are contributions from denendencies which are to be considered in a very different light, not newly-peopled, but ancient communities, vari-ously advanced in civilization, and having their own established and characteristic industrial pursuits, often of the highest order of manual dexterity. In this division there are some from the wast territories of the East India Company, which well deserve notice; and a small contri bution from Jersey, The Indian department contains various Hindeo and Malay tools for the use of carpenters and workers in metals; and among them are found, from Moorshedabad, in Bengal, a set of the implements employed by the native artificers in carving the beautiful ivory articles which have so long been admired in the western world, and which present such rare examples of incennity, taste, and, skill,

Articles of this kind, however, are of so peculiar a noture, and of so limited an application, that they can scarcely be considered as bringing into play any principle of general competition or comparison. It is not so with the foreign neighbours of Great Britain, whose productions come next under notice. They will be found to extend, with various degrees of excellence, through all the class of commodities which proceed from the workshops of the United Kingdom, and to include some, also, of a peculiar and distinctive character,

Looking first to Eorope, its foreign exhibitors may be classed under certain great subdivisions, which are na rally soggested by the position and relations of different members, and may conduce to the clearness and convenience of the survey. Thus the several national departments, contained in the total list, may be advantageously connected as follows:-

1. France, Belgium, and Switzerland;

- 2. Austria, and the Southern States of Germany :
- 3. The Zollverein, and Northern States; 4. Denmark, Sweden, and Norway; 5. Russia;
- 6. Spain and Portugal;
- and finally, 7. Turkey, Egypt, and Tunis;
- 8, China; and 9. The United States of America, will com the distribution over the remainder of the world.

1. From France there is an extensive assortment, ranging from the finest ornamental cutlery down to the rudest and cheapest articles for domestic use, which in general character is very good, and in some instances of superior quality. The greater portion appears to be supplied from Paris; but there are a few exhibitors also from the provinces-from Moulins (an ancient seat of this manufacture), from St. Etienne, and from places in the districts bordering on the Rhine,

In cutlery, the best specimens are those of razors, penknives, seissors, and table-knives, many of which are very highly finished and elaborately ornamented, and display great skill as well as superior quality. Among the tools and implements are to be found a very excellent circular saw, showing high proficiency in this branch of the manufacture; and assortments of files, also of considerable merit as to workmanship, though found, after a careful trial, to be not quite perfect as to the quality of the steel. On the other hand, they mention particularly the samples of "web-saws," which are of the very highest class, and, indeed, superior to anything of the same description contained in the English collect

Beiginm supplies cutlery, together with files, scythes, ledger blades," and "spiral cutters." These last articles are portions of the machinery used in the dressing of cloth, and are of a high degree of merit. The cuttery, principally of the table kind, is well finished, but the metal is somewhat soft, and unequal to the workmanship. The same must be said of the scythes and files. Prom Switzerland, the articles consist mainly of ranors,

and of small files adapted to the use of the watchmaker. The former are of fair quality; the latter of the most delicate workmanship, and well suited to the trade for which they are designed, and which has been long successfully pursued in that country.

The attention of the Jury was called, in the French department, to a collection of articles, as examples of remarkable cheapness, which they would not have deemed worthy of mention on any other grounds. These are a ecrtain description of extremely rude pocket-knife, said to be in very universal use among the pensantry of France, for cutting their provisions, and other purposes. They are formed of a rough blade of soft iron, folding into an equally rough turned cylindrical handle of wood. It is obvious that, with such nuterials, their utility must be very limited; but they are sold for five centimes, or about one halfpenny, each, and are therefore in general use

among the poorer classes.

In France, Belgium, and Switzerland, the manufacture of cutlery and edge-tools has greatly improved, and seems

likely to continue to do so

2. Of the subdivision of States which we have placed next in order, the same improvement may, to a considerable extent, be observed. If we include therein Austria. Wurtemburg, and Saxony, we find that the two latter, at least, exhibit specimens of general knife entlery, and of hunting-knives, which, though they cannot be prosounced equal to the best English, are of very good quality, well finished (especially in the Soxon portion), and mounted wish much costly ornament. From Anstria the display is not of so high a class; the cutlery from that country is of a very ordinary description, chiefly the produce of Styria, and is stated to be exhibited, in a great measure, caying one a stated to be exhibited, in a great measure, as an example of cheapness. After such consideration, however, as the Jary have had the means of giving to this point, they conclude that the price is not below what goods of the same quality might be produced for in other countries. The articles are very deficient in merit of any other kind, many of them not even being of steel.

These remarks apply in a great measure to the tools and implements in this department. There are some from Wursemburg of fair quality; bot the assortments of files and other such objects from Austria are indifferent. and not, apparently, very low in price. There is here, however, one description of article deserving of notice, as a curious example of the modification which all tests of merit must undergo when judged by the peculiar uses for which the production is designed. There are from the southern provinces of Austria assortments of scythes, worked thin, and with a concave surface, very difficult tu forge, and therefore requiring much skill in the workmonship, but of metal so soft and inferior, that they would not have been considered worthy of any notice were it not that they are so made purposely to suit the particular habits of an agricultural population, who mow all crops, whether of grain or others, close to the surface of a soil generally abounding in stones. A scythe of hard steel, with a fine edge, though it might perform its work better where unimpeded, would be liable to constant injury, very difficult of repair, under such circumstances; whereas these Tyrolese or Styrian scythes yield at once to the blows which they receive upon their edge. labourer carries with him a small hammer; and whenever the blade has so far lost its shape as to need renewal, be beats it out in a few moments to its original form; heace the softness of the metal, in most cases considered wholly inconsistent with excellence in this branch of maoufacture.

becomes an essential property.

S. From the States of the Zollverein, and from Hamburg and Mecklenburg-Schwerin, in Northern Germany, there is a collection of articles of almost every descrip-The two latter States contribute only on a limited senle; Mecklenburg some razors, and Hamburg also, to-gether with a small collection of tools, of fair quality, The former commodities are not good of their kind, and I me returner commonatures are in a good to more kind, and those from Mecklesburg apparently very high in price. Of the cuttery from the Zollverein, much, though highly famished, is of an ordinary description, comissing of table and pocket knives in considerable variety; but there are also certain "spear knives," designed for failing by the native in the South American rivers, and adapted for their markets, which descree notice as of proper manative and their markets, which descrees the proper manative their markets and the second of the second of the which carees higher Mall. There is a moestment of of attention as being sammfentered in great numbers from an one producing a "nament artee", which is of of attention as being sammfentered in great numbers from an one producing a "nament artee", which is of the second of the second of the second of the second before the contracting press, there's peaking him to profusible with the criticary methods. The workmanning before the second of t

4. The collections from Dommark, Sweden, and Norway are mail, and comain little that requires notice. From some mail continuous maintenance and the state of the contributions, indicating extabilitients on a very limited design and although Sweden has long produced the most valuable iros, as the rew material of the finest steel and of the most finished rews material of the finest steel and of the most finished rews material of the finest steel and of the most finished made any great advance. The collection consists of some made any great advance, The collection consists of some many limits, Prom Dommark here is one singular article, and the collection of the collectio

apparent utility.

5. Of the three contributions from Russia, one only is from a private individual, the other two are from imperiate individual, the other two are from imperiate installaiments. The former contribute a surried installation of the former or the contribute of the properties of the pro

6. From Spain and Portugal the contributions are very small. The former exhibits only an assortment of files from Placenzia, of very fair quality: the latter, some agricultural implements," consisting of praning-knives and scissors, probably adapted to the vine cultivation, but of little merit as manufactured goods.

7. Of the three States in the next divition, Tarkey, Egypt, and Tomis, the two latter are only slender contributors in this Class. One or two articles contained in the property of the contributors of the contributors of the contributors of the contributor of t

the two therefore produce an entire cone when closed. The sides of each of these halves form the cutting edges. They are well finished, and must have required much-skill and great labour in their fiberication, rendering their cost high; but it does not appear that they possess any superior utility. It is not stated that they are so made for any special purpose; and if not, they involve considerable water of total and skill.

[CLASS XXI]

8. From China there are only a very few articles; but one of them is a singular instrument, and should be noticed, as characteristic of the people from whose workshops it proceeds. It is a small blade of a triangular form, 2\frac{1}{2} inches long, 1\frac{1}{2} inches wide, and \frac{1}{2} inch thick, folding upon a slender wooden cylindrical handle, and is used as a razor for shaving a part of the head, according to general practice among the Chinese. It is not easy for us to comprehend how the operation can be successfully performed with such an implement; but it is said to be in common use among the natives, and to effect its purpose in their hands with the utmost nicety and despatch, and it cannot, therefore, be ill-adapted to its object. The workmanship is, to European eyes, of a very rude description, and even the surface of the metal displays none of the finish which is so diligently bestowed on many Chinese productions; but the edge it curries is certainly good, and its quality, no doubt, surpasses its

9. Lastly, the opposite hemisphere supplies, from the United States of America, a collection which, though not very extensive, contains some signal proofs of proficiency-in such manufactures, and is strongly characteristic of the natural and social exigencies of the people from whom it comes. It consists of a few articles of the finer cutlery, hnt mainly of assortments of the larger edge-tools and implements, such as scythes and axes, and other objects of that nature. The former are finished with great care, and decorated with much costly ornament; but the Jury cannot pronounce them to be of the first degree of excellence in workmanship, and their temper is wanting in the hardness proper to the best cutlery. With resp the other articles, however, the case is different, With respect to is a set of joiner's tools, which, though few in number, are excellent; and the same may be said of the scythes, which are of the best quality. Good as these productions are, they are perhaps surpassed by the axes, to which nothing of the kind can be superior; they are admirably finished, and at the same time display all those more valuable qualities which are the necessary conditions and evidence of perfection in such commodities. It is evident that the great prevailing want of the population has erested and encouraged to perfection, in its own neighbourhood, the trade which was to supply it.

bourhood, the trade wheth as I to supply it.

The Jury believe that in the above general survey of
the contributions presented by this Class of the Exhibition,
they have left mobiling unmeritioned of any note or merit;
they have left mobiling unmeritioned of any note or merit;
interacting features which belong to it, it only remains
for them to add a list of the awards.

AWARDS IN CLASS XXI.

1. RECOMMENDATION FOR COUNCIL MEDAL, CONFIRMED BY THE COUNCIL OF CHAIRMEN.

Nation,	No. and Catal	Page in ogne.	Name of Exhibitor.	Objects Bewarded,
	No.	Page.		
United Kingdom	113	608	Spear and Jackson (Cl. XXII.)	For exhibition of circular saws, particu- larly one 60 inches in diameter, of marked and very superior excellence, manufac- tured by a process of peculiar merit, the result of a novel application of mechani- cal ingenuity recently effected by them- solves.

2. Award of Prize McDals.

		No. and Catalo	Fage in gue.	Name of Exhibitor.	
	Nation,	No	Page.	Name of Littlebook.	Objects Bewarded.
			_		
1	'alted Kingdom -	23	591	Addis, J. II., jun	Carving-tools,
)	ranco	753	1216	Ambeiter, M	Cutlery.
-1	inited Kingdom -	193	614	Blake and Parkia (Cl. XXII.)	Saws and files,
i	nited Klagdam -	110a	606	Brooker W and Son ((1 XXII) -	
i	nited Kingdom -	259	1453	Brookes, W., and Son (Cl. XXII.) - Brown and Wells	Edge-tools, Tools,
		18	591	Diows and wells	Turning and other tools.
3				Buck, J Butcher, W. and S. (Cl. XXII.)	Edge-tools and razors,
4	'nited Kingdom -	192	614	Butener, w. and S. (CL XXII.)	Nickles,
- 3	alted Kingdom -	240	619		SICKIES.
В	'nited Kingdom -	115	6/16	Cocker and Sons (Cl. XXII.)	Files and edge-tooks.
3	rance	129	1177		News.
0	Wurtemburg	57	1117	Dittmar, Brothers	Cutlery.
3	United Kingdom -	49	553	Esstwood, George	A plane.
Э	Inited Kingdom -	203	615	Eyre, Ward, and Co. (Cl. XXII.) -	Cutlery, Bizzora
-3	'nited Kingdom -	114	606	Fensey, Frederick (CL XXII.)	
и	Austria	4:00	1631	Fischer, A	Files.
- 3	mace	218	1184	Fischer, A Freely, A	Fine files.
i	inited Kingdom -	194	615	Glbbins and Sons 'Cl. XXII.)	Scissors.
1	rnnce	851	1221	Goldenberg, G., and Co	Naws and lools.
ı	rnnce	858	1221		Cutlery.
1	Inited Kingdom -	226A	618	lingue, S. (CL XXII)	l'enknives.
ľ	Austria	517	1034	Haindl. A	Cutlery.
1	inited Kingdom -	31	592	Hannah A	
K	Called Classical -	146	609	Hannah, A	Dressing-casn Instruments.
:	'nitted Kingdom -		1397		Pressing-case instruments. Scinsors.
3	Furkey Wurtemburg	1553			
	Wurtemburg	58	1117		Scythes,
ı	'nited Kingdom -	135	608	Hawcroft and Sous (CL XXII.)	Razors.
1	weden & Norway -	11	1350	Heljestrani, C. V	Razora.
3	'russia	187	1058	Heukels, J. A	Cutlery,
1	nited Kingdom -	188	614	Hirrinbothem, G. and W. (Cl. XXII.)	Scistors,
1	Prussia	631	1085	*Hillger and Sons Hill, Joseph V	Cutiery and seythes.
i	nited Kingdom -	47	1/1/3	IIIII. Joseph V	Snws.
i	nited Kingdam -	33	592	Hilliard and Chapman	Cutlery,
3	Prussin	637	1085	Hoeller, A, and E	Cutlery.
ĸ	nited Kingdom -	181	613		Edge-tools (engraving),
-8	nited Kingdom -		618	Hownrth J. (Cl. XXII.)	Neissers.
×	nited Kingdom -	228		Hunter, Edwin (Cl. XXII.)	Scythes and renping-books.
- 8	nited Kingdom -	215	1375		Seythes and renping-nooks,
		286	1375	lakovieff, Mme. Cotherine	Cutlery.
- 2	nited Kingdom -	191	614		Cast-steel scythes, &c.
ц	nited Kingdom -	209	616	Ibbotson, Richard (Cl. XXII.)	Naws.
	Russia	167	1372		Seythes.
-3	Inited Kingdom -	109A	605	Johnson, Cammell, and Co. (CL XXII.)	Files.
в	inited Kingdom -	5	591		
- 1	Inited Kingdom -	161	611		Files.
- 1	nited Kingdom -	14	591	Loy, William	Nkntes,
- 1	Inited Kingdom -	15	591	Lov. W. T	Cutlery,
- 1	inited Kingdom -	112	606	Makin W. (Cl. XXII.) = = = =	Rag-engine roller-bars, bottom-plates, and
				reading or (on some)	rag knives.
1	Prussia	617	1684	Mannesmann, A	Files.
i	inited Kingdom -	139	608	Manola and Brothers (Cl YVIII) -	Cutlery.
Ġ	inited Kingdom -	169	611	Mersdon Brothers and Co. (Cl. XXII.)	Johnson' torols
i	Inited Kingdom -	132	608	Morrison Devices and Co. (Ct. LAIL)	Razors.
ż	Inited Kingdom -	32	392	Mortin, Stephen (Cl. XXII.)	Jeiners' tools.
;	Inited Kingdom -		430	Mnthleson, A Mntthews, W. (Cl. x.) Morton, J. and G	Table entless
3	Cuited Kingdom -	181		Matthews, W. (CL X.)	Table-rutlery. Table-knives.
3	nited Kingdom -		591	Morton, J. and G	Pinnes.
3	inited Kingdom -	13	591		r macs.
	inited States	323	1455	North Wayne Soytha Company	Scythes.
3	nited Kingdom -	149	609	Nowlii, J., and Sons (Cl. XXII.)	
	nited Kingdom -	233	618	Peace, Il., and Co. (Cl. XXII.)	Saws.
В	nited Kingdom -	641	4654	Peace, Il., and Co. (Cl. XXII.) Philp and Whicker (Cl. X.)	Cutlery.
- 1	rance	348	1194		Cutiery.
1	France	969	1226		Fine files.
٦	inited Kingdom -	690	667	Rodgers, J., and Sons (Cl. XXII.) -	
	nited Kingdom -	198	615	Seynor and Sons (CL XXII.)	Gardeners' knives.
i	Prosein	673	1087	Schmolz, W., and Co	Cutlery.
î	nited Kingdom -	10	591	Sharp Brothers and Co	Table kalves,
i	'nited States	119	1447	Simmons, D., and Co	Edge-tools.
i	'nited kinedem	908	616	Slack, Sellers, and Co. (Cl. XXII.) =	
;	nited Kingdom -			Sinck, Sollers, and Cn. (Cl. XXII.) -	Edge-tools.
3	nited Kingdom -	204	615	soroy, a., and sons (Cl. XXII.)	
1	nlted Kingdom -	214	617	Sorby, R., and Sons (CL XXII.) = - Stoniforth, Thomas (CL XXII.) = - Steer and Webster (CL XXII.) = -	Seythes and sickles.
B	nited Kingdom -	124	607	Steer and Webster (CL XXII.)	Seissors.
		63	1270	Statzer, Frederick	Fine files,
3	inited Kingdom -	39	592	Stubs, Peter	Small files.
.0	Turkey	1550	1307	Tabir	Scissors.
		10:27	1228	Tainbet and Co	
	nited Kingdom -	129	508	Toylor, Henry (Cl. XXII.)	Engravers' tools.
1	nited Kingdom -	2	590	Thornhill, Walter	Garden tools,

PRIZE MEDALS-continued.

Nation.		No. and Catalo		Name of Exhibitor. Orients Rewarded.
7411042		No. Page.		
United Kingdom	_	34	512	
Belgium	-	128		"Troupin Brothers Spiral cutters, &c.
inited Kingdom		117	607	Turner, Thomas (Cl XXII.) Files, saws, and cuttery.
United Kingdom		1:0	614	
l'nite l Kingdom			610	Unwin and Bedgers (Cl. XXII.) - Cutlery. Fowin, W. (ared 16: Cl. XXII.) - Sportsman's knife.
nited Kingdom		178	501	Towin, W. (aged 16; Cl. XXtt.) - Sportsman's knife. Waldron and Sons Scytles.
Inited Kingdom			391	Walters, J., and Co. (Cl. XXII.) - Cutlery,
Inited Kingdom		P165	615	Ward and Payne (Cl. XMt.) - Edge-tools.
Austria = =	Ξ	444	lega	Weinmeister, G Scythes.
Austria		573	leci6	
I nited Kluwtom	=	122	607	Wilkinson and Son (Cl. XXII.) - Sheep shears.
buited Kingdom		175	612	Wilklows T and G (Cl. XXII.) - Scissors.
Fuited Kingdom		195	613	Wilson and Sons (Cl. XXII.) - Slace and batchers' knives.
Inited Kingdom	-	125	607	Wostenholm, G. and Sons (Cl. XXII.) Cutlery.

^{*} Awarded a Prize Medal in Class VI.

3. The Jary, however, searchy feel that they should be doing complete justice to the spirit and exercision of some other exhibitors of they did not mention, that though their contributions have not appeared to be of quite such a character as to entitle them to the distinction of a Mechal, they are still describing of Hosotrananz Mixertons; and they therefore desire to append the following list of masses to which such special recognition is fairly date.

Total Kinghon	Nation.		No. seed I Untake	Page In	Name of Eablibitor.	Objects Bauarded,	
1			No.	Page.			
	nited Kingdom		11	591			
Aller Alle					Alran and Locatelli	Files,	
Alley A. B. and C. 150 141 150 1		_	118	607	Algor, J. (Cl. XXII.)		
Althouse So. Co. Althouse South Co. Co		_	97	1439	Allen, A. B., and Co		
Alberton 100 61 Alberton and Marrieds (L. XXXI.) Trans. Indic.		_	365	638	Atkin and Son (Cl. XXtt.)		
All nlted Kingdom	-	160	611	Atkinson and Marriott (CL XXtL) -	Files.		
A		_	203	501	Baker, William	Awi-blades.	
		_	37	592	Berker, R		
	nited Kingdom	-					
A continue A c			232				
100 100		-		617			
1975 1975	menia	-					
	nited Kingdom	-		612	Bloomer and Phillips (Cl. XXIL) -	Joiners' tools,	
Minch Maryon 3 100 Erectified, it and it w. Conference 100 Erectified, it is and w. Conference 100 Erectified, it is and w. Conference 100 Erectified, it is an increased 100 Erectified, it is an increased 100 Erectified 10							
		-					
	nited Klurdom	-					
All	nited Kingdom	-		592	Braiford, Samuel	Cutlery.	
A	russia	-			Braunschweig, J. A	Tools.	
	nited Kingdom	-		6(13)		Awi-blades.	
100 101 Robertlineth J. Curlery	nited Kingdom	-			Brookes, J. (Cl xxti.)	Dressing-case instruments.	
	nited Kingdom	-					
						Cuttery.	
	ritzerland -	-				Bazors.	
10							
All Control							
A A A A A A A A A A							
Miles Kinglom 137 610 Deaths, George (GL XXII) 1 1 1 1 1 1 1 1 1						Schools and sheem	
Alles Alle							
1000 Kirolom 100 607 2010, T, and C to C(X, Xx1) - To Table curbery, 1000 100	nited Kingdom						
atilis Kingdom 131 (ii) Illioti, J. (C.3.xxil) — Reserve atilis Kingdom 130 (ii) Illioti, J. (C.3.xxil) — Reserve atilis Kingdom 130 (iii) Illioti, J. (C.3.xxil) — Files. atilis Kingdom 202 (iii) Five real Bramball (Cl. Xxil) — Files. atilis Kingdom 130 (ii) Get and the (Cl. Xxil) — Reserve atilis Kingdom 130 (ii) Get related (Cl. Xxil) — Reserve atilis Kingdom 152 (ii) Josef the other (Cl. Xxil) — Reserve atilis Kingdom 152 (iii) About to all fatting (Cl. Xxil) — Reserve atilis Kingdom 2 2 [iii) About to all fatting (Cl. Xxil) — Training dools.						Table cuttery.	
Miles Alighen 156 810						Page Curiery.	
antis							
Mind Kinglom 200 616 Flyor and Bramball (U. XXII.) Flyor 100 Flyor Intel Kinglom 200 616 Flyor 100 Flyor						Ellet	
Acceptance 167 611 Flatter, R. (CL, XLL)							
201 201							
1037 1037					Confirmal Sec (Cl. XXIII.)	Scather and reaning-books.	
(or \$727) 123 667 Gilbert Brothers (CL XXII.) Basen. 123 667 Gilbert Brothers (CL XXII.) Basen. 124 125		-			Commission and Needle	Cutlery	
187A 614 Joseph and Battie (Cl. XXII.)	russia	-		1			
nited Kingdom - 187A 614 Jowitt and Battie (Cl. xxit.) - Fales. urkey 1994 1396 Kirkar Seissors. nited Kingdom - 24 391 Knight and Sons Turning-tools.	nited Kingdom	-	123				
arkey 1304 1336 Kirkar Seissors. nited Kingdom - 24 591 Knight and Sons Turning-tools.							
nited Kingdom - 24 591 Knight and Sons Turning-toom.		_	1304				
	nited Kingdom	-					
	Xony	-		1106			
anada 121A 967 Ladd, C. P Axes.		-			Ladd, C. P	Axes.	

Awarded Honourable Mention by Jury of Class XXII.
 Awarded Priss Medal by Jury of Class XXII.
 Awarded Honourable Mention by Jury of Class XXII.

October 1851.

				HONOGRABLE MENTION-continued,
Nation.		No. and Page in Catalogue.		Name of Exhibitor, Objects Revarded,
	_	No.	Page.	
France	_	1641	1235	Lance, E Cutlery.
anada	-	124 (or 130)	967	Leavitt, G Axes.
Austria	-	496	1634	Lechner, M Files.
Switzerland -	-	215	1280	Lecoultra, J Razors.
nited Kingdom	-	225	6t8	Leon, A. (Cl. XXII.) Bowie knives.
avony	-	31	1106	Levy, H Pearl-handle carvers.
inited Kingdom	-	231	618	Linley, G. A. F. (Cl. XXIL) - Sheep-shears.
nited Kingdom	-	128	608	Marples, R. (Cl. XXII.) Joloers' tools.
nited Kingdom	-	162	611	Marsh Brothers (Cl. XXII.) Cutlery and edge-tools.
nited Kingdom	-	35	592	Mathieson, T. A Plane.
nited Kingdom	-	352	592	McPherson, C. and H Braces and bits.
Belglum	-	332	1162	Monnoyer, Joseph Peter Table cutlery.
Denmark	-			Naylor, J. W Files (various).
Inlted Kingdom	-	133A 137	608	Newbould and Baildon (Cl. XXII.) - Table cutlery.
Austria	Ξ	414	1633	Niebotson, W. (CL XXII.) Cutlery. Offner Brothers Scythes.
Austria		445	1033	Pamer, S Scythes,
ulted Kingdom	Ξ	119	607	Parkin and Marshall (Cl. XXII.) - Table cuttery.
United Kingdom	Ξ	233A	618	Peace, Heary (Cl. XXII.) Files.
Austria	Ξ	446	1033	Penz. J Seyther.
Prussia	Ξ	613	1084	Pickardt, G Files.
Portugal	Ξ	632	1314	Polycarpo, A Garden-knives.
lambers	-	43	1137	Ritter, W Augers, &c.
Austria	Ξ	550	1035	Rossler, J Cutlery.
inited Kingdom	Ξ	34	592	Sandars, G Razor-strop,
Prussia	_	540	1085	Schwarte, J. D Cutlery.
Canada	_	122	967	Scott and Glasford Axes,
		(or 148)		
inited Kingdom	_	147	600	Sellers, J. (Cl. XXII.) Cutlery,
anada	_	123	967	Shaw, Samuel Axes.
		(or 149)		
Inited Kingdom	-	158	610	Slagg, 11. W. (Cl. XXII-) Sickles,
Turkey	-	1363	13.6	Sophia, Province of Scissors.
inited Kingdom	-	21	591	Stewart and Co Razor-guard.
weden & Norway	-	12A	1350	Stille, A Razors, &c.
Austria	-	559	1036	Stackhart, John Cutlery.
France	-		1248	
rance	-	205	616	Tasker, Henry (Cl. XXII.) Sawa.
nited Kingdom	=	205	616	Taylor Brothers (Cl. XXII.) Saws.
Prussia -	Ξ	671	616	Thomas, C Cutlery.
	Ξ	120	966	Wallace, A Planes.
Canada		(or 147)	200	Wellesty At I leave.
nited Kingdom	_	187	614	Warhurton and Co. (Cl. XXII.) Augers.
nited Kingdom	Ξ	631A		*Weiss and Son (Cl. X.) Cutlery.
Austria	Ξ	572	1035	Weiss, J., and Sons Tools.
loited Kingdom	Ξ	134	608	Winks, B., and Sons (Cl. XXII.) Razors.
United Kingdom	Ξ		501	Wood, J Razors.
pnin	_		1345	Ybarra, J Files.
Austria	_	450	1033	Zeitlinger, J. A Seythes.
	-		1	

^{*} Awarded Prize Medal by Jury of Class Xe.

WHARNCLIFFE, REPORTER.

CLASS XXII.

REPORT ON IRON AND GENERAL HARDWARE.

The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.

Hon. Honace Gazener, Chairman, United States; Editor. W. Bird, Deputy Chairman, 5 Marthu's Laur, Cannon Street, City; Iron Merchant.
Annura Adams, Walsall; Hardware Merchant.

Actes, Austria.

W. Dree, R.A., Reporter, 2 Fitaroy Square.
G. Goldenardo, France; Manufacturer; Member of Central Jury, &c.

Don MANUEL HEREDIA, Spain; Mcrebant. E. Stialing Howam, Sheffield; Sheffield Plate Manufacturer.

f. Strikhlouw, Camon Street, Birmingham; Patent Agent.
Fran, Serrakus, Belgium; Member of Scante, Vice-President of Chamber of Commerce, Charlesoir.
Dr. F. Strukust, Sollverin; Member of the Board of Trade and Commerce. HENRY VAN WART, Birmingham; Merchant.

Amociates,

Sir H. R. H. Baume, 13 Cambridge Street, Hyde Park; Professor of Music at Oxford. (Juror in Class XA.) WARREN HE LA REE, Ph. D., F.R.S., F.R.A.S., F.C.S., 7 St. Mary's Road, Canonbury, Islington; Mann-

WARRY HEAD FOR THE STATE OF THE

W. Wros, R.A., Her Majesty's Miot Medalist. (Juror in Class XXX.)

In that respect it forms a sucless round which, either wholly, or in certain particulars, various other classes, to the number of seven or eight, are distributed; and which are separated from it an grounds, partly of convenience, and partly of the subjection of metal-working, as such, to the purposes of specific branches of industry or science.

Owing, however, to the difficulty, in many cases, of muking such a separation, the range of Class XXII, has been limited rather with respect to the number of objects embraced by it, than to their nature; among which, in point of fact, there are included examples either analopoint of inct, ineric are instances extampled extact analogous to, or ideutical in illuscential particulars with, a considerable portion of those exhibited in Classes I, V., V., VIII., IX., X., XXII., XXIX., and XXX. Thus, for example, although it belongs to Class I. to determine the merits of iron, steel, copper, or other wire, under the merits of iron, steel, copper, or other wire, under the head of "Metols in their progress to finished manufac-tures," the same wire, when twisted or woven, comes under Class XXII, in which its merits, with this new quality superadded, must again be tested by a rule in-volving a judgment on the moterial itself. Then again, Class XXII. abounds, if not with muchines, at least with machine-like contrivances, and with implements and tools, which identify it with several of the Classes above emme-In the case of metallic sculpture, this identity rated. In the case of metanic scripture, this signality with Class XXX, is especially to be remarked. As a geogral rule, it was thought that the Jury of Class XXII. might with advantage confine themselves to the consideration of net as it is applied to ornamental purposes; but practically it was by no means easy, if indeed it was possible, to define in every respect the limits between ornamental art and fine art; and hesides, it was to be borne in mind, that statues in metal, and other similar works of urt, while they are to be judged of asthetically, are also, as the result of various metallurgie operations, amenable to the criticism of the founder and metal-worker, and may have, in that respect (as the Jury believe to be the case in more than one instance in the Exhibi-

tion) a merit, which, though ant independent of artistic

THE range of Class XXII. may be said to be co-extensive excellence, is nevertheless separable from it. On this with the employment of the baser metals in manufacture. passed under the review of this Jury; and they would remark, with respect to this and other cases, that although their daties would have been lightened by a more exact definition of the limits of their Class, and, in all in-stances to which it was practicable, by a statement of the particular merit on which the exhibitor wished to found his claim to reward, yet the exhibitors of those articles which have nudergone the scrutiny of more than one Jury, will have no reason to complain of an arrangement, which, at the least, must have tended to colarge tha grounds of criticism, and make more fully known their

elaims to notice The phjects included in Class XXII., considered with reference to material, range themselves for the most part

under the heads of :-1. Brass Manufacture 2. Copper, Zinc, Tin, Pewter, and General Braziery.

4. Steel Mannfactures.

The following particulars being comprehended under these heads :-1. Brass Manufactures.

a. Cahinet and general hrass foundery: consisting of hinges, fastenings, escutebeoos, bell-pulls, brass foun-dery used in ships, knockers, door-springs, castors, &c. b. Plumber's brass foondery: cocks, valves, pumps, water-closets, &c.
c. Stamped hrass: cornices, curtain-bands, finger-

plates, &c.

d. Gas fittings, bruekets, chandeliers, pillars, gashurners and consumers' meters, &c. e. Tuhing, plain and nrasmental, f. Metallic bedsteads.

g. Chandeliers, lamps and candelahra for nil, candles, ar camphine, and lamp-chains. & Railway and carriage brass foundery, and signal

lamps and lanterns. i. Bronze figures, busts, and chimney ornaments.

- k. Bells: house, charch, ship, table, &c., and alarums. 1. Candlesticks: table and bedroom.
- Monumental brasses and ecclesiastical brass-work. u. Copper-plates for engravers.
- o. Miscellaneous: including pins, nails, wire-gauze, hird-cages, hooks and eyes, wire baskets, and ropes,
- 2. Copper, Zinc, Tin, Pewter, &c. a. Kettles, coal-scuttles, coppers, sancepans, steamers,
- plate-warmers, &c. b. Brouzed ten and coffee-urns, kettles, &c.
- c. Tubing: copper, tin, lead, &c.
 d. Pewter, German silvec and Britannia metal tenpots, basins, dishes, spoons, ladles, inkstands, &c., e. Coffin furniture: plates, escutcheous, &c.

f. Zine articles generally.

3. Iron-work.

a. Stoves, grates, fenders, and fire-irons, kitchen ranges, cooking apparatus, smoke-jacks. b. Warming apparatus for halls and rooms, ships, &c., either hy water, coal, coke, wood, charcoal, or gas.

- Shower, vapour, air, and warm-water baths. d. Ventilators: metallic and others,
- e. Pipes and gutters, &c. f. Locks and hinges.
- q. General ironmongery.
- Knife-cleaning machines,
- Letter-copying machines and presses.
 Saddlers' iroamungery.
 Hollow ware, cast and wrongbt, tinned, and enamelled.
- n. Spades, shovels, pickaxes, hoes, rakes, gardenrollers, &c. o. Nails: eut, east, and wrongbt.
- p. Screws and railway bolts, &c. q. Iron safes, cash boxes, fire-proof and others.
- r. Horse-shoes. s. Gates, railings, hurdles, and stable fittings. t, Mangles, washing-machines, &c.
- u. Iron bedstends, garden seuts, &c. v. Castings in iron

4. Steel Manufacture. a. Tools and heavy steel toys, hammers, vices, &c.

b. Steel ornaments, light fancy steel toys, brooches, huckles, &c.

 e. Steel pens and metallic pens of other kinds.
 d. Needles, fish-books and fishing tackle. Besides these, there must be included also a number of objects fabricated of mixed materials, such as buttons-

metallie, Florentine, pearl, bone, &c., and other produc-tions coming under the usual denomination of hardware. Considered in another aspect, the articles comprehended in Class XXII, may be divided into those intended to supply the necessary and absolute requirements of large industrial populations, and generally to minister to the conveniences of society; and those which, either partially or wholly, are ereated to meet the demands of taste and refinement among the wealthier classes of the community.

A large proportion of its contents, accordingly, consists of articles of mere ntility and convenience, the merits of which were to be tested by such considerations as fitness for their professed purpose, and excellence of material and workmanship

To these tests the Jury believe it would have been ad-vantageous to have added a comparison of prices; but they found it necessary to abstain from introducing this element into the grounds of their decisions, partly on account of the difficulty of doing so, and partly in deference to the instructions furnished to them by the Council

of Chairmen. They must also add, that, after much deliberation, they felt themselves compelled to adopt a rule for determining the merits of inventions, and of improvements on existing contrivances, which, in many cases, they admit to have been inadequate. Numerous instances, of course, ther were of contrivances in which the adaptation of the

means to the end was so obvious, that no question could be made of it. Others there were in which the actual wurking of the invention was witnessed; but there was a third class, respecting which the decisions of the Jury, it was felt, must be pro tunto, conditional and contingent on the efficacy of the contrivance, unless and this was considered to be impracticable—they were cuabled to form an opinion after actual experiment,

This question was, in the first instance, raised in the case of lamps for oil or campbine, on the occasion of a ossultation between this Jury and the Jury of Class XXIX.* on that point; and it was subsequently decided, in the first place, that there were practical reasons, which it is here unnecessary to state, against nadertaking a course of experiments on the comparative advantages in point of economy and the illuminating power of the lamps in question; and, secondly, that supposing it to be otherwise (though indeed the same or similar ubstacles existed in other cases), the Jury must, in fairness to exhihitees in all the sections of this Class, have resorted to

experiment where any doubt arose, and thus have protracted their labours to an inordinate length, Among the cases to which the Jury refer, they may advert more particularly to contrivances for presenting smoke, kitchen ranges, professing great economy in fuel and other advantages, apparatus for heating and cooking by gas, and such like.

In some instances, indeed, experiment would have rendered no assistance. In the manufacture of steel pens, for example, the improvements introduced by parpens, for example, the improvements introduced by par-ticular houses (beyond a certain point of excellence long since passed by all) are, for the most part, merely differ-ences of form, on the advantages of which, adapted as they are to sait different characters of hand-writing, very few persons would be found to agree. With respect, however, to all the cases to which they refer, the Jury believe that, short of actual experiment, they have neglected no means by which they were likely to arrive at a sound conclusion. And besides, it must not be forgotten, that even in these and similar instances, the invention or contrivance is not the chief, nor always the sole element of merit on which they were called upon to pronounce a

Next in order to articles of mere utility and conve-nience, may be ranked those in which use is combined Thuse cutte with a greater or less amount of oreament, stitute the largest proportion of the objects in Class XXII.; besides which there is a third section, which consists of articles either solely or chiefly ornamental; including such works of fine art as are or may be employed for decorntive purposes.

The whole number of exhibitors in this Class is up-

wards of 1,200, including those who, chiefly exhibiting in other Classes, have also sent articles which more or less come nader the denomination of bardware. This number also includes exhibitors of certain objects, such as metallic combs for weaving, and mangles, which were mately referred to other Juries.

The proportions in which various countries have con-tributed examples of all kinds may be gathered from the following statement of the relative number of exhi-

Two-thirds of the whole number of contributors belong to the United Kingdom; the other third are thus distrihuted:-

From France -- about one-fourth, From States of Zollverein - - rather above ditto, Front Austria - - - about one-eighth. - - - about one-sixteenth. From Belginm From Canada - ditto ditto From United States of America - ditto

And the remainder from India, China, Denmark, Spain Sweden and Norway, Russia, Switzerland, Jersey and

Guerascy From the extreme difficulty of classifying so multifa rious an assemblage of objects as are included in this department of the Exhibition, an approximation only can

* See Appendix (A.), page 510,

be made to the proportions in which British and Foreign exhibitors have contributed examples in specific branches of industry; but the following table will, perhaps, suffice to show how the case stands with the more noticeable kinds of mannfacture:—

NUMBER of EXHIBITORS, Barrien and FOREIGN, of the principal objects in CLASS XXII.

	No. of E	xbil-itors.
Kind of Objects.	Berish.	Foreign
avils, vices, &c	4	3
aths of all kinds	16	1
edsteads, metallic	15	1 7
fellows, acoustic tubes, &c		3
iells, church, house, &c		111
ini-cages	- 6	6
knss-foundery (various)	16	6
tronzes, bronze wares, and castings -	9	63
lottons (various kinds)	20	13
handeliers, metallic	9	6
opying machines, presses, &c	18	3
namelled and tiu ware	4	4
ilters	- 4	1
as meters	12	-
fittings	14	4
rates, fenders, fire-irons, cooking ap-		١
paratus, iron castings, &c	84	25
laninare (various)	54	26
forse-shees =	10	1 7
amoned ware	6	6
ens'-harps	-	5
itchen mares	14	-
nife-cleaning machines	4	-
amps (various)	28	15
etter-boxes	4	-
ocks	3,1	25
brass-work	9	1
nils (all sorts)	4	91
cedles and pins		4
Vens	- 4	4
croussion cars		4
enter articles	9	l í
owde-flasks	2	l i
afre, &c	8	5
cms	- 4	4
teel and other metallic pens	11	i
tee wares	12	14
loves	37	25
ea-kettles and urns	. 9	1
ubing (various), copper, tin, lead, &c	6	1
Vater-closets	10	l i
Vire gauge, wire cloth, wire ropes, and netting, &c.	21	10

The foregoing table includes those case only in which can be sufficient for the substitution of the substi

On a general review of the contents of Class XXII., the Jary observe first, that although the contributions from the United Kingdom are twice as great as those from all other countries, and, with trilling exceptions,

monist of examples in all hembers of metallic manefuncts, the character of the contributions were in indicate merce, the character of the contribution was not indicate pre-estimate for excellence of workmaning and materials, pre-estimated for excellence of workmaning and materials, and the contribution of the contribution introduced in any other contribution in the contribution in the contribution of th

nerit of British productions, though very unequal, is, in the whole, less pre-emineut. Whatever amount of vidence there may be that the persons who furnish the lesigns are deficient in artistic education and intelligence, seems to be almost beyond question that the inferiority f British hardware, in point of taste, is, in many inmoces, more immediately traceable to other causes. One of the chief of these the Jury conceive to be the artistic gnorance of workmen. There may be observed everyhere the fruits of a disposition among artificers to con ider the duc development of artistic design less important han a kind of mechanical high polish and finish, which re in all cases thought to be essential to excellence of re in all eases timing it to be essential to executence of rorkmanship. The Jury are hy no means disposed to undervalue beauty of workmanship; on the contrary, hey consider it essential to the perfection of manufacure; but it is quite clear that in proportion as tasteful lesign becomes an element in that perfection, mechanical levelopment. Unless this subserviency he strictly mainained, no amount of skill on the part of the designer can wall. Accurate modelling, for instance, of the features sorkman, prepossessed with his poculiar notions of finish, to be at liberty to obliterate both festures and toes ofore he can attain the degree of polish which he deems reditable and necessary In the cases to which the Jury refer, it is obvious that

he deficiency arises from a want of proper understanding setween the designer and the parties who execute the ork. In an early stage of society, - as indeed must dways, to a great extent, be the case in the highest kinds of art, -the artist and artifleer, the designer and manufacturer, are the same individuals. This state of things, though on the whole highly favourable to the influence of taste on works of industry is incompatible with low prices, or (which is the same thing) with extensive production. In particular, the difficulty and tediomeness of the mani-pulation of materials so unyielding as metallic substances, while they place a limit on production as it respects quantity, have a tendency to confine the character of the things produced to the two extremes of rudeness and elaboration. So long as the chenpness of an article was attained, not by increasing the mechanical facilities for its production, but by diminishing the amount of handlabour bestowed upon it, metal-working, so far as the mass of the people was concerned, could never extend itself beyond the few indispensable requisites of everyday life, which, to be cheap enough, must be of the rudest description,-such, in fact, as we still see in the specimens of household and other ntensils among the Oriental manufactures now exhibited. With respect to the wealthier classes, on the other hand, the inducements lay in the opposite direction; it was the interest of the artificer to enhance the value of his productions by claborate and varied workmanship of an ornamental kind, for which alone he was likely to obtain adequate remove ration. Thus every single production, on which labour

heyond a certain indispensable amount was bestowed, artook more or less of the character of a specific work of art, identified with the prodocer as an artist, and reproducible only by a reiteration of the original process by the same or equally competent hands.

It is not difficult to anticipate the effects which the substitution of machinery for hand labour must produce on this aboriginal character of industry. However great the improvement likely to arise, both with respect to quality and cheapness, in the fabrication of objects of utility, it was inevitable that, for a time at least, a deterioration should take place in ornamented manufactures. The old relation, or rather identity, between the artist and artificer must cease to exist under a system, in which the application of ornament depended no longer solely on the skill of individual artist-workmen, but un the capabi-lities of mechanism, or chiefly so. The influence of lities of mechanism, or chiefly so. taste, accordingly, had to be exerted by new methods. which, from the accessities of the case, could only develop themselves slowly.

In the first place, the earliest efforts of machine labour are directed to the production of objects in their simplest and least ornate form. Imperfection of unachinery, and the primary parpose of machine labour, viz., cheep and extensive production, both tend to impose this condition, and to impart to manufactures a mechanical and americatic character. It is not only the interest of the manufacturer, but matter of necessity, in the first instance, to exclude whatever cannot be easily and cheaply executed; and thus, on the application of muchinery to any new hranch of industry, there occurs in almost every case an interval during which the services of the designer are reduced to their minimum, even if they are not, for the time, virtually dispensed with. But apart from this consideration, it is to be remarked, secondly, that the appli-cation of machinery brings with it new difficulties to the way of taste. On the one hand, the conceptions of the designer are not, as before, limited solely by his skill as a workman. The capabilities of each particular process of manufacture have now to be studied; and the adaptation of design to these, forms, of itself, an art of considerable difficulty and of slow acquirement, fettered as it is by questions of economy in execution, and embarrassed and impeded by continual improvements, or, at least, changes in the machinery or process employed. On the other hand, the mise on fabrique and the finishing processes, if they do not necessarily in most cases fall insu the hands of persons artistically disqualified, do so, at least, in the first instance; and this obstacle to the due execution of ornamental work not only becomes inveterate by use, but has mistaken views of economy in favour of its perpe-

It is, at least, a fact, that while the application of ornament to many hardware manufactures has gradually become more extensive and of a higher order, the character of the individuals employed in the workshops, with respect to artistic intelligence, has not been proportionably elevated. They, for the most part, retain the ideas ably elevated. I ney, nor the most part, resum are success belonging to the primary, mechanical, and generally suggressize condition of manufactures. While our de-signers have advanced, those who execute or finish their designs have remained stationary; house the appearance, of which the Jury have so frequently had occasion to notice instances, of a mechanical high polish, which has obliterated or spoiled tha details of form or surface, evidently intended by the designer.

This is not, however, an evil peculiar to the hardware manufactures of this country. In France, in particular, some years ago, the artistic ignorance of the workmen employed in the chiselling and finishing of bronze and er metallic wares, was found to be so serious an obstacle to improvement, that it was considered necessary to establish a school for the express purpose of affording to artificers instruction in drs wing and modelling, com bined with the practice of chasing, chiselling, and finishing castings in metal. And it may be noticed, that the Trudes' Schools of Prussia and Pavaria are expressly based on a recognition of the principle, that if the modern exigencies of manufacture require a separation between

in no other way be duly maintained, that hy teaching to the artificer so much of the design as will coulde him to appreciate the intentions of the designer; and to the designer, so much of manufacturing processes as will secure the practicability and fitness of bis designs.

The Jury are, however, by no means inclined to take a discouraging view of the position of the ornamented hardware manufactures of the United Kingdom. There was no reason to expect, on general grounds, that an entirely new system of manufacture should be perfected otherwise than gradually, or be exempt from the characteristics of procress which have always marked the advancement of art and industry. All experience would have been belied, had the progress of Eugland, the parent of this new system, been other than it has. Our industrial system has been gradually and entirely remodelled. Step by step as machinery, and the various reproductive facilities of modern times, made their eneronchments on the old methods of hand labour, we were, in every case, as it were thrown back on the primitive condition of labour. That very want of skill and inexperience which, in early stages of society, oblige men to busy themselves sulely or chiefly about the necessary, the useful, or the convenient, restrained the earlier efforts of mochine labour, and gave it the same bias. And if we consider the vast commercial advantages reaped by this country from approximented machine-made wares, and that the deterioration of the ornamented sorts was, and is now, tu a large extent, connecreially speaking, of no importance, because counterhalanced in the eyes of the majority of purchasers, by other qualities more easily appreciated, we shall be at no loss to account for the present general inferiority of British hardware, in point of taste, to that of some other countries. It is obviously an inferiority, not so much positive and permanent, as arising out of a particular stage of progress. Commercial interest has not yet, in this country, forced on manufacturers the consideration of questions of taste, to the same ex-tent as has been the case elsewhere. It is only, indeed, within comparatively a few years, that the national success in the market has been experally even suspected to be endangered by want of tasse.

If, then, the due adjustment of the mechanical and the artistic elements of perfection in manufacture is a problem yet to be solved in this country, it is because the point of progress has not yet been reached at which its solution becomes possible; if that solution has been postponed beyond what may appear a reasonable peried, it is because the mechanical element, bringing with it new and unbeard-of advantages, commercial and utilitarian, has been borne along on an overwhelming tide of success, and carried beyond its proper bounds, closing up for the time, or obstructing more or less the avenues to the influence of taste. If due means for securing that influence have not been used, or only partially so, it is because the commercial necessity for using them has been either not felt at all, or felt partially. But there is nothing unhealthy in this state of things; the atmost that can be said, s. that the manufactures of the United Kingdom, with respect to trute, are in a state of transition. artistic element has began to assert its claims; and if its working is for the present necertain, irregular, vague, and unequal; if British manufactures exhibit for present, at once the most successful and the most abortive attempts at ornomentation; if the means used to obtain designs are often erroueous and illegitimate, and the modes of working them inadequate, it is the consequence of a state of transition resulting from the introduction of a new, and in some respects, autagonistic element, which has not yet secured its position,

These observations will, in part, have anticipated some of the remarks which, in the second place, the Jury have to make on the general aspect of the objects contributed to Class XXII., by the more eminent continental nations. It must be upticed, however, in addition, that as the iudustry of the United Kingdom owes its existence to private enterprise, so its course has been determined solely by commercial demand, and the current of ingethe designer and artificer, the influence of the former can sion in certain directs as; but its condition is, to no appreciable extent, traceable to the direct fostering care. or to the controlling influence of the Government. It has taken its own course. It is a vigorous and independent manufacturing system arising out of the substitution of machinery for hand labour, wherever it was practicable; a system which, not only impelled by necessity, but induced by interest, developed itself solely or chiefly in the first instance in the direction of the indispensable. the useful, and the convenient; and which, by a natural progression, is tending towards the ornamental; and is now, in fact, exhibiting signs of the fermentation consequent on the insertion of the new leaven of taste and Whatever its progress in particular cases, it refinement. has followed this course on the whole; and in this respect it presents a contrast to the industry of some of the more powerful astions of the contisent of Europe. That of France, in particular, may be said to have proceeded by an opposite course. It started with an artistic system of manufacture, patronized and supported by Government influence and resources; and its progress has, for the most part, been downwards from the supply of the artificial demands of luxury and refinement, to the necessary demands of ntility and comfort. There can be no question whatever about the pre-eminent excellence of the national ornamented manufactures of France: but there is as little doubt that, commercially considered, this pre-eminence is to a great extent arunerally manuscone. It is not so much the result of a healthy, independent, self-relying, and self-supporting system of manufacture, of which machinery is the basis, and which owes its existence to private enterprise and capital, and its direction to commercial demand, as of a patroaage and an expenditure, which disregard both cost and immediate profit.

The Jury, however, must not be considered to offer any opinion here to the quotien where the it is activable in position here to the quotien where the it is activable in an arcsource to the promotion of create branches of industry, or to position meet articly, should amongolize the position of the promotion of the property of the statestion to the fact that this is done in Prince, and some other continents contract (see for example, in Presista), because they believe that a strong characterise of Prosetterior article, ranches that a winner planswheride of Prosetcetured article, ranche than workmankler. The strictic element hinders the divelopment of the mechanical, critical ranches are the substitute of the contraction of critical ranches are the substitute of the property of critical ranches are the substitute of the property of the strictic. In the former, article skill in the starting and the substitute of the property of the property of the strictic of the property of the property of the strictic of the property of

in the other, the reverse is generally true. There are, of course, exceptions, most of their refresh are, of course, exceptions, most of their refresh are the second of the second of the second of the found that is Frame there is a tradeout to consiste the explored of the second of the second of the second purpley of expensive barriers, while is the United Activities of the second of the

of industry and manufacture.
In the foregoing remarks on commented manufacture, referees the lower chiefly made to those of concerned, these two chiefly made to those of concerned, these two might be safely assumed as level of the control of the

It must now, however, by noticed that, in the view them by the Jay of the contents of Chan XXII, they have goin a further than he arend character of the law of the property of the property of the property transport of the property of the property of the property contents of the property of the produced, must be the ground of their away. No other course was open to them has the form of the property of the property of the property of the property of the produced, must be through the property of the property of the course was open to them has this, Wherever most comprises was indirected between the similar productions of different countries, the basis of such comparison and be confident with the what of the Echhistics.

resulting from this secondry imposed on the Jaury.

In the first place, single specimens of a numefacture here come before them, of the highest merit in themselves, which, bowerer, are nancoampaid by any eight of the single companies of the place of the single companies of the place of the place of the single companies, the single complex perhaps the unmost difficult of the single complex perhaps the unmost difficult of the single complex perhaps the unmost difficult of their single complex perhaps their single complex perh

To take another case: contributions, which, though we in number, are yet efficient to existe the entirect for in number, are yet efficient to existe the entirect can be produced only at a cost which places them beyond the rends of moderate fertures. In such a case the quite clear that the amount of hand labour bestowed on the contribution of the contribution of the contribution; yet these must be compared, in point of setual merit, with manufactures of the same kind produced intends of the collision preclaims, and the contribution of the intends of the collision preclaims of the contribution of the collisions of the collision preclaims.

Or again: specimens of manufacture are contributed by Government establishments, in which the cost of production, and, at least, immediate profits are disregarded, which nevertheless enter into competition with the efforts of a self-supporting industry in other

Conce such as these make it relates that an section reporting is the specimen exhibited cause the sussened as the minds of an influential and commercial superiority, and the specimen exhibited cause of an influential and commercial superiority. Proceedings the collings conditions of commercial enterprise. No nee deads that a breach of erassened the contract contract contracts and criticis, in any courty, provided the means are used for that purpose, with little or no contract that mechanical and criticis, in any courty, provided the means are used for that purpose, with little or no convent that menderatives a predected, shaddle be superior to those which are current on mader all the difficulties to the convent that menderatives a predected when the produce of the latter, having no allowance made for the disabetanges; it is also that the contract
The Jury, hies, while they have villingly recentled and wherever it is appeared, here the same time and wherever it is a speared, here the same time was found in the productions of a self-supporting and variety. They confirm that they have created, and expressively finders, then for remarkteristic and the self-supporting finders, then for remarkteristic and the self-supporting finders, the for remarkteristic and the self-support is self-support to the point they with that it had been in their power to have point they with that it had been in their power to have the purpose of this Bayer, that they must content themthage the self-support to the purpose of the bayers of the self-support in the self-support to the purpose of the bayers in the section of the variety with a very power in themse of some observations.

In Egypt, Persia, Turkey, Tunis, and India, metallargy and a certain knowledge of alloys date from remote periods; but, as has here siready nutried, productions in mental analogous to Succession had ware for the commoner and analogous to Succession had been for the commoner and the succession of the succession of the succession had been succession. For the sound production, the succession had been succession of the succession had been succession. For the succession had been succession, the succession had been succession to the succession had been succession. The succession had been succession had been succession had been succession had been succession. The succession had been successive to the succe

In Greece and Inty the same stagmant traditional indicates in marks come to prevail. From the former indicates in marks occur to prevail. From the former tradients to Chan XXII. It is to be regretted indeed to Chan XXIII. It is to be regretted indeed to the common people, such as lamps, breakers, because the common people, such as lamps, breakers, because the common people, such as lamps, breakers, brea

Austria, the States of the Zollverein, and Belgium Zindvia angle proof of activity. The Bret-named country, in particular, exhibits remarkable productive vigous, and and deeply industrial and connectical tenderless have taken root. From munificative appear to be in a most footenshing condition, to which the superior quality for footenshing condition, to which the superior quality for purposes, no doubt contributes. Considerable surprise, minded, has been created by the extent and the quality of minded, has been created by the extent and the quality of purposes, no doubt contributes. Considerable surprise, minded, has been created by the extent and the quality of purposes, so doubt contributes. On indextry unipolyping from, assessment in the baraches of industry unipolyping from, assessment and the contributes of the contribute of properties.

ahovels, hoes, and tools of various sorts.

One branch of hardware industry, vis., the manufacture of Jews'-harps, is represented solely by Austria; and, judging from the number of exhibitors, must form a trade of considerable extent

The ine wire, were upon wrought-ine these, and tender any piece annual time wars, and wrought and draw piece annual time wars, and wars and the state of the Zellevinia state to be a state of the Zellevinia state of the piece and the piece a

Belgium, bough not centributing largely to Class XXII, is distinguished, as will be noticed hereafter, for the great extent and excellence of ber passufacture or anis, and the application of into to a variety of suchia and decornitive purposes. The latter is dan principally and effect of the Sectife dee Mines of Fondéries de Daniel effect of the Sectife dee Mines of Fondéries de Daniel effect of the Sectife dee Mines of Fondéries de Daniel effect of the Sectife de Mines of Fondéries de manufactures the metal, and exports it to a large extent. The over of Belgium and Silvia are a hundant and easily worked, and the many uses to which the metal, its ore, allow, and oxides may be applied, have created for it of late years a rapid and extensive consumption. In close district rich in blood and and oxide work of the consumption of the constitution of the constitut

and its manufactures.

In the Department of the United States of America the
Jury find but few objects belonging to their Class; those
few, however, display energy, ingenuity, and the most
perfect adaptation of the means to the end. They are
mostly manufactures in iron, such as locks, ent nails,
stores, cooking apparatus, and other objects for ordinary

The Jury will see preced to make such observations crutial reaches of bolismy. For a featured account of the contents of Line XXII. they must refer to the contents of Line XXII. they must refer to the contents of Line XXII. they must refer to the and it will be of concendented that the omission of the content of the contents of the consistence of the content of the content of the content of the that these manufactures have beer overlocked, but the standard of the Pritze Medal it has also been thought standard to such morely commendatory notices. The the awards of the Pritze Medal it has also been thought standard to such morely commendatory notices. The the highest commendation of the Jury, who have thereised the content of the content of the content of the theory of the content of the content of the content of the content specially responsible to the sound of the content of the content specially responsible to the sound of the content
1. BRASS, COPPER, ZINC, AND TIN MANUFACTURES The brass-work of the United Kingdom is particularly distinguished for that beauty of workmanship which i generally characteristic of British wares. Excellence of material, solidity, brilliancy of polish, and flatness and equality of the "dead" or "frosted" portions, admirable fitting of the joints, and a certain appearance of thorough genumeness, are qualities pervading all the productions in this material exhibited by the manufacturers of Great Britain. These qualities appear to great advantage in certain hrunches of industry which admit of a moderate amount of ornamentation, in the shape of mouldings, twisted columns or tubes, corner-pieces, perforated plates and the like, which muchinery can readily execute. soch cases, in addition to very perfect workmanship, there frequently appears considerable evidence of a feeling for harmouy, and for a just proportion and ar-rangement of parts. Eminent examples of work of this character occur in the collection of brass-work (chiefly bedsteads), exhibited by WINFIELD (373, pp. 639, 640), of Birmingham; and in the Mediaval Court, among the ecclesiastical brass furniture and atensils contributed by Messrs. Hardan (700, p. 668), also of Birmingham, which are remarkable besides for the perfect intelligence with which the ornamentation (eutirely Gothic) is designed and executed.

Brass-work of a character solely or chiefly ornar can scarcely, however, be considered to be on the whole in a very advanced condition. There are numerous examples of excellence in nearly all branches of industry employing this material; but there is, perhaps, scarcely any collection which displays throughout, whatever may be the amount of orunneutation, a uniform good taste and intelligence in design. It has been said that the vulgar taste in which certain articles are designed and executed finds admirers for whose predilections it is the interest of the manufacturer to provide; but the Jury believe that, even admitting the existence of a vicious taste among consumers, and giving due weight to the motives of self-interest, which of necessity actuate pre ducers, that policy is very shortsighted, which, for the sake of a partial present advantage, sacrifices the general success of a branch of industry. They consider it very doubtful, besides, whether those who act on this view. do not in reality underrate the tastes of those for whom they profess to provide. Instances illustrative of these obexcursion will be found among the insuscensite angilartion of behaviors, the which the we of gas has price tive; such as fittings, benefets, ped-stal barrows, chandeliers, table-laung, Ac, both, for douncil use, for above, and for public buildings, all of which are of excellent and substantial bordermannials, but many survited by a victous nates and the absence of article knowledge, the start of the state of the state of the start of the s

ing is napose.

In the suppose of th

process of execution.

Bells and gougs coming to a certain extent uader the description of Musical Instruments, the Jury considered it advisable to request the assistance of the Sub-Jury A. of Class X., who obligingly communicated to them a Report on the merits of the various bells exhibited. This

Report will be found in the Appendix (B). The ornamental brass-work of French manufacture, which, besides being the largest contribution from any foreign country, cuters most successfully into competirally remarkable for skilful and varied artistic treatment. It differs from the British rather in the uniform intelligence with which the ornamentation, whether little or much, is designed and executed, than in the absolute superiority of individual examples. The ornamentation is of every kind: ranging from profuse and heavy scroll-wark to decoration in low relief; but there may be remarked, is particular, a taste for a peculiar treatment which produces a riehly-studded or jewelled effect, with sharp, clear, and decisive shadows, approaching to the character of the work termed Elizabethan. The introduction of colour by means of jewels in paste, by cnamelling, or hy a difference of metal, is more frequently taken advantage of hy French than by British manufacturers. By these aids, and the carichment of surfaces by ornaments of a similar character, a picture-sque and frequently brilliant effect is imported. In careful finish, however, much is to be desired; the joints and fittings of separate portions being often so clumsy and unworkmanlike as to create dissatisfaction on a near examination. This deficiency may be exemplified by a comparison of the ecclesiastical hrase-work exhibited by Poussieague-Rusann (France, 1405, p. 1243), with articles of a similar character in the collection furnished by Mosars, Hardnax, of Bir-mingham (532, p. 701), in the Mediaval Court. In this instance, besides, the French productions display far less intelligence in design than the Euglish; the foruer being imbued to a considerable extent with the peculiar character proverbially, though now improperly assigned to Birmingham work; while the latter is entirely devoid

On the broates and small ornaments of mixed materials, predder, dilute and vasor for flowers, the, are most which have been made in timing exhibited in great profusion, and on the whole ment is likely to supervise the use of cope high censum-halom. The spirit, lancy, and inversion poset; the objections formerly under they display are unboanded. Here again the roment is in seight and the risk of fracture, havin applicable, that single examples on the British side, for if yet substitution of sheet for east iron,

instance from the collection of J. A. Harrman (13), and the solid Thr. (Charles Data Clearly, Chi 19, 600, 601), say be placed able by add with many of the solid Thr. (Charles Data Clearly, and the solid Data Clearly and the solid Dat

The examples of zine manufactures, castings, and galvano-plastic productions are more numerous from France, Belgium, and the States of the Zollverein, than from Britain. In this country the use of this metal has hitherto been chiefly confined to the manufacture of household utensils and conveniences, such as baths and vessels for calinary and other purposes, for alloys, galvanizing, and coating other metals, and as a substitute for lead in the roofing of houses, &c. On the Continent, in addition to the application of zine to purposes of utility (which is earned on to the same, perhaps to n larger exteut), the metal has also within the last few years been pretty extensively employed as a substitute for broaze in casting statues and other objects of art both on a large and small scale. For this purpose it appears to affer considerable advantages; though it may be doubted whether experience of its use is as yet suffi-cient to warrant a very decided judgment. The effect, huwever, of these castings, whether with a surface of zine or with another metallic coasing, is in general good; and at all events, the cheapness and comparative lightness of the metal seem to be in its favour as a means of forming chesp duplicates of objects of high art existing in the more coasts materials of bronze or marble. The specimens exhibited by GESS (1 Zollv., 267, pp. 1063, 1064), and DEVARANKE and SOX, of Berlin (1 Zollv., 280, p. 1065), by Madame De Braux D'ANGLUSE (France, 779, p. 1918), and be the Braux D'ANGLUSE (France, 779, p. 1218), and by the Brigian Societé de La Viguite Montaune (Belgium, 26, p. 1152), are the most noticeable. The latter, in particular, have most fully and successfully exemplified the various uses to which zinc successfully exemplified the various uses to which sinc may be applied; and the specimens exhibited are calcu-lated to utford useful bints to the manufacturers of the United Kingdom. The use of zinc for preventing the oxidation of iron, its aptnesss far perforation, and its general application to domestic purposes, are already recognised in this country: but it is obvious that on many accounts it may be advantageously employed to a larger extent, especially in cases where the unyielding character of iron, and the high cost of copper, present obstacles to their use. The Jury believe that xine has been scarcely, If at all, resorted to in this country fur statuary and the easting of small groups of figures and

In opper, nies, and general hunders, the calabilities West, Perross as Hunders (11), 1315 a final examples of brase follows of extendingly calciums of the calciums of the state of the calciums of the calciu

2. IRON AND STEEL MANUFACTURES, IBUNMONDERY, &c.

The iron manufacture of the United Kiugdom may justly claim a very high place. The advantages afforded by a material so chesp and abandant are indicated by the vast extent and variety of its uses; and it may be safely affirmed that no brauch of industry, cusploying iron, need ever languish on account of any scarcity, dearness, or meetimatry in the supply of this important metal.

The whole collection of steel and iron grates, fenders and fire-places, kitchen ranges, stoves and apparatus for warming and ventilation, is considered by the Jary to constitute a most interesting, and on the whole, a highlyereditable and satisfactory exhibition of the state of those hrnnches of iedustry in the United Kingdom. In that portion of it which includes tasteful design as an element of merit, the Jury regret to find instances in which a deficiency in that respect is but too apparent; but, on the whole, they are disposed to consider the manufacture of ornamental drawing-room and other grates and feeders, and decorated stoves, to be in a most promising condition in respect to taste. The grates of Mesers. HOOLE, ROBSON, and HOOLE, of Sheffield (140, p. 609), executed from designs by Mr. ALFRED STEVENS (140, p. 609), and those exhibited by Mesera STUART and SMITH, of the same place (102, p. 603), may be adduced as evidence of remarkable advancement in tasteful design The former display great beauty and artistic intelligence, while the latter, in some instances less eminent in those respects, are remarkable for general brilliancy of effect, great precision and excellence of workmanship, and certain novel applications of ornament. The Jury wish to notice, with special approbation, those portions in the grates of Mesars, Hoole, Robson, and Hoole, in which the costings remain in the state in which they leave the

The pograms of this manufacture is all respects in the more translated, considering the steeper of foreign more translated, considering the steeper of foreign elepted since it began to assume in present highly-decretive chapters. It is any justice the off the san, or related to the construction of the steeper of the conincidentry was introduced into Sidefield. Pervisually to that their I had been corried on in London and Zidation and the control of the state of the control of the cont

The track of the commence description of grates in more extensive, and is principally, carried on by the Carron Company and other foundries in Scotland, by the Carron Company and foundries in Northampton, Dedley, Rotherbann, Birmingsham, Manafesi, Northerbann, Dermingsham, Manafesi, Northerbann, Ma

The Jury think it descring of notice with respect to this branch of industry, that in all the communications which have been made to them by the persons empaged in it, they find observations commendatory of the School of Design in Sheffletd, and expressive of the high sense they cutertain of the services it has rendered to ornamental art, and in particular, to the manufactures of that place.

The articles of this description exhibited by continental manifacturers are few in number, being chiefly stoves; amongst which the grate contributed by Assumition (France, 1035, p. 1279), and calorifores in brass and east iron, by Laura (France, 563, p. 1205), are the most descrining of notice.

From the United Kingdom, examples of the ordinary to the consumer of their chain to kitchen range are sunnerous, and autientally characterized that advantage, if other nore necessary conditions are by a sound not substantial workmanable. On the actual condition, which is the woold appear that make the actual condition of the co

working merits of the various contrivances and arrangemeuts displayed by them, the Jury do not feel themselves qualified to form a very decided opinion. They would, however, observe generally, that in many cases the massiveness, extent, and heavy character of the iron-work appear to be carried to excess, and a wider space conctimes assigned for fuel than is uccessary, or consistent with economy. It is, doubtless, very desirable to give such a degree of strength to a kitchen range as shall insure it in all its parts against injury from fracture, which is in most cases difficult to repair; and, hence, economy of material is not to be regarded as a primary consideration; hat the difference between the large extent and mussiveness of some ranges, and smallness and chest-like appearance of others is so extreme, while the professed possibly the real capabilities are about equal, that it is evident we have not yet arrived at very distinct conclusions respecting the exact adaptation of the means to the end in this branch of industry. Much of the variety in size, and as a consequence of this, in arrangement, is no doubt due to the necessity of providing for the dif-ferent sizes of kitchens and fire-places; a necessity which must, on the whole, tend also to maintain high prices. It must be admitted, besides, that obstacles to improvement and the speedy adoption and testing of new contrivances arise out of the arrangements current in England between hadderd and tenant. A kitchen range comes under the description of what are termed "land-lord's fixtures," and in many, perhaps the majority of cases, has been selected more on the ground of economy in the first outlay, than with any view to the excellence of the contrivance or the permanent comfort and con-venience of the occupant, who, though dissatisfied, finds it difficult on several accounts to disturb the agreement he has come under.

In Scotland, grates are the property of the occupant, but it is doubtful whether this circumstance contribute on the whole, to improvement. A large majority of tensatas are more able to pay annually a small addition to their rent as interest for the outlay of the landlord on grates, than to incure that outlay themselves; and hence with such persons, economy outweighs all other considerations.

Taking all the elementations into account, the Juny than that the the strategy constitution of the specific that the third that the strategy constitution of the specific time of one which, compact, nodernete is rise, reconceil, the strategy constitution of first, and its conditionation of the store and one strategy constitution of the store and
The Jury observe with regret that there is no cooking store or apparatus of first-star manufacture or exteut exhibited among the productions of the Continue. Foreign boths and large establishments must be translated with such; and it certainly would have been look interesting and interactive to our month daws been look interesting and interactive to our manufacturers, to have on a large scale is conducted in constries remarkable for their enalizary about

The contrivances recently invented for cooking and hesting by gas, of which a considerable number are exhibited on the British side, appear to be well made and constructed, but the Jury are manble to personance any united opinion on their efficiency. The chief advantage professed by them is economy; and there seems to be no reason to doubt the justness of their claim to that advantage, if other more necessary conditions are unquestionable success has attended the application of gas to warning aportisents, those to colong, or bearing water for haths. It would, however, be unreasonable catefully recorded to the colonial of the catefully recorded catefully fewer, with an experience on limited as we now possess of the conditions under which it may be readered variable; and the Jaray econditing refer to these convariable; and the Jaray econditing refer to these contended to the condition of the control is member shelver, can hathly be over-estimated to fit is member shelver, can hathly be over-estimated.

Casting in irou forms a large and important branch of industry wherever the advantages of iron and fuel are ossessed to an adequate extent. Owing to the variety of coal-fields, abundance of the mineral, and improved modes of smelting. England is distinguished above other nations for the exuberance and cheapness of her supply of iron, and for the extent to which it is employed in casting. If, however, the quality of articles produced by easting be considered, the contributions from France, Belgium, Prussia, and Austrin, will show that she has powerful rivals to cootend with in that respect. The iron custings from these countries display a sharpur cleanoess, and closeness of texture, and a good taste and intelligence in design, which afford much reason to doubt whether any pre-eminence can be accorded to this country, except so far as mere quantity is converned. It is, of course, not to be forgotten, that the comparison can only be made within certain limits. The iron castings of this country, if they do not actually take a wider range than the continental, do so in the Exhibition: but still if the comparison be confined to objects of a similar character, the Jory believe that the palm of superiority must be assigned to the continental specimens, which on the whole are distinguished more highly for skilful eastlng and intelligent and appropriate design. Among the most eminent in these respects they rank the cast-iron bedstead of J. P. V. Anoun (France, 1053, p. 1229), which is exhibited to the state in which it comes from the mould, as a pure casting to which the file has not been subsequently applied. The founder, in this instance. has succeeded, either by attention to the quality of the sand, or to the temperature of the metal, in producing impressions of the most beautiful distinctness. Some of the castings of Money (France, 1666, p. 1256) have also much elegance and lightness. It may be added that the railings, and generally the iron castings exhibited on the French side, are light and graceful in appearance; and the Jury believe it extremely probable, that if the iron founders of France, with their facilities for obtaining tasteful designs, enjoyed the advantage of a larger supply of cheap material—either by improvements on their mode of smelting, or by the removal of impolitic restrictions on the importation of foreign iron—they might, besides greatly increasing the demand at home, become successful exporters to this country, where orna-mental castings of really excellent design and low price are hy no means largely supplied.

THE BOALD PROMISES IN SPECTURE (I Zelley, 287). LOST JUNE 20, 100 (1) also which speciesous of necessing of a very proposed processing of a very proposed processing of the proposed pr

spirited and beautifully cast.

A bust of the king of Spain, cast at the Boyal Onsiance of Tauria, may also be noticed on account of the delicacy and precision of the impression (Spain, 280, p. 1347); and for the same reason, bust of the king and late queen of the Belgians, by the firm of Van den Branches and Co., of Brussels (Belgium, 363, p. 1162).

The iron casting of the United Kingdom, though already, as has been observed, of great extent, might doubtless be more largely employed for purposes both of use and ornament. It is probable that the expense of new moulds, the difficulty of obtaining appropriate de-signs, and a prejudice existing against irou on account of its liability to fracture and unidation (though the latter fault may possibly be obviated), present io many cases must may possessy us contrained, present to many cases obstacles to its more extremive use in construction and deceastion. That it is susceptible, in easting, of the most perfect and sharp impressions, is clearly evined by the examples already ordiced; and the successful rendering of Mr. J. Brall's status of "The Eagle Slayer," by the COALBROOK DALE CONTANT (641, p. 659), shows that the cost of many public munuments might be reduced by bringing into use, as a substitute for bronze, a material try. On the whole, and more easily procured in this country. On the whole, and considering the comparative merits of British and foreign iron casting with respect both to execution and design, the inferiority of the former may be said, as in other cases, to be general, and on an sverage rather than special. There are examples from the United Kingdom which, in all respects, may challenge comparison with the productions of any country; but the average merit of British iron castings of so ornamental kind is lower than that of France or Prussia; and it will probably be found that the pre-eminence of those countries is due rather to the employment of better artists for the preparation of designs, and artisans more intelligent in design, than to any superiority in the mere process of easting. In other respects, some of the continental nations labour under disadvantages which do not affect the United Kingdom; and if our iron castings are io any respect inferior, the blame rests with our founders, wh rglect to avail themselves of all the means necessary to the perfection of their art

In the manufacture of locks, Wolverhampton still sastains its ancieut reputation. Excellence of workmanship, lowness of price, and an adequate degree of security, characterise the contributions from that place, and prove the advantage of the peculiar division of labour which is adopted in the manufacture. The specimens of locks throughout the Exhibition generally evioce that the art is in a very advanced state, both here and on the Cootinent; hut still it is impossible for the Jury to ignore the fact, that the present condition of lock-making is traceable to English ingenuity and invention; and they believe that on the whole the collection of locks on the British unit on the whole the conjection of focus on the prints side deserves the place of pre-emissione, The lock on the very well-made safe of SOMMERMETER, of Magde-bourg (I Zollv., 802, p. 1094), may be ooticed honour-ably; and the bank lock of Messrs, Dav and Newell, of New York (United States, 298, p. 1453), is remarkable for ingenuity of principle, and for combinations and arrangements which seem to reader it impreguable. Locks of this description, if they could be sold at a moderate price, and made available for ordinary pur-poses, would no doubt be favourably received, and remunerate the inventor. It is, however, a serious objection to any lock, notwithstanding its ingenuity and security, that the key should be so pooderous and holky as to require for itself a separate place of deposit and safe keeping. The smallness of the key in proportion to the size and strength of the lock is particularly remarkable size and strength of the lock is particularly remarkable to the locks of Messrs. Branasi (653, p. 664) and of Messrs. Chuza (646, pp. 663, 664), besides those merits to other respects, which public opinion has so long and

so amply recognised.

Outher comparative security afforded by the various Ooks which have come before the Jarry, they are not prepared to offer an opioion. They would merely express a doubt whether the circumstance that a lock has been picked under conditions which ordinarily could scarcely ever, if of all he obtained, can be seasouted as a

test of its insecurity.

In connection with locks, the Jury may refer to iron
stafes and treasure-chests, of which a large number is
exhibited, and which for the most part are of about equal
merit, so far as the chances of security offered by them
are coocerned. It seems doubtful whether much of the

ornamentation and expensive polithed work which seme of them display, might not be dispersed with. Any addition of that description to the expense, necessarily considerable, of a safe or treasure-box seems gaine gratuitons, more especially since it has become usual, and is considered most secure, in large banking and other establishments, to preserve safes in fire-proof rooms or vaults, into which they are lowered at the close of

The locks and general ironmongery of France are inferior in many respects to the productions of the same kind from other continental nations. There appears to be a desire to extend manufactures in metal, but it is rendered powerless by the restrictions imposed on the importation of the raw material into France. It is impossible, under present circumstances, for the muonfac-turer to reduce the price of his productions to such an extent as to afford him adequate remuneration. Since 1844, the mannfacture of iron-tin plates and steel has been more than doubled in the United Kingdom. This, on the one hand, has reduced the price of the raw material, and, on the other, has stimulated those engaged in working it up to supply their goods at a cheaper rate, and to find new markets. This branch of industry, secordingly, with us presents a healthy and growing which contrasts strongly with the stunted condition which seems to characterise the corresponding manufactures of France. On the stall of JAPT BROTHERS (France, 275, p. 1190) the Jury find several articles of tin-ware manufactured from the most expensive charcoal iron, in a mode that so far economises labour, as to overcome the formidable expense of the material :- machinery enabling them to sell a saucepan for 6d, which is made from charcoal irou at 304, per ton. But in other cases, they are obliged to use the same costly iron without the facilities afforded by machinery, and the consequence is, that prices are too high to insure a large consumption, and industry stagnates.

The enamelled ware of Paris and the coating of its by the ower process of Boccusia (France, 276, p. 1217) both appear to be deserving or notice. The process by which the former is produced has been enaphyed in this coantry who find it extremely valuable as a preservative of their who find it extremely valuable as a preservative of their these from the action of water in locensitive bolines; iron tables being variously affected by the different qualities in Austria and the Zollevice Status on largely employed in Austria and the Zollevice Status.

The ironmongery trade of Germany and the States of the Zollverein exhibits far greater activity. The contributions from Iseriohn, Hagen, Barmen, and other places in Westphulia, indicate the existence of a large and profitable industry; and the difference between the price of ateel and iron goods in these countries and Birmingham is pot so great as to affect its growth and strength. To all parts of the world, and even largely to England, common articles for sale rather than use are exported, and ire vended by hawkers and pedlars through this country. The higher cost of the raw material in Westphalia is com pensated for by the cheapness of labour, and the manufacture being an ancient, not a modern one-Westphalia. having for ceoturies been celebrated for ironmongery and tin goods-the common wares sent to this country are sold at very low prices. On weighty articles of iron, however, such as anvils, vices, and heavy tools, the difference of price between Sheffield or Birmingham and Hagen, is about the amount per cwt. of the duty on iron; and such articles as these are accordingly precluded from competition with the British of the same description in foreign markets.

A new ties of abest-iron, prepared by a conting which imparts to it a sarface that takes freely the mark of a slate-percil, is exhibited, from Wartenberg. It is much lighter and much less links to injury than common slate, injury to the state of the slate of the slate of the day purpose. Along with this may be noticed a slaquist interation of the plaidility of slate-iron exhibited by T. I. Panasan (France, 952, p. 1225). It is a quart without the slate of the slate of the slate of the slate without property of the slate of the slate of the slate of the value of the slate of the slate of the slate of the slate of the value of the slate of the slate of the slate of the slate of the value of the slate
instead of the heavy cast-iron bottles now used for that

Among the manufactures of iron rest from the Contineut, none are more remarkable than the hand-made units of Belgium. This branch of industry in Belgium is of very large extent -- no less than fra 8,000 to 9,000 tens being exported annually, principally of the small sizes called "Flemish tacks."

Belgiam approaches more nearly than any other country to the l'ittel Kingdon in the quantity and price of its irea; the difference in factor of the latter averaging about 20s, per too on the principal sarso of iron. It is worthy of notice, however, that the price of "mail-reds," the kind used in the naturalterior of stalls, is lower in the kind used in the naturalterior of stalls, is lower in that a constant and regular demand for one description of iros will not only justice its supply that diminish its cost possibly by the indocrement held out to the exercise of injusting on the means of economising the cost of progressity on the means of economising the cost of pro-

The sorted samples of hand-mode nails exhibited by the Societi's ASONNER DE COUTLEAT (Belgium, 190), were considered by the Jury to be so excellent in every respect that they were desirean of secroting to that Society the highest, mark of commendation in their Society the highest, mark of commendation in their circumstance that M. F. Spinich, Provident of the Société de Cossillet, is also one of their members, and on that acrount previoled from entering into competition.

The hand-made nails of Austria, which do not appear to be exported to sop extent, are slow of excellent quality, and remarkable for a peculiar rwise given to the shake of the sail, which is sail grantly to increase its teaching, generally, in the United Kimpdom; but its application to the small sizes, luckshing those treemed "pointed or the small sizes, luckshing those termed "pointed or Paris," is shown only in the samples from Austria. Of there, the predictions of the exhibitance belonging to the contraction of the children of the child States must also be referred to. This radie is of very great importance:

CONST DIMEN (148, p. 1003) deserve partnersar notice. The machine-mode aniso of the 1 time dates must aim at The machine-mode aniso of the 1 time dates must aim at the least from 33,000 to 40,000 ions being namefactured anomally. For this and other purposes, such as ship-building, beiler-making, dec, large quantities of cheap iron are imported from Great Britisa, which owing to the wide extent of American see-Joand, can be supplied to most of the southern satter of the Cision, at a chapper sylvania and in Great British the same at the works. With trayest to articles of a insectlateous description,

the Jury must refer to the explanatory Catalogues already published. They would merely observe that, on the evidence furnished by the Exhibition, there can be no doubt that the hardware manufactures of the United Kingdom are alone co-extensive with the wants, the comfort, and the conveniences of civilized life. In some countries refinement and taste are more amply provided for; but at a comparative sacrifice of the interests of the many. In other countries particular branches of industry of a useful and ornamental, and sometimes of a nseless though profitable kind are cultivated to a considerable extent; others appear to be entirely devoid of any industry but such as either supplies the mere necessaries of life, or ministers to the artificial and expensive wants of an aristocracy. In the United Kingdom alone industry has no exclusive bearing. Cheapness and abaudance for the many, are as much its rule, as splendour and costliness for the few. It alone exhibits an effort to meet every for the few. It alone expanse an enter to meet comfort, con-possible demand which taste, refinement, comfort, convenience, economy, or necessity can make upon it. The extent to which that effort has been specesful, in certain directions, admits of question; but that the effort has been, and continues with untiring energy to be, made, is beyond all doubt.

The following are the awards which have been made

by the Jury: I. THE COUNCIL MEDAL.

 Andre, J. P. V. (France, 1053, p. 1229).—The high excellence of the castings by André has already been n tied. The end of a bedated in cast-iron is considered, by the Jury to be one of the most faulties reasings in iron contributed to the Exhibition. The design is in good taste, and the sharpness and countness of the east-inc extremely perfect. A cast-iron fonatain in the East Nave is also a meritorious work; though it may be doubted whether cast-iron is a material untable for some hydrolige, protected from the action of water by some hydrolige.

2. AURANEL (France, 1055, p. 1229)—This exhibitor has given the highest evidence of his skill, in a group of nn Earle and Lamb, a hronae gilt chimmer-piece, and a gibled cast-iron door. The latter is extremely well designed and beautiful in exceution. These, and the above-mentioned works of André, evince with equal success the anolicability of cart-iron to artistic uses.

Col. 1th Applementary to convenient to the state of Edge p. 225(1).

This firm exhibits a magnifirest collection of p. 225(1).

This firm exhibits a magnifirest collection of p. 225(1).

This firm exhibits a magnifirm collection of p. 225(1).

This firm exhibits a magnifirm collection of p. 225(1).

This production of p. 225(1).

The processes are the invention of Cultas, the bromass fainhead by the emptor Clesinger, cure fallows, completeness, and beauty of execution which place it in the first rank (Joint Medal with Class

AXVI.).

4. THE COALBROOK DALE COMPANY (641, pp. 659-661).

-The vast extent of the contributions by this Company, their variety and very general excellence, whether as objects of utility or ornament, seen to claim for them a

very prominent place in the awards of the Jury.
This Company, one of the oldest in Great British, carries on the largest manufacture of iron and iron trade in the wards, the works producing the almost Incredible amount of 2,000 tons aff mished iron per week.
On a small scale iron works seem to have existed in Coalbrook Dale from a remote period, but the records

maly rated to the reign of Charles II.

The works of the present proprietors date from the beginning of the last century, since which time they have gradually stationed their present magnitude. In other gradually stationed their present magnitude, in for waggoms, ever known in England, was hid down at these works; and its efficiency being proved, the finances at the top of the Dale were connected by railway with the foundary at the enter, and the line continued from which the prediction of Coalbreck Dale still continue to be send down the river in larges for export in the present of the coal to the

their several destinations.

In 1779, the Company had the merit of erecting the first iron bridge ever constructed in England, via., that over the Severa, near Madeley; the position of which was no advantageously chosen, that a populous and thriving market-town arose in the neighbourhood, and now bears the name of Ironbridge.

now bears the name of Properties.

The Company is besides remarkable for the introducion of improved modes of smelting, and economy in the manufacture of iron.

man be reduced to the Cashowsk Dale works, now of all odderpilons, were, and libent twelver years possible descriptions, were, and libent twelver years possible descriptions, were and libent twelver years possible descriptions. He was a second to the leader was considered or destinant presents of the leader was considered to the leader was the leader of the Company has been directed to the production of the Company has been directed to the production of the Company has been directed to the production of the Company has been directed to the production of the Company has been directed to the production of the Company has been directed in their associated their efforts in fully compiled in their associated their efforts in the Exhibition. There is, preof laborar are applied.—In operations extending from the fortunation of the company o

and reflect great credit on that gentleman; hat the Jary are more particularly impressed with the very perfect manner in which Messrs, Hardman have developed the variet's conceptions. It evience a skill in ananipolation which might, they conceive, be exhibited to still greater which might, they conceive, be exhibited to still greater style than may be admissible in the particular species of mediarval art to which they have confined themselves. 6. Hootz, Rouces, and Hootz (140, p. 693)—The

in Boars, Bowers, and Boars (140, p. 692).—The security grant, replaces, and friders ventrituded by because if a price of the security grant, frequency of the exceeding course, and displays a subservincy of the exceeding course of the exceeding c

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It is never of greet beauty.

A Plans Mistant Heavier by Miles ("Namich, from A. P. Rean, Mistant Heavier by Miles ("Namich, from the model by Professor Habits) is reported by the Jaro ("Namich, from the model by Professor Habits) is reported by the Jaro ("Namich, from the man the same form the same farmes, and to weigh about at tensor had been seen to be found to the same form the same farmes, and to weigh about at tensor had been seen to be found to the same form the same form the same farmes, and to weigh about at the same form the same farmes, and the same form the same form the same farmes and
9. The Royal Prussian Iron Foindry, at Berlin (Prussia, 271, p. 1064), has been already adverted to. 10. Societé de Minss et Fondraits de Zinc de la Vielle Montaone (Belgium 26, p. 1152) has already been mentioned with high commendation.

11. Struars and Sourse (102, p. 603)—The Jury have had occasion, in a previous part of this Ropert, to remain the precular beauty of work manship and prevent brilliars of effect, for which the contributions of this firm are distinguished. In this respect they stand pre-emissent; and more than say other, contributed to impart the highly-orate channeter which the atore-grate manufacture possesses at the prevent time. The grates exhibited by them are for the most part manufacture to the prevent time of the previous contribution of the prevent time. The grate exhibited by them are for the most part manufactured to the prevent time. The grate exhibited to a result part of the prevent time. The grates exhibited to the prevent time of the prevent time of the previous part of the prevent time. The grate exhibited the prevent time. The grate exhibited the prevent time of the prevent time of the prevent time of the prevent time. The prevent time of the prevent time of the prevent time of the prevent time. The prevent time of the prevent time of the prevent time of the prevent time. The prevent time of the prevent time of the prevent time of the prevent time. The prevent time of the prevent time of the prevent time of the prevent time.

the surface of the floor. In proportion as custom deviated

from the primitive practice of making the fire upon the bearth, it lessened the comfort arising from a proper dis-tribution of heat. When grates were placed so high as has until very recently been customary, the greater part of the heat evolved passed up the chimney, leaving the lower stratum of air (the coldest part of a room) in contact with the legs and feet. This is obviated by Sylvester's plan, which, besides, affords the advantages of greater cleanliness, and the facility with which the same grate can be adapted to burn either wood or coal. The netal plate on which the fire is made, extending as it does from the fire-place to the fender, admits of being highly ornamented; and Mesars. Starat and Smith have shown how skilfully they are able to take advantage of its capabilities in that respect.

The Jury have only to add with regard to this award and No. 6, that the fact of their having recommended the award of Council Medals to two exhibitors of articles in

the development of different qualities of beauty and ex-

eellence in their several productions.

12. R. W. WINTELD (373, pp. 639, 640).—Reference has already been made to the collection of brass-work contributed by this exhibitor, as displaying very perfect workmanship with a moderate amount of ornamentation; particularly in the manufacture of metallic bedsteads, for which he has earned a deservedly-high reputation. His improvement in the construction of these by means of a continuous post which obvintes unstendiness and loosening of the joints, is deserving of attention, as well as the twisted, spiral, and plain tapered pillars or tubes employed for that and other purposes, which are produced in a peculiarly ingenious manner, invented by one of the workness of the establishment.

This house has also had the merit of introducing the combination of plain opal or coloared glass with brass work, by which flowers, blossoms, huds, or leaves in the same branch of manufacture, must be assumed as eridence of a well-considered opinion that hoth exhibitous ornament, in the manufacture of cornice-pole ends, have pre-eminently distinguished themselves, though by

II. PRIZE MEDAL.

NATION.		Number in Catalogue,	NAME OF EXPOSITOR.	OMECTS ROWARDED
United Kingdom	_		Abste, F	Specimens of a new art termed Metallography.
United States -	-	462		Bank lock.
United Kingdom	-	300		Metal hattons.
Annual Trans		150		Anvils, &c.
Prussia	-	189		Iron safe bureau.
I'nited States -	-	138		Permutation locks.
United Kingdom	-	253		Buttons,
-		663	Aubin, C	Locks.
		802	Baily and Sons	Cast-iron staircase work, hrass work, &c.
		319	Baker and Co	
-		287	Binks, E	Buttons.
-		34	Barnard and Bishop	
-		695	Barron and Son	
-		329		Needles and fish-hooks.
-		25	Bartrum and Pretyman -	
The same of the sa		361	Bedington and Tonks	Brass-work (varions).
Prossis	-	407	Beissels' Widow and Son -	
United Kingdom	-	98		Cooking apparatus.
Prussia		506 310	Bentley, W. H	
	-	28		Bronse statue of Beethoven, &c.
Franca United Kingdom	Ξ	349	Blews and Son	Metallie pens.
Prussia	Ξ	633	Boker, R. and H	
United Kingdom	-	353		Brass and copper tubes.
Cutted Pouldrour	-	680	Boohbyer, J. H	
France	_	776	Boucher, E , and Co	Culinary vascs, tinned by a new process.
United Kingdom	Ξ	330	Boulton and Son	
Cinted Kingdom		653	Bramah and Co	
Franco	_	437	Bricard and Ganthler	
United Kingdom	_	458	Bright, R	
Carea reinguous		364		Buttons.
		477	Brown and Redpath	
1 100		633		Tanks for oil, water, &c.
		-	,	
Franco	_	1129	Caln. J	Bronnes, birds in pests, &c.
United Kingdom	-	655	Carpenter and Tildesley -	Locks.
		459	Childs, J	Brass lamp for lighthouses.
United States -	-	417	Chilson, Richardson, and Co.	Hot-air furnace.
Russia	-	365	Chopin, Felix	Broaze eandelahrum.
United Kingdom	-	646		Locks and safes (and Special Approbation).
-		446		Lamps, gas-burners, and locks.
annine.		657	Clarke, T. and C., and Co	Enamel ware,
		434	Coehrane, J	Ges-meter,
-		115	Cocker, S., and Sons	
		234	Cocker and Sons	
-		27	Coombe and Co	Iron and copper netting.
-		255	Cope and Collinson	Brass work (various).
Violand Const		416	Corcoran, B, and Co. (Cl. VI.)	Metame ciota,
United States -	-	-16	Cornelius and Co	Claudeliers. Gates, east iron, and enamelled cast-iron horse mange
United Kingdom	-	6:18	Cottam and Halien	Gages, cast from, and enumerica consultan notice mange
		307	Cotterill, Edwin	Locks.
		63	Cottingham, N. J	

PRIZE MEDAL-continued.

Nattor.		Number	NAME OF EXPLICATION.	OBJECTO REWARDED.
Agriosi		Catalogue.	THAT WE INTERIOR	
United Kingdom	_	62	Cowley and James	Beds and steam tubes.
		244	Crook, W	Cooking apparatus.
United States -		258	Day and Newell	l'arautoptic permutating locks (and Special Approbation).
I'nited Kingdom	-1	186	Deane, Pray, and Deane -	Stove grates, Pointes de Paris nails, &c.
Beiglum	-	361 779	De Baray, Paul	Statues of galvanized zinc, bronze busts, &c.
France Wurtemburg -	-	71	De Braux d'Angiure = - Definer, C	Handware (various)
United Kingdom		482		Hardware (various). Gas meter, bath heated by gas, &r.
United Kingdom	-	800	De la Fons, J. P	Locks.
Belgium	-	363	De Latour, Albert	
Spain	-	260	De Latour, Albert De Miguel, F	Iron bedsteads, &c. (and Special Approbation).
Belgium	-	365		Brass caldrons, &c.
France	-	1588	Desjardins-Lieux	Nedallions, &c. Castings in zinc,
Prossin	-	280 188	Devaranne and Son	
France United Kingdom	-	7:7	Dison, J. and Son = = =	Powder flasks.
United Kingdom		476	Dixon, J., and Son Donson, J. E	Cundy's hot-air ventilating stove.
Proesia	-	634		Copper rivets.
Belgium	-	353	Drico, E	Wrought nails,
Austria	-	456	Dubsky, Count	Wire tacks, twisted pails.
United Kingdom	-	350	Dugard, N. and H	Carriage lamps. Cottage cooking-stove,
-	- 4	89	Duley, J Edelsten and Williams -	Pins.
-	- 1	51	Edge, J	
-	- 1	441	Edge, J	
_	- 1	397		Arnott's stove,
Prossia	-1	200		Cast-iron chimney-piece.
Austria		435	Farger, J. B	Leaden pipe, 1,800 feet long, in one piece.
Prussia	-	762	Einsiedel, Count G	
United Kingdom	-	3/2	Elliott and Son	Buttons.
	- 1	372	Evans, J., Son, and Co	Cooking apparatus. Brass and copper tubes.
	- 1	154	Everitt and Son Falisse and Trapmann	
Belgium	-	415	Faraday and Son	
United Kingdom		6.95	Feetham, Miller, and Sayer	Stove grates, &c. (and Special Approbation).
	- 11	161	Firmln and Sons (Cl. XX.) -	Buttons.
Austria	-	420		Malleable cast fron.
Prussin	-	296	Fischer, C. H	Figures in bronze, &c. Cooking apparatus (and Special Approbation).
United Kingdom	-	38	Flavel, 8	Brass pans.
France	-	1927	Fontaine, P	Broose figures of Victory, &c.
Prussia	-	289	Frans, J Friebel, L	Bronze Newfoundland dog, &c.
Austria	_	412	Fürstenberg, Prince	Stoves, menuments, crucifix.
France	- 21	227	Gagnesu Brothers	Lamps, bronzes, &c. Chandelier.
United Kingdom	-	556	Gardener, M	Chandeller. Stores.
	- 1	483	Garton and Jarvis	Bronzes.
Austria	-	967	Garser, J Geiss, M	Statues in sine " Fre." &c. (and Special Auprobation
Prussia	-	652		Locks and hinnes
l'nited Kingdom		5/80		Copper boller with grate.
United Kingdom		654	Gibbons, J., jun	i.ocks,
f titted Kulkaom	-71	324		Metallic pens,
	- 1	438A	Glover, T. (Cl. 1.)	Gas-meter.
-		340	Goddard, H Goodbehere, G. T	Cooking apparatus.
	- 1	481 335		Ships' stoves. Needles and pins.
	- 1	405	Goodman, G Gray, J., and Son Gray and Son	Locks,
-	- 1	262	Gray and Son	Fire-Irons, &c.
	- 1	518	Gray, T. W	Bensa-work (various).
-	- 1	66		Aviary.
	- 1	39	Greening and Sons	Strong wire cloth, waven by steam-power. Tin and enamel ware,
-		254	Griffiths, T. and F	
France	-	1617	Grignon, M Gruhl, F	A bell (very fine tone).
Saxony	-1	524	Gnest and Chrimes	Water-closet and fire-cocks.
United Kingdom	-	255	Hadros L., jun	Moderator lamps.
France United Kingdom		563		Curb chains.
Cuived Pinilangin	-1	282	Hammond, Turner, and Sons	Bettons.
amore	- 1	83	Handyside, A	
		616		Mannfactured lead. Buttons,
		211		
		284 660	Hardman and Iliffe	Locks
		660		
		421		Wrought-iron binges, &c.
	- 1	50	Harfield, J. A	
		318	Bawkins, J	Brass, copper, and iron screws and boits.
-	- 1	97	Hawkins, J	
-	- 1	647	Haywood and Son	Locks, gilding, &c.

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PRIZE MEDAL-continued.

NATION.		Number in Catal-goe.	Name of Equipopol.	Objects Rewarded,
United Kingdom	_	331	Hemming, H Henn and Bradley	
		316	Henn and Bradley	Taper serews, &c.
Enited States -	-	124	Herring, S. C Hetherington, T. and C	Salamander safe,
United Kingdom	1	351 631	Hetheriagton, T. and C	Carriage lamps. Hardware.
Prussia United Kingdom	-	326	Hingers and Sons Hingers, Wells, and Co	Metallic pens-
nited Kingdom	-	519	Hincks, Wells, and Co. Hodges, T Holeien, H. A. Hood, S Horne, T Horsfall, H Howland, C Huffer, J	Bells.
		348	Holden H A	Carriage lamps.
			Heod. S	Cast-iron enamelled stall and manger.
		275	Horne, T	Curtala noles, &c.
0.000		334	Horsfall, H	Pins, and wire for fish-books.
United States -	-	486	Howland, C	Bell telegraph.
United Kingdom	-	649A	Huffer, J	Locks,
		609	Ibbetson, Capt., LL.B	Copper and steel plates for engravers. Bronsing, iron and metallic castings—new method (an Special Approbation).
Access to		304	Iogram, T. W	Buttons,
Processor and Pr		317	James, J	Firh-hooks and needles,
		237	Jeakes, W	Stove grates (and Special Approbation).
900 400		810	Jeoniogs, G	Water-closet,
Pressia		285	Iogram, T. W James, J Jeakes, W Jobson and Co Kallde, T	Radiating stove. Boy with awas, in bronze, &c.
Prassia	- 3	1632	Karlde, T Karcher, H., and Westermann	Articles to stemped from
United Kingdom	0	76		Anvils, vice, &c.
Cortea rengaoni		601		Refrigerator.
-		327	Kell, A., and Co	Metallic pens.
-		804	Kennard and Co	
		360A		Enamelled ware.
-		553	Kent, G	Knife-cleaning machine.
The same of the sa		489	Kepp and Co	Copper bath.
Prussia United Kingdom	-	2:9 96	Kesseler, C	Bronze statue of Pniyhymnia.
Austria	0	434	Kirby, Beard, and Co Kitschelt, A. (Cl. XXIV.) -	Pins, &c. Cast-iron vases, &c.
United Kingdom	-	689	Knight and Forster	Metallic pens.
carred stringwon		& 694	Hangot and Forter	remine penn
Name of Street		249	Knowles, H	Buttons.
Russia	-	287	Krumbigel,	Glit broaze candelabra,
United Kingdom	-	32	Krumbigei,	Metal ropes.
France	-	1284	Lacarière, A	
l'nited Kiogdom France	Ξ	534 253	Lacarière, A Lambert, T Laureau, L	
		568	Laury, G	Stove-grates and stoves (and Special Approbatico).
United Kingdom	-	54		Perforated zinc, &c.
		665		Lock with bolts, &c.
France	-	1644	Lecorq, H	Ornaments in stamped brass, hot-air stoves, &c.
Belgium	-	354 381	Lefebvre, V., and Co	Wire nails and rivets.
Coited Kingdom		357	Limelette, F	Wrought nails, fron lap-welded tubes for sleam bollers.
Cotton Kinguan	-	105	Longien and Son	Cooking apparatus.
		382		Cooking apparatus. Gas stoves.
		346	Love, J. and H Mallat, J. B	Carriage lamps, &c.
France	_	1340	Mallat, J. B	Metallic glit pens, &c.
United Kingdom		370		Cooking apparatus.
France	-	607	Marchand, J. B	Bronzes (various) (and Special Approbation).
United Kingdom	-	510	Mart, W	Safes,
		363	Marrian, J. P Marriett, W	Naval brass-work.
France	_	795 332	Marriott, W Marsaux and Legrand	Weighlog-machine. Stamped copper for decoration.
I'nited Klogdom	Ξ	332	Marsaux and Legrand	Carriage lamps.
arrea relogaom	-	416	Martin and Gray Massey, W., and Co Masters, T	Brass flower-stand,
-		634	Masters, T	Ice apparatus.
witzerland -	_	41		lee apparatus. Cylinder of rolled steel for watch springs.
Switzerland - Belgium	-	359	Mathys, J	Strong hox, and polished stoves.
Inited States -	Ξ	20		Bank lock.
Inited Kingdom	-	684	Menrs, C. and G	Bells,
France	-	630	Menrs, C. and G Mene, P. J	Bronzes of boar-hunt, &c.
nited Kingdom Lustria	-	340 413	Messenger, Samuel Metternich, Prince	Bronzed and Incquered lamps (and Special Appro- bation). Store for hunting-seat.
inited Kingdom	Ξ	645		Signal-lamps, &c.
Augusta	_	642	Milner and Son	Nafes,
		339	Mitchell, J	Metallie pens.
-		328	Mitchell, W	Metallic peas.
No. or other last		274	Milner and Son Mitchell, J Morey P., and Co Morel Brothers	Metallic pens. Iron and brass hinges.
France	-	1666	Morel Brothers	Moulded cast iron, &c.
United Kingdom	-	610		Galvanized tinned-iron sheets.
n and a second		204	Mossman, W. (Cl. xxx.) -	Brass candlestick.
France	-	934 683	Muel-Wahl, and Co	
United Klogdom	-	683	Murphy, J	Belln,

PRIZE MEDAL-continued.

		Namber	1	
NATION.		Chtslague.	NAME OF EXERCITOR.	OMBUTS REWARED.
United Kingdom	_	338	Mye.s and Son	Metallic pens.
		638	Naylor, J Newali, R. S	Lamps for pillars and wall brackets.
management of		87	Newali, R. S	Metal ropes,
with and		372	Nicholson, W. N Nicklin and Speath	Anglo German cooking store. Wire wearing.
		491	Noirsain, J	Ventilating stores.
		424	Padden and Ford	Gas-meter
France	-	671	Palliard, E	Copper and zinc frames for mirrors, &c.
United Kingdom	-	447	Palmer and Co	Candle lamps.
France	-	942	Palmer, J. L	Drawa wire.
Tuscany	-	116	Papi, Clement	Basket of flowers, east from nature, Galumined sheet iron, &c.
United Kingdom	-	639	Parkes, H. W.	
_	٦	649	Patent Pointed Screw Com- pany.	Pointed screws east out of malleuble iron.
Franco	-	946	Paublan,	Safes and locks,
United Kingdom	-	688	Perry and Co	Metallic peus. Japanucel ware.
N. O. L. L.		78	Petry, E Petit and Fritsen	Bells with suspending apparatus.
Netherlands - United Kingdom		371	Perton and Harlow	Metallic japanned bedsteads.
Crates rengion	- 1	107	Pierce, W	Cottage grate,
France	_	963		Copying presses,
United Kingdom	-	323	Potts, W	Bronnes and inequered lamps, &c. (and Special Appro- bation).
-		64	Purdy, C. W. (Main Avenue West.)	Gothic ornament,
Belgium	-	356	Puissant, F	Wrought-Iron crucible and ornaments.
Wurtemburg -	-	72	Rau and Co	Inpassed tin pinte.
Netherlands -	-	99	Regout, P	Chnodellers (2 large and 2 small).
United Kingdom	-	315 433	Reynolds, J	Cut nails. Gas stoves,
_		637	Rickets, C Riddle, W	Apparatus for extinguishing fires in ships, signal
Franco	-	1440	Robert, A., and Co	Roll of tinfoil, &c.
United Kingdom	-	189		Stove grates.
Wurtemburg -	-	7.3	Rometsch, C	Metallic writing slates (and Special Approbation).
United Kingdom Austrin	Ξ	278 430	Rometsch, C Rowley, Charles Saim, Prince	Buttons. Cast-iron statue of Radetzky, considered as a specime of casting (and Special Approbation).
United Kingdom	-	343	Salt and Lloyd	Bronze and incouered lomps.
-		270 259	Simonite, J	Tin and coamel ware. Beistead of cast steel, with bronze ornaments (or
Spain Prussia	-	405		Special Approbation). Galumized steel wire,
Franco	_	370	Schmantz, C. sen	Letter-press rollers.
Prussin	-	644		Kitchen stove,
Netherlands -	-	98	Schutz, L. N	Zine costings.
United Kingdom	-	90 2434	Shave, W. J	Stores and ovens. Kitchen range.
		243A 66	Sherwin, J	
Russin		370	Shoolbred and Co Shtange and Verfel	Jupanned ware, Bronze candelabrum,
United Kingdom	- 3	435	Siebe, A	Rotatory syringe.
Cutter tring-tom		321	Simcox, Pemberton, and Sons-	Brass-work (various).
-		295	Smith, Kemp, and Wright -	Buttons.
Prussia	-	802	Sommermeyer and Co Steele, W. and P	Iron safe, ornamented (and Special Approbation).
United Klogdom	-	- 60	Steele, W. and P Stirling, Morries J. D. (Maln Avenuo West).	Cooking apparatus. Alloy bell, for cheapness. Patent.
Prussia		199		Japan articles, &c.
United Kingdom	-	423	Stocker Brothers (Cl. v.) -	Beer machino.
Wurtemburg -	-	60		Bruss and steel wire, &c.
Prussia	-	779	Stollberg-Wernigerode, Count Strode, W.	Cust-iron Gothic vase, &c.
United Kingdom	-	1023	Strote, W	Gas stove. Bronze candelabra, fountains, &c.
United Kingdom	-	507	Tann and Sons	Safes,
Cutter straggons		622	Taylor, J	Locks.
		642		Bells (and Special Approbation).
-		705	Thompson, T. H	Sanatory trap, &c.
_		312	Timmins and Sons	Vices, hammers, &c.
		55	Treggon, II. and W	Zinc window blinds,
Franco	-	700 1512	Treion, Weldon, and Weil - Tronchoo, N	Buttons and China koobs. Iron articles of furniture, &c.
Spain	_	280	Trubia, The Royal Ordusnee	iron bust of King of Spain.
United Kingdom	_	550	Tupper and Carr	Wire fencing (galvanized iron),
		202	Turner, It, and W	Fire-irons.
-		63		Perforated metals,
		401	Tylor ned Son	Brouzed ware and baths. Tinned-iron pins, &c.
France	-	1517	Vantillard and Co	Strong boxes and safes.
United Kingdom		381	Verstaen, L. N Wakefield, F	Cooking apparatus.
Control Kingdom	-71	1971		cacernif alloreness



PRIZE MEDAL-continued.

			PRIZE MEDAL	-continued.
NATION,		Number m Catalogue.	NAME OF EXHIBITOR.	ONICTS REWARDED.
United Kingdom		29	Walker, E	Perforated brass.
Cutted Kingdom	-	242	Walker, R. (Cl. VIII.)	Metallic neus.
	- 1	62	Waller and Co. (Main Avenue	Meuumental brass.
_		670	West.) Waiters, B. and P	Loria.
	1	69	Waltou and Co	Japanned ware,
		& 701		
		798 290	Warner and Sous Wells, J. T	Bronzed-cepper ware and bells. Bettnes.
		600	Wenham Lake Ice Company	Refrigerator.
-		667	Whitehouse and Co	iron tubes and fittings. Brass cornices and safes.
		336 242	Whitfield, Samuel Whitmee and Chapman -	Brave cornices and safes. Coffee mills.
		30	Wilkins and Weatherly -	Metal ropes.
	- 1	490	Wilsen, R. and W	Baths (various). Locks and steel pens.
-	- 1	668	Windle and Blythe Wood Brothers	Locks and steel pens. Chain cables.
	- 1	664	Yates 11	Locks
		384	Yates, Haywood, and Co Zuccani, E. (Cl. XXX.)	Steve grates.
		348	Zuccani, B. (Cl. xxx.)	Avlary.
	_		III. HONOURABLE	MENTION.
Pressis	-	214	Actien - Verein, Wilhelm-	Enamelled stoneware.
United Kingdom	_	687	Aldridge, J. M	Door pivets. Ballows.
	- 1	253	Alldey W	
Austria	- 1	65 665	Archer, J. W. (Main Avenue)	Monumental brass, Pearl buttons.
United Kingdom	- 31	301	Aston. J	Silk buttens.
		681	Ramber and Son	Mortice night bolt.
Prussla	-1	760 438	Baum, E Beitl, F	Stove (as a man in armour). Two Iron cash boxes.
United Kingdom	-	438	Biddell, G. A	Gas burner, self-regulating.
		297	Biddle J	Letter elips, &c.
	- 1	650 267		Lock. Hydrostatie syphon.
		464		Ornamental carriage illeminator,
Prussia	-	623	Bleckmann, J. E	Tools, lorks, &c.
Wurtemburg -	-	94 769	Blumbardt, H	Fire tongs. Powder flasks, &c.
France	-1	770	Boeringer and Co	Door security bolt.
United Kingdom		426	Botten, C	Protector gas-meter, for preventing fire-damp,
Prance United Kingdom	-	433 575	Boulangois Bradnack, J. R	Various bronzes. Knocker and letter-plate for door.
Prusala	=	621	Bradnack, J. R Braunchweig, J. A	Tools.
United Kingdem	-	500	Bray, C	Cooking utensils, &c.
		247	Burton, W. S	Ornsmental fenders.
Prussia	=	1132 655	Carle, A. T Caron, J. M., and Co	Specimens of brase founding. Samples of buttons, plated.
France	-1	1135	Carrier-Ronge	Bronze, chandeliers, &c.
Inited Kingdom	-	592	Carson,	Machine for preserving meat. Machine of galvanized iron, for washing.
France		117 449 (151)	Charles and Co Chauvin, G	Purse trimmings.
Canada	-	155 156 159	Cheney, G. H	Stoves, &c.
United Kingdom	-	11	Chopping and Mannd Cochrane, A. (Cl. VII.) -	Concave horse-shoe,
	- 1	158	Coffrane, A. (Cl. VII.) - Collier and Son	Lork and ventilator, Coffee-roasting apparatus.
_	- 1	573	Collings, C., and Co	Patent door-bings.
	- 1	16		Improved horse-shoe, for general use,
_	- 1	320 57	Cooksey, H. R	Coffin furniture. Wronght-iron water hily.
France	-	134	Cadrus, F. (Cl. XXX.)	Window rod fasteners.
	- 1	99		Locksmith's work and ironmongery.
United Kingdom	-1	754	Culverwell, W	Puriable vapour bath.
France - United Kingdom	-	1168 445	Debanfer, H	Ornamental steel purse. Concentrating gas isoup, for the exterior illumination of abop-windows.
France	-	1582	De la Cour. L. F	Brenze and cast-fron articles, &c.
Russia	=	324	Demidoff, Mesers	Malachite vace. Chains, bolts, &c.
	- 1	1483	De Sérionne, Loln, and Co	Bottera, &c.
	- 1	819	Devdier, Madame	Zine dormer windows, &c.

HONOTHABLE MENTION -continued.

NATION.	Number in Catalogue.	NAME OF EXCITIONS.	Ordeets Rewarder,
russia	641	Dültgen Brothers	Pad and portfollo locks.
ersey and Guernsey	9	Du Pre. W. II	
гансе	151	Daval and Paris	
	427	Eberstaller and Schindler -	
nited Kingdom -	241	Edwards, D. O	Atmosper hoods and gas stove,
-	345	Edwards, E	lukstands, glass screws, &c.
ussia	660	Eichelburg, H. D., and Co	Window curtain, in fr me of bruss,
ited Kiugdom -	86	Ellis, W	Kitchen range and bath apparatus.
etria	457		Nails (assorted).
ited Kingdom -	560	Farrow, C	Machines for wine and other liquors.
lgium	380	Fauconier-Delire (Widow) -	Wrought nails.
nited Kingdom -	502	Faulding, J	Partable vayour bath by spirit lamp.
nance		Faye, P. G	Bronze clocks, &c.
	1601	Fetu, J	Bronze chandeliers, &c., Cash-hox.
nited Kingdom -			
7000	13	Fogarthy, J Fondet, sen	Horse-shoes.
nited Kingdom -	35	Fondet, sen	Warming apparatus, Bird cages.
nited Kingdom -	513	Fox, T. 11 Fumet, C. F	Apparatus for artificial lce.
ussia	153	Fumet, C. F	Parrot cage, German allver,
ussia ance ited Kingdom -	223	Gaillard, jun	Wire gause, &c.
ited Kingdom -	556	Gaillard, jun Gidney, J.W	Wire fencing.
ance	849	Gillot, F	Clocks, &c.
ited Kingdom -	238	Glenton and Chapman	Polished register store,
lejum	357		
ited Kingdom -	374	Gorton, G	Stove grate and fender.
-	66		
stria	469	Grabner, F Grangoir, J. M	Jews'-harps.
ADCC	1256	Grangoir, J. M	Locks, &c.
ited Kingdom -	431	Grant, D	Gas stoves.
151ia	653	Greef, jun	Samples of buttons.
ance	252	Guinier, T	Water-closets and corks.
ited Kingdom -	4	Guy, 8	Horse-shoes.
-	432	Habiane and Rac	Water-closets, &c,
the same of the sa	486	Hale, T., and Co	Bells, kettles, &c.
-	612	Hampden, J., and Co	Enamelled sine,
	263	Hands, J	Brass-work, corolees, &c.
	555	Habiane and Rae — Hale, T., and Co. — Hamyden, J., and Co. — Hamyden, J., and Co. — Harrison, W. — Herimon, W. — Helimod, J. — Hickman and Clive — Hill, J. — Hillingar, J. — Hillingar, J. — — Hillingar, J. — — Hillingar, J. — — — Hillingar, J. — — — Hillingar, J. — — — — — — — — — — — — — — — — — —	Enamelled frying-pans.
eden and Norway	11	Hediund, J	Padinek.
ited Kingdom -	271 65	Hickman and Clive	Coffin farniture,
	355	Hill, E., and Co	Patent bedstead, with iron pillars, &c. Stamped brass ornaments.
	15	Hillman, J	Improved horse sloves.
	450	Holgate, J	Signal lamps.
	448	Holfiday P	Gas lamp.
	12	Holfiday, R Holmes, Capt	Improved horse-shoes.
nesia	648	Hosterey, G	Samples of buttons (piated).
stria	428	Hueber, F	Iron and steel wire.
ance	880	Huet, J	Purse-trimmings, &c.
ussia	632	Huth, Fried, and Co	Viers, &c.
ited Kingdom -	406	Huth, Fried, and Co Huxhams and Brown	Stores.
	2:36		Gas stores, bydranlie stores, &c.
	311		
алсе	887	Jaudin, A	Tinfoll and coloured spangles, Improved horse-shoes for frosty weather
ited Kingdom -	14	Jones, G	Improved horse-shoes for frosty weather.
	407		Store grates (ventilating principle),
196ia	196	Kolesch, H	iron safe.
ada	151A	Ladd, C. P	
nee	288	Lang. L	Wire gauze, &c.
ted Kingdom -	506	Lendbeater, J	Fire-proof safes.
		Leak and Albrerbt(CL XXIX.)	cake moulds and temple.
neia	197	Lehmann, A. F	Iron crucifix, &c.
ited Kingdom -	1315		Brass curtain ornaments,
een Amguom -	563	Longfield, W	Lock on circular levers. Ornamental iron safe.
nce	1332	Luce, P	Montalelan server and said a select
nce berlands	100	Lurasco Brothers	Mantelpiece, ornamented with a mirror. Bronze statues, &c.
rium	378	Maconinay Brothers	Wrought nails.
ited Kingdom -	633	Macquinay Brothers Machell, J. C	Patent portable steamer, bath
rea rengion -	261	Malin and Sons	Patent portable steamer-bath, Brass-work, cornices, &c.
	313	Manly, J., jun	Ornamental nails.
ginas	120		Samples of nails, &c.
Brins	.20	Smelting Company.	- mary or many, we,
unce	614	Martin, O., and Very Brothers	Cast-Iron ernamental work.
stria	698	Metzner, W	Pearl buttons,
ited Kingdom -	9	Miles, W	Harse-abora (various).
	457	Mitterberger, J	Hurse-shoes (various). Shoe-tips and heels,
ited Kingdom -	669	Moreton and Langley	Lock, and general bardware.
ace	931	Morisot, N. J Morrall, A	Bronzes, &c.
ted Kingdom -	333	Morrall, A	Needles,

HONOURABLE MENTION-continued.

		HONOURABLE MEN	TION—continued.
Nation.	Number ia Catalogue.	NAME OF EXECUTOR.	Omects Rewarded.
United Kingdom -	498	Moss. P	Copper vapour-bath by spirit-lamp,
Pruesia	287	Müller	Ornamental custings in brouge.
United Kingdom -	7:3	Murray, W	
_	285	Murray, W Neal and Tonks	Buttons,
-	388		Gothic church-ventilating stove.
France United Kingdom -	662 640	Neuberger Nixey, W. G	Lamps, &c. Patent till.
Cuited Kingdom -	249	Nixey, W. G Onione, J. C	Patent till, Bellows,
	658	Osmond, G	
France	683	Paul Brothers	Braziers.
United Kingdom -	73	Perry, J	Copying-press.
France	954	Petithomme, L. A	
United Kingdom -	281 433	Pigott and Co	Buttons; naval buttom.
United Kingdom -	17	Pleisrhl, A Plomley, W	Sheet-iron saucepans in non-metallic enamel. Nodel of an improved horse-shoe.
United States	£ 434 }		Cooking-stores,
United Kingdom -	243	Pope and Son	Double-action rarefying stoves.
	23)	Pridesux, J. S	Grate, feeding at bottom; draining machine.
	465	Pyrke and Sons	
France	975 979	Rebert, C	Door-fastenings.
United Kingdom -	449	Rettie and Sons	Copper cake-moulds. Signal-lamps.
Wurtemburg	62	Beset C = = = =	Bruss and stool wire and gauze,
Canada	150a	Rice W	Wire feering.
Hamburgh	50	Richster, J. M. S	Brass parrot care.
Prussia France United Kingdom -	633	Ritzel, L. (Widow)	
France	1447	Rebin, L	Bronze cups, &c.
United Kingdom -	437	Roper, J	Transparent gas-meter.
Austria	439	Ryan, J	Transparent gas-meter, Iron and steel wire.
Austria Prussia	646	Schnidt, P. L	fron and l-rass wares.
Austria = = =	470	Schwarz, C	
	471		Jews-haris.
	472		Jews harps.
	473	Schwarz, J	Jeus'-harps,
United Kingdom -	480	Schwarz, J Seebass, A. R	Tabulated solid brick-heating stove.
Grand Duchy of Hesse United Kingdom -	4384	Seebass, A. R Shears and Son	Cast-iron and steel ornaments. Patent dry gas-meter.
Citted Kingdom =	243A	Sherwin, J	Economic range, hot eloset, and bath,
Belgium	358	Sirron, L	Nails, termed "Clous de Paris."
France	1017	Sirot, P., sen	Copper and steel pecs for shoes.
United Kingdom -	220	Skeltons, S. and B	
-	452 354	Smiths and Co	Carriago, rail, &c., lamps.
	430	Souter, W Sparkes, J	
	451	Squire, B	
	7	Stevens, H. R	Horse-shoes and plates,
	252	Stokes, J. C	Water-closet, brass tans, &c.
France	1457	Tachy, A., and Co	Needles for blind people.
	251	Taillefer, A., and Co	
United Kingdom -	624	Taylor, N	Ornamental bellows. Hardware,
Prossia Austria	419	Thuruschelz, Count G	Steel and iron for nails.
France	703	True.	Lamps, &c.
Prussia	636	True,	Metal buttons.
United Kingdom -	-		Post-office window, double-aetlon fastenings.
	279	Twigg, G. and W	Naval buttons.
Prussia	355 460	Ulleuberg and Schnitzler -	Screws and wire.
Austria Belgium	355	Vandercamer, J. A	Nails (assorted), Zinc vessels.
Belgium France	1531	Voizet, E	Steel for jenellery.
United Kingdom -	413	Wallace and Son	Cooking apparatus.
	248	Warriner, G Wescher Brothers, & Strass-	Gas cooking stove.
Prussia	631	Wescher Brothers, & Strass-	Buttons, &c.
		man.	
United Kingdom - Jersey and Guerosey	656 12	White, George	Wrought-Iron hinges. Ventilator and guard.
nited Kingdom -	10	White, George	Horse-shoes,
Prussia	292	Winckelmann, J	
United Kingdom -	525		Self-acting water-closet,
- Marie -	276	Wolverson, E	Lock.
	8		Horse-shors (spriops).
	33	Woods, W	flooks and eyes, chaius,
Denmark	317	Woolridge, J	Brass fittings, &c.
Penmark United Kingdom -	23 442	Young, W.	Two braws tea-urns, executed by l.and. Vesta lamps.
Frankfort-on-the	19	Zimmermann, E. G.	fros and zinc ware.

London, October 1851.

W. DYCE, R.A., REPORTER.

Section 11 Autor

APPENDIX.

(A).

Extract from Minutes of the Jury for Class XXIX.

" Messes. Hoffman and De La Rue report, that they have conferred with the Chairman and Jurors of Class XXII., from whom they learn that in the English and Foreign Sections there are no less than 46 exhibitors of lamps. As it is clearly impossible to examine and test experi-mentally so large a number of lamps, Messrs. Hoffman and De La Rue soggested that the Jury of Class XXII. should select three lamps unly which they considered night to be so tested. The Jury of Class XXII. explained that much difficulty might arise in such a selection on their parts, as the exhibitors whose productions were not tested might complain that justice was not done them. Messrs. Hoffman and De La Rue fully agree in this view, and therefore for the present leave the decision of the proper course to be pursued, to the Jury of Class XXII., expressing at the same time their willingness to aid them to the best of their ability in any experimental inquiry

(B).

REPORT OF SUB-JURY A. OF CLASS X. ON "BELLS."

which time will allow."

Bells, those Jurors of Class Xa., who attended for that purpose, have to submit the following Report:-

Bells eramined, June 4th, 1851.

MEARS.-A large bell (in key of F), excellent, MURPHY (Dublin).—A large bell of very fine tone. Mulerary (Dublin).—A large bell in the East Nave,

onnected with elock (said to have been "cast in tune"), Very fipe tone Hopers.-Four ship bells; good tope and powerful, The brass bell of remarkably pure and good tone, and of

great power. TATLON (Loughborough).—Two bells, excellent, WARNER.—Three bells. The middle one is of a very pure tone.

Peter and Faitsra (Netherlands) .- Bells with suspending apparatus. Good, though if considered as a scale of bells, some of them are not perfectly in tune.

F. Gaunt (Saxony).— A bell in East Nave. Very fine

F. Garnt (Sexony) .- A bell and frame, in gallery, Tone pure and good. Hopces (Dublin),-A large bell. Excellent.

The Jurors of Class XXII. having requested the upon by Class XA. as belonging to a certain class of assistance of the Jury, Class Xa., in the examination of musical instruments,

> (Signed) H. BISHOP, KRT., CHAIRMAN,

CLASS XXIII.

REPORT ON WORKS IN PRECIOUS METALS, JEWELLERY, ARTICLES OF VIRTU, &c.

[The Figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages to the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.

Jury.

A LEIGH, Dee H. LAVSS, Chairman and Hopsyler, Prage; Member of Institute, &c. Heaver Hors, M. P., Dapt Chairman, Pircashily.

Box Faxerson Diouza, Spain; Colonel of Artillery, Javareson Diouza, Spain; Colonel of Artillery, Javareson Diouza, Spain; Galaman, Prime Wardero I the Gabbinshid Company, Javareson Lavareson, Chairman, Callery, Callery, Editoria, Zellyrevio (Arella, Callery, Zellyrev

Westley Richards, Birmingham; formerly Plater and Jeweller; Chairman of the Birmingham Exhibition in 1849. CHARLES SALLANDROUZE DE LANGRARY, France; Commissioner-Geogral of Governoent; Member of Council

of Manufactures and of Central Jury, &c. ROBERT YOUNGE, Sheffield.

Associates.

William Thomas Brance, Royal Mint; Professor of Chemistry.

Nicolas Prancois Le Dagar, Judge of the Tribunal of Commerce of the Scine, and Member of the Cham-

ber of Commerce at Paris.

George Martist, 57 Hatton Garden; Metallurgical Chemist.

Peacival Norrox Jonesos, 57 Hatton Garden; Metallurgical Chemist.

Tuomas Vasty, Monnouth Court, Whiteomb Street; Setter of Diamonds.

Works in all kinds of precious metals occupy a consider-able place in the Exhibition. It would, however, be difficult to form from them an exact idea of the relative production of different countries in the various branches of this class of manufactures. Germany has contributed to a very limited extent; Spain has sent but one specimen of her beautiful workmanship in gold and silver for churchservice: several Freuch manufacturers of gilt bronzes have not exhibited at all: the Dutch jewellers' work is repre-sented by only a slople exhibitor: from Sweden. Deonark. Bavaria, and the kingdom of Naples, nothing has been received: America has furnished but an insignificant display: and other exhibitions, burriedly furmed, do uot truly represent the actual production of the re-spective countries. Thus, China offers a miscellaneous collection of objects, some of them made several centries ago, others of English manufacture, or borrowed from private individuals. The Indian exhibition is a treasury of riches accumulated by the East India Company, belonging to widely-different epochs, amongst which it would be difficult to distinguish at once what is modern. The Ionian Islands are represented by a few specimens only.

From the above it is evident that the Jury were compelled to be on their guard against error in their general appreciation of the productions-error which the uncertaioty of a first experiment of a Universal Exhibitiou, the remoteness of some countries, and the reluctance of some manufacturers to come forward, must of necessity entail. The information asked for of the Foreign Commissioners would have been very useful towards drawing np more exact commercial observations; but not having received it in time to be of service, the Jury have confined themselves to the Exhibition itself.

It is sufficient to cast a glance upon the exhibitions of India, Turkey, Egypt, and Tunis, to be convinced that these nations have remained stationary from a very early period of manufacture. Some of them, indeed, develop ideas full of grace and originality; but their productions are always primitive and imperfect, and the skill of the workman is called in to make amends for the inadequatemess of the mannfacturing resources. Their exhibitions might, nevertheless, afford a lesson to the European manu-

facturers, for they display a natural grace in the arrangement of ornaments most happily conceived. Jade, inlaid with precious stones by means of golden bezils, as shown upon some of the very ancient articles in the Indian exhibition, is an elegant and skilful work of art. The fillgree from the same country is as perfect as that from China; and the Indian enamels, though for the most part coarse, exhibit, nevertheless, much merit in design

and harmonious arrangement of colons The European nations must, by the means here afforded for comparing their productions, render each other mutual service. France and Germany will borrow from England whatever is worthy of imitation in her manufacture of plate for useful purposes; while England may derive instruction from the gold and silver smiths of the Continent, in reference to objects of ornament east or reposses, and finely chased. Gilt broazes likewise may become better appreciated, and be mannfactured upon a larger scale. In the setting of precious stones, jewellers will call to mind the beautiful productions sent by Russin, Regarded in an artistic point of view, the French, German, and Russian exhibitions will leave permanent traces behind them; and every nation, according to the amount of its genius for imitation or invention, will easily discern the onward path it ought to follow. The same advantage will arise from the improved or novel processes brought to bear upon the working of precious metals. Every nation has its peculiar methods of easting, mounting, fitting up, and finishing, which have not escaped the of manufacturers and intelligent artizans. attention Gold-plating, silver-plating, the electro process, stamp-ing, the initiations of gilding and silvering, maintain an important position in industry and commerce. The inferior metals or alloys, bronzed, silvered, or gilt, the imitation jewellery and artificial stones, are estimated necording to their quality, and are largely used in Ea-ropean commerce, and as articles of export. The warking of precious metals under their various forms is applied to objects of domestie use and sanatory purposes, and to the fine arts. In this respect, the Exhibition offers every advantage for the instruction of practical men, and of those who have a just appreciation of traditional taste and the demands of oivilized society.

ELEINGTON, Mason, and Co., New Hall Street, Hirmingham (1, p. 671). Messrs. Elkington and Mason are the first who introduced into England the application of the electro process to gilding and silvering. Their collection includes objects most varied in their forms and dimensions, intended for table service and for purposes of orannent, executed for the most part in copper, or in a compound metal alloyed with nickel, called German silver, and coated with silver by their electro process. The designs are generally produced in copper by the electrotype process, and afterwards wholly ur partially gilt or silvered by means of electricity combined with the alkaline saits of gold and silver,

Several yases, such as copies of the cups from Herculaneum and Pompeii, and various articles of ornament, are made entirely of pure silver deposited by the action of electricity. They are usually lined with wrought metal, electricity. They are usually lined with wrongth metal, either to give them regularity of form in the inside, or to render them fit for use. The Jury have particularly noticed, among the works of Messex. Elkington and Mason, the heautiful group cutricyl of cast silver re-presenting Queen Elkington to horseback, between a gentleman in waiting and a page, after a model executed by M. Jeannest, a French artist. This group is, in the opinion of the Jury, a very choice work of art: but they specially recommend for the Council Medal the large jewel-case of gift and enamelled copper, ornamented with portraits upon porcelain of the Ruyal family, and with figures in full relief after designs by M. Grüner; and also the large circular plate called the Shield of the Amazons, a reverse copy of the original work, silvered and gilt in parts. These works of art and oronment ofter the best specimens of the application of the electrotype process for the exact reproduction of objects in

copper, and of precious metals to urnamental purposes.

The Jury, however, desire to guard against being considered as expressing an opinion on the merit of the application of the electro process of silver plating to objects of domestic use. They desire only to commend the ar-tistic application of this discovery, to which alone they are inclined to think it adapted. At the same time they acknowledge that the application of gold by this process is a highly-meritorious invention, tending alike to the economy and durability of the metal applied, and to preserve the health of the artizan from the dangerous

Money, J. V., and Co., 7 New Burlington Street, London (117, p. 603), exhibit a small number of objects, the greater part of which are worthy of attention from the care and taste displayed in their execution. Among these are different pieces of plate for table-service, including a centre-piece in the style of Louis XV., executed with much care: a bouquet in rubies and diamonds of the first quality, representing a rose, a tulip, and a volubilisthis can be taken to pieces by a very ingenious contrivance, and transformed into a stomacher, head-dress, brooches, and bracelet; the rubies, which are of a very even colour, are set in besils of gold:-a vase of silver gilt, ornamented with a silver bas-relief, the subject of which is a hunt amongst branches of oak, executed in the style of Albert Durer; the chasing of the bus-relief is admirable:-a silver-gilt sugar-basin, with cover, of faultless shape, and chased with ornaments in relief, very much deadened and of rare perfection. But the principal object of the Jury's approbation is the rich and landsome series of chalices and cups of various kinds in precious materials, ornamented with cusmels, exhibited by Mesars, Morel and Co. They would instance especially a cap of Oriental agate, the gold mountings of which are composed of enamelled orsaments and birds of paradise: the pillar is ornamented with chim in relief, coamelled, surrounding the esenteheon of H. I.H. the Hereditary Grand Duchess of Russia; and the foot is covered with beautiful arabesques enamelled: the taste displayed in this article is excellent, its cumposition s original, and it is very well executed after models by M. Mévillé. A nautilus shell of lapis-lazuli, supported by two enamelled figures of Tritons entwined with marine plants and flowers, and resting upon a rock covered with water and coral: the handle is furmed of a chimera ex-

quisitely cuamelled, a copy of one on a celebrated cap in the Louvre: the manner to which this article is executed gives evidence of as much skill as taste: the model of the Tratous is the talented work of M. Constant Sévin. In the same rank must be placed another cup in Oriental agate, made in the form of a sea-shell (plagiostoma), The pillar is composed of a female figure, borne by a Triton with horse's fore-legs: at the back part of the shell is the handle of the cup, formed by another female figure sitting upon a dolphin and holding her flying draperv, the extremities being supported by Cupids: all these figures are cuamelled with superior taste. Two other vases in rock crystal also merit special mention. first is a ewer with its dish of the same material, engraved with fine arabesques: this portion of the article is in the style of the sixteenth century: the mounting is copied from the celebrated ewer in the museum of the Louvre, the enamelled gold monntings of which have served as the model: this is a masterpiece of imitation, and has been executed by the order and under the di rection of Mr. Webb, an culightened lover of the fine A vasc, mounted in gold and enamel, is remarkable for the extreme delicacy of its carved enamels, and for the skilful execution of the figures and ornaments. Many other articles of the same description and of similar quality constitute a whole which the Jury regard as worthy of a Council Medal,

WEISHAUPT, C. M., Sons, Hanan (Prussia, 412, p. 1073), exhibit a set of chess-nurn and board, the pieces in 1973), exhibit a set of cless-nen and board, the preces in gold and silver, partly canaelled, and representing the Course of Clearles V. and of Francis I. They are en-tirely can and nucley exceeded. The board exhibits superior qualities. It is made of silver, supported by four neumainds of silver gilt and enamelled in parts: from their shoulders hang garlands of enamel, ornamented with rubies and pearls, held up by gilt figures of children standing upon tortoises. Upon various parts of the garlands are placed herous of silver with blue enamelled wings. The squares of the chess-board are composed of mother-of-pearl and tortoiseshell. The whole is remark-able for its choice workmanship, and for the very skilful combination of silver with enamel and fine stones; the garland especially is executed in excellent taste, and must have presented considerable difficulties in monnt-ing and enamelling. The Jury consider Messrs. Wels-haupt deserving of a Council Medal for this happilyconceived and well-executed work. GARRARD, R. and S., and Co., Panton Street, Hav-

market, London (98, pp. 688, 689), exhibit a collection of articles in precious metals and in jewellery, the mense extent of the manufacture of works in gold and silver in England.

There is, among the articles made in silver by Messrs. Garrard, a complete ten-service, consisting of seven pieces including the tray, in the Persian style, of very fine work-mans...ip, the whole, with the exception of the small figures on the covers, made of silver in repouse work, A table-candiestick with three branches, in the Queen Anne style, well conceived and very fluely executed. A candiestick without branches, of a hexagonal shape, very well made, in reposser work. A candelabrum with six branches, ornamented with foliage and fruit, of elegant design. A ten and coffee-service in repouse work, with cast handles, which, though of a style rather undecided, is of very appropriate workmanship. Several other darable and well-made trays and ten-services. A large ewer for a race-cup, representing Hereules combating the horses of Diomedes, and surrounded by ornaments and emblems symbolical of the labours of Hereules. The handle symbolical of the lanours of Herenes. Inc mount represents the hydra of Lerna. This piece of plate, entirely east, has a grand effect, and its ensemble gives it a real importance: the subject is well chosen, and the composition original. Several covered dishes, one of them of hexagonal shape, the others of the patterns known as the "bead and scroll" and the "bead and shell,' show the care and solidity with which plate for the table is made in England.

Annexed is an abridged catalogue of the principal articles of jewellery exhibited by Messes. Garrard:-

Necklace, stomacher, earrings and bracelet, in magnificent opuls and brilliants, a noble and tasteful set :- a very rich set of magnificent sapphires, pearls, and brilliants tiars enriched with fine oriental pearls, and large brilliants of great parity, with a brooch to accompany it:-an elegant gold bracelet of Gothic design, on which are elegant gold praceses of Gottie design, on which are clusted out, upon a trellis-work of gold on blue enamel carved in the style of the fifteenth century, two angels holding a pearl and a ruby, and capable of being dehotting a plant and a thory, non capable to come such tached; the design by Mr. Smith:—n pearl necklace, with a circular medallion of rubies and brilliants, well made and in good taste :- a pendant in the Renaissance style, with figures in gold, rubies, brilliants, and pearls, upon green and red cuamcis, of fine workmanship:—a gold chased bracelet with a centre of emeralds and brilliants; the stones are fine and pure, and the bracelet is well elased. Another bracelet of hright gold, its centre ornamented with rubies and brilliants in inoration of the sculptures of Nioeveh, a curious and carefully-executed eopy, singular for the great antiquity of the model from which it has been taken; several brooches und rings, of which fine and scarce stones are the principal ornaments. This exhibition, taken as a whole, indicates manufacturing capabilities of the highest order, and an attentive stud of all that can conduce to progress in this brauch of national industry; and for these reasons the Jury recom-mended Mesers Garrard for the Council Medal.

HUNT and ROSKELL, 156 New Bond Street (97, pp. 687, 688).—The exhibition of Mesers. Hunt and Rokell presents an assemblage of articles of rare magnifi-cence. The Jury, being required to point out those which they prefer, would direct attention to certain objects of special excellence, and particularly to some very beautiful bracelets, one in emeralds and diamends; another in opal and emerald, with white enamel; a third, which has a charming effect, composed of a fine opal, surrounded by brilliants and small emeralds upon white enamel, with foliage of gold. The Jury also mention with praise a bonquet of diamonds, as rich as it is elegant; which can be entirely taken to pieces, even to the petals of the flowers, for the purpose of cleaning, and for forming into seven brooches; and which but for its weight would defy criticism. The Jury, however, prefer, among all the articles in Messrs, Hunt and Roskell's exhibition, the sase executed in reposts silver by M, Vechte, which was shown several years ugo in an exhibition at the Louvre. representing the fight between Jupiter and the giants. The deity, represented sitting upon bis engle, forms the cover of the vase; upon the body and handles are the gignts endeavouring to scale the heavens, and hurling trees and rocks at Jupiter; at the foot lie allegorical figures in alto-relievo; other figures are cugraved upon the ground of the vase in very low relief, with a mutted background. The same arrist, M. Vechte, has com-menced for Messrs. Hunt and Roskell a large shield, in three oval compartments, representing the apotheosis of Milton, Newton, and Sinkspeare. The Jury recom-Milton, Newton, and Sinkspeare. The Jury recom-mended a Council Medal to be awarded to Mesers. Hunt and Roskell for the Japiter vase and for the bouquet of diamonds.

HANCOCK, C. F., 39 Bruton Street, Berkeley Square, London (112, p. 692).-The articles shown by this exhihitor are to be noticed, not for the large number displayed, but for their peculiar qualities considered in an artistic point of view Mr. Huncock, white respecting the traditions of English art, has been desirous of introducing into it improvements of a special kind; and by the variety and versatility of style observable in his works, he seems to buye attained this object. The principal articles are:--a round elony table inlaid with silver, upon which is a silver vase in the form of an antique hydra with three handles, covered with pulm-leaf ornaments and burnished folinge opon a matted ground; all the ornaments are made separately, and soldered to the vase, which is hammered out of a single plate; the table is inlaid with much care and faste; me text are in Orthan Saves executed plated. Two groups for recing-prizes, in good taste, and carefully executed. The first represents Queen Elizabeth on hone-back, accompanied by a page and a gentleman in waiting, with two greyhounds following, executed after a

model by M. Marochetti, the dogs after models by Mr. Macarthy: the second, Robin Hood contending for the archery-prize in presence of the sheriff of Nottingham, after a drawing by M. Engène Lamy. An ebony box mounted in silver, after drawings by M. Engène Lamy, remarkable for its fine essemble and for its silver monn ings, and beautifully semiptured and of good effect, in the style of Louis XIV. Upon the lid is a large water-colour drawing, representing genii bearing the colours of the 79th Comeron Highlanders, to whom the box was prescuted by M. Demidoff; and on the inside of the lid is a fine water-colour drawing of the rock of Gibraltar, Several other articles exhibited by Mr. Hancock are worthy of being mentioned; such as the group in silver of a knight combating a dragon and a lion, after a model by Mr. Macarthy: a dessert-plate, with knife, spoon, and fork, the whole ornamented with vine leaves, and wrought in silver carefully and gracefully: a good silver cande-lubrum, in the foliated style of Louis XIV., with five branches formed of scanthus leaves; and several other articles in the ornamental style for table use. The whole of Mr. Hancock's exhibition shows an accurate knowledge of the silversmith's craft, and of the resources which art can apply to this branch of industry when it is properly brought to bear upon it. The Jury are of opinion that on these grounds Mr. Hancock is deserving of the Council

MARREL BROTHERS, 27 Rue de Cisoiscul, Puris (331 France, p. 1194).—The principal article exhibited by Messra, Murrel is the vase representing the combat of Theseus with the Amazons, after the celebrated picture by Rubens. This copy in alto-relieve of a picture as much noted for its composition as for the complex character of the scene represented, offered considerable difficulties to the artist, which he has surmounted with unquestionable success. The bus-relief is in bronze silvered; it is repeated apon the two sides, and fixed to the frieze of the vase. The vase itself is executed in broaze git, in the Louis XIV, style, and bears the arms of its owner, His Royal Highness the Duc d'Aumale : the handles represent Amazons upon sea-horses. A silver cup, in the Renais-sance style, richly ornamented with figures; -- another by the same artist, with medallions of buccharnlian figures, partly in repossed work and partly classed and gilt;— another of silver gilt, inlaid with arabesques of blue enamel: these form but a portion of this remarkable col-lection. The Jury would further mention a very beautiful silver hauring-knife, the hilt of which represents St. Hubert standing within a niche; the cross is ornamented with a fox at bay, defending itself against several dogs; apon the chape of the sheath is a bandsome has-relief. representing the conversion of St. Habert, and lower down is a hunting trophy. The execution of this hunting-knife leaves nothing to be desired. The same maker shows some seals ornamented with beautiful little figures, office articles, seent-bottles in lapis lazuli, Venetian aventurine jasper, cuamels, suuff-boxes and other boxes of most varied styles and perfect workmanship, both in enamelling and chasing. Notwithstanding the merits of the other ways it is especially for this latter portion that the Jury recom-mended Messrs, Marrel for the Conocil Medal. Rubolpm, J. F., 3 Rue Trouchet, Paris (1465 France,

description: among others is a Byzantine casket in the form of a shrine; the portion of the lid forming the root is ornamented with blue enamels, and the sides with other enamels of figures of angels upon golden and green back-grounds; apon the summit of the roof is a representation of the coronation of the Huly Virgin, accompanied by two angels, the whole in full relief, and made of silver gilt: the enamels are fine, and the casket ornamented with rock erystal, cut and set in coloured foil, has a remarkable effect. A bracelet of oxidised silver represents three children contending for some birds, which one of them is carrying off: M. Le Roi is the author of this benutiful design. Another bracelet io oxidised silver, from the design of M. Masson, represents two Cupids playing amongst the stalks of the vine, and holding up a supplier, with four pearls in the form of a claw -very finely chased, and in good taste. A small group, formed of irregular-

p. 1246).-The articles exhibited are of a most varied

despel, pouls, of the greathens in doublet fighting, and will will seed and district and will work and district mess of eliments, and is executed in a very plosing mess of eliments, and is executed in a very plosing poul out at large counces plot representable, the results of Amphiritis, after a model by the late Wagner. A format of the poul of the policy of the Wagner. A format table of cost of the policy of the Wagner. A format of the policy of the policy of the Wagner, and Norder, with 10 between 10 betw

GUEVPOV, A., 11 Rue Chapon, Paris. (1619 France, p. 1254, 1255).—The variety of objects exhibited by pp. 1254, 1250).—The variety of investion and a felicitous application of old as well as novel processe The Jury would mention particularly the History of the Horse represented on seven medallions upon a cup of cast and chased solver of very good shape. A cup of cast silver, partially gilt, representing subjects of the close, and having at the bottom a medalfion of Diana of Fontaineblean. A perfume-hurner, with a garland of ook intermingled with objects of inquimate nature, its lid formed of a vulture. An obtaing casket, the sides enfigure of a Greeian female adjusting her earrings, while a Could holds her mirror: this piece is in cast silver and chased in a very artistic manner. Several boxes and eigar-cases, oronmented with handsome lus-reliefs, in east and chased silver, very light, or produced by the electro process in silver and also in copper silvered. A heantiful ouquet in also-relievo, made in copper, and also silvered by the electro process. A group in cast silver of an Egyptian holding in a rearing horse, one-fourth the natural size. All these articles, especially those that are chased and those produced by the electro process, pertaining at once to works of jewellery and of the silversmith's art, give M. Gueyton a very honourable position among the exhibitors, and have induced the Jury to recommend him for the Conneil Medal.

FROMUNT-MECRICE, 52 Rue St. Honoré, Paris. France, p. 1258,) -- The articles exhibited by M. Froment-Mourice consist entirely of gold and silver smith's work, trinkets, and jewellery, artistically treated. Among them are to be remarked two elegant brooches in the Renaissance style, in rubies and opals, with bulliants arranged in the form of a fringe, one of them being very large, the other smaller. A beautiful bracelet, in the same style, in blue enamel, gold, and brilliants. A brooch, in the slope of a eross, in black enamel, having a supphire in its centre, with branches and garlands of brilliants, upon which is a bird with a budy of pearl. The Pope's chalice, the ornamenting of which is at once elegant and novel, is exe-The toiletented with remarkable and appropriate taste. table of Her Royal Highness the Duchess of Parma is a remarkalde work, iu which M. Froment-Meurice has avercome all the difficulties of the silversmith's and jeweller's art, in east silver, repower work, enamelled and inlaid enumelled work, and engraved steel. But the attention of the Jury has been arrested by a centre-piece, representing Ceres, Bacchus, and Venus, standing upon the terrestral globe, which is encircled by the zodiac, and around which thy small figures in relief of the genii of Plenty, Music, and Concord. The globe is supported by made and female snake-footed ginuts, and rests upon a hase decorated with ornaments and foliage. This piece, executed after models by M. Penchère, is in style and execution such as in the estimation of the Jury merits a place in the first rank. It is entirely made in represenwith the exception of the figures of the ginus. It is sufficiently light to be easily portable; and the mount-

ing is so arranged that the principal portions may be taken as under with case, without in any way affecting its solidity. For this article the Jury decided upon recommending M. Froment-Meurice for the Council Medal.

WAGNER, EMIL, APGEST ALBERT, Berlin. (840 Pres 1096.)—The Jury recommend for a Conneil Medal. Wagner, the maker of a silver centre-piece for the table, having three stages one above another. forming the lose consists of a plinth, supported by fions. Upon the plinth are represented figures of the human race in its primitive condition, seated and grouped at the foot of an ook tree, and accompanied by animals and implements characteristic of the chase, of pastoral life, and of fishing. Above these, three female figures, standing naming. After there, there remain in the relative and the cultivation of the vine. These figures support a bowl, the sides of which are formed in reposses work, and orna-mented with numerous figures of children, or small geniof industry, the Sciences and the Arts, gracefully grouped, and forming very animated compositions. From the centre of this bowl rises a palm-tree, surmounted by a winged figure, representing the genius of civilization, and the subduct of evil, which is typified by an expiring hydra. The whole of this piece, with the exception of the has-relief of the bowl, is cast and chased: the composition is entirely M, Wagner's. The figures of the genins, and the three females standing against the pillar, have been modelled by Professor Fischer. The repostar bas-relief of the hout, which is not quite finished, is M. Wagner's own work. The Jury recognise in this centrepiece a fine style, an exalted character, excellent sculpture, and good effect. The most studious care, united to extreme skill, has guided the execution of the whole of this work, which is worthy of the high position held by the arts in Germany, and worthy of the Exhibition is adorns.

The King of Prassin's shield, (98 Main Avenne) .--HIS ROYAL THURNESS THE PRINCE OF WALES (P. 110), exhibits a shield, presented to him by the King of Prussin upon the anniversary of his christening. His Majesty furnished the general plan of the work : the drawings for it were designed by the celebrated painter Cornelins, the a wee assessed by the ceneurated painter Cornelins, the architectural ornaments are by M. Stüler, the modellings by M. Fisher, the goldsmith's work by M. Hossauer, the reposse by M. Mcreens, and the engraving of the stones by M. Calandrelli. In the centre is the head of Christ in gold alto-relievo, in a round concave medallion bordered by a wreath of acanthus leaves, which stand out upon a circle of blue enamel, with golden stars, the whole upon a large Greek cross, which is covered with the following gilt bas-reliefs: Justice, beneath which is a round me-dallion of St. Mark, surrounded by four chrysoprases: Prayer, beneath which is St. Matthew; Religion, with St. Luke beneath; and Charity, beneath which is St. John. Between the arms of the cross are four bas-reliefs, - Moses striking the rock, the Lord's Supper, the fall or manna, and the baptism of Christ. Around this cross is a frieze of blue camel, craamented with vines, with pea-cocks, and folinge of palm-leaves. Between these enamels are cameos upon German onyx, representing the twelve Apostles. The next circle is composed of oval-shaped ornaments of white enamel, between which are green einque-foils with golden pearls, the mounting of which is golden foliage upon a background of white enamel with small green leaves, around which is a twisted border. The large bas-relief which surrounds the shield represents the entry of Christ into Jerusalem, Judas betraying Christ to the Placisces, the burial of Christ, the Resurrection, the descent of the Holy Ghost upon the Apostles, and the hirth of the Prince of Wales. Upon the next bas-relief is represented the arrival of the King of Prussia in England; his galley steered by angels, and propelled by personification of steam; he is welcomed by St. George, y an allegorical representation of the Thomes, by the Duke of Wellington and by Prince Albert. The exterior Duke of Wellington and by Prince Ameri. The exterior edge is decorated with interlacings of white and green enamel, with buttons of flowered glass. Lastly, the concave edge is ornamented with inlaid enamel-work, in the furn of a garland of fruits, grupes, and ears of corn.
This shield, worthy of remark for its composition, and

for the beauty of its sculpture, enamels, cameos, and fittings, merits, in the opinion of the Jury, a Council Medal, as a reward for the talent of the artists, who have executed the orders and carried out the idea of the King of Prussia.

SARIKOFF, IGNACE, Moscow (366 Russia, p. 1384), oxhibits several articles in silver, consisting of vases of varied and original forms executed with much care: of very elegant statuettes in cast silver, especially one of a female figure reclining upon the hrink of a well, and looking at her image reflected in the water; the cylinder of the well is hollow, and gilt inside, forming, when reversed, a drinking-cup: another work represents a female figure leaning against a cask and pouring out beer, a cat is shown climbing up the cask behind her; this piece forms a teapot, the cask serving to contain the liquid, the vase held by the female figure being the spont. These wase acid by the remain ingure ocing the spool. These two compositious are perfectly original, and the workman-ship is gracefully and carefully executed. The talent of M. Sazikoff is, however, especially displayed in a large centre-piece representing a fir-tree, at the foot of which the Grand Duke Dmitry Dotskoy, sitting wounded, is learning from his soldiers that he has gained the victory. The composition of this group is excellent: the chasing possesses great fulness, and is, at the same time, moscarefully executed: the figures, fine in composition and superior in execution, possess a great degree of originality, and are arranged in a natural manner; and the character as well as the merit displayed in this group place it above anything hitberto produced in this description of manufacture. The Jury recommended a Council Medal for

KARMMERER and ZEFTIGEN, St. Petersburg (376 Russia, p. 1384), Jewellers to the Imperial Court of Russia, have exhibited a diadem wreath in imitation of the leaves and fruit of the bryony. The leaves are in diamonds, and the fruits in emeralds cut in very elongated pear-shaped forms. The different portions of this wreath can be taken upart and used separately: 2,836 rose-diamonds, 129 brilliants, and 12 emeralds, are contained in this beautiful ornament. Next is to be observed a "berthe" formed of bouquets of currant-branches in diamonds, the fruit formed of polished upont rubies suspended at different points upon a donble string of diamonds, and arranged siternately with flowers in brilliants; its effect is excellent. The Jury have further remarked two other articles in the same collection, a bouquet of eglantine and hily of the valley entirely in hrilliants and roses; also a brooch representing a branch of the ipomen in diamonds and beautiful turquoises. The importance of the articles in this collection, the superior taste in composition, and above all, the perfection of the settings, not excelled by the works of my jeweller in the Exhibition, have induced the Jury to recommend that to Messrs. Kaemmerer and Zeftigen be nwarded a Conned Medal.

M. Sazikoff.

nwarded a Conned Medal.

LENONNIER, G., 6 Place Vendome, Paris (304, p. 1191).

—The collection exhibited by M. Lemonnier has constantly and justly attracted considerable attention. The qualities which eminoutly distinguish the Jewels belonging to the Queen of Spain are a very decided and elevated taste in the composition, an imposing aspect, and great skill in giving effect to the materials at the disposal of the jeweller. M. Lemonnier has executed two sets of jewels for the Queen of Spain. The first consists of a diamond necklace in the form of a ribbon, interlaced with foliage of emeralds. The stomacher and shoulder-knots, from which are suspended vary large emeralds with clusters of brilliants, are in the same style, and in them the jeweller has overcome considerable difficulties presented by the design. The bouquet is formed of lilies of brilliants, the leaves of emeralds and ribbons of brilliants, with pendants of pearl. The crown is in the same style, with aignillettes in the form of flowers having stamens in pearl. The bracelet is likewise a ribbon of brilliants, interlaced with emeralds. The whole of this cullection displays, in the great harmony and simplicity of its arrangement, much adroitness on the part of its inventor in making use of a profesion of precious stones without allowing their immeme number to mar the general effect. The same may be said of the set of jewels made in diamonds and sapphires,

also belonging to the Queen of Spain. The crown is composed in the heraldio style : in the centre of the dismond flowers is a sapphire; a beautiful wreath of brilliants accompanies the crown, with which the stomacher and the necklace match perfectly; upon them are flowers of bridliants with centres of sapphires with garlands and longshaped pendants. The whole of this set presents an ensemble worthy of the talent of M. Lemonnier. It is impossible to speak of other articles of secondary importance to those just described, though they would elsewhere be deserving of notice. M. Lemonnier bus thoroughly attained the end which should be kept in view in the exeention of jewellery, to strike and gratify both the eye and the imagination. As a setter of stones he is excelled by many other jewellers; in point of invention and decernion As a setter of stones he is excelled by be stands unrivalled in the Exhibition. The Jury recommended him a Council Medal.

VITTOX, G. T., 10 Rue des Filles du Calvaire, Paris (1530, p. 1250).—The attention of the Jury has been attracted by the bronzes and the works in gilt bronze, exhibited by M. Vittoz. They can only speak of the thronzes which are either woolly or partially gilt, to which they are limited by their instructions. They have observed a clock in gilt bronze, called the "three hours of the day:" it is ornamented with Curids upon a cloud, and supported by a pedestal of white marble. The Cupids are in bronze, and the style of Louis XVI. is preserved with much tasto and care in the execution. The sums clock is exhibited in double the size. A console candolabrum, in the Louis XIV. style, entirely in gilt bronze, is composed of three rich volutes springing from the foot, and entwined with garlands of cak, the whole sup-norting branches of lilles and mallows. This article is porting branches of lilies and mallows, executed in remarkably good style, and the gilding has an excellent effect. A broaze figure of a child, of tha size of life, bearing a basket from which issue fruits, flowers, and branches, gilt, presents a rich enemble by the nowers, and orances, gut, presents a rice encounter by the contrast of the hronze with the gold, and is of excellent workmanship. The group of children in bronze, half the size of nature, carrying banches of grapes and resting upon a rich ataud in gilt brouze, is, in the estimation of the Jury, the best piece in this collection so distinguished by the choice of models taken from the most skilful artists, and for execution with a care which no other maker has surpassed: the whole of the gilding is effected by the electro process, and appears to be executed in tho

by the electro process, and appears to be executed in the best manner. The articles noticed claim from the Jury a recommendation for a Council Medal. Monathlas, F., Madrid. (Spain, 261, p. 1345).—It is to be regreted that Spain, a country renowned for its works in precious medals adapted for the purposes of Divine worship, should have sent but one article of this description to the Exhibition. The Jury have neverdescription to the Exploration. The Jury make never-theless seen, with satisfaction, the monstrance exhibited by M. Moravilla. This choice specimen of the silver-smith's art stands about 6 feet 6 inches high: it is mada of silver gilt, in the florid style of the fifteenth century. At the base are four bas-reliefs in silver, representing th Lord's Supper, Christ bearing His Cross, the Garden of Olives, and the entry into Jerusalem. Upon the platform are four figures in silver of angels in the attitude of prayer, their faces turned towards the octagonal base of the monstrance, the shaft of which is ornamented with figures of the four Evangelists in full relief beneath Gothic turrets. The monstrance itself is radiated in the form of a double wreath composed of vine hranches, clusters, and hrilliants. Surrounding it are fourteen stars or comets cumposed of brilliants, topazes, amerity sis, and emeralds: the cross is composed of hrilliants and ansethysis. The rasemble of this large work perfect. The Jury have particularly remarked the regularity of adjustment of the various parts, so difficult to Gothic spire, and conceived in a style of architecture which demands this very regularity as an absolute condition of good execution. On these grounds, the Jury proposed that a Council Medal should be awarded to proposed that a Council Medal should be awarned to M. Mornilla; which being refused by the Council of Chairmen, a Prize Medal was given.

PAILLARD, V., 8 Rue St. Claude au Marais, Paris 2 L 2

(France, 1713, p. 1258), exhibits some broazes which the Jury have examined with a great deal of interest; especially a beautiful figure of a child, of the size of life, crowned with vine branches, and holding a rich condelabrum of gilt bronze. It rests upon a three-fronted pedimeut of gilt bronze, in Louis XIV.'s style, which has a fine effect. A large clock, with candelabra in gilt bronze, in the style of the latter part of the reign of Louis XIV. Two vases of porcelain, the backgrounds of which are of turquoise blue with rich mountings of gilt bronze, composed of a grooved moubling around the neck of the vase, handles formed of infinitine vintagers clitabing upon a volute: beneath are heads of chimeras, from which a carland proceeds to the centre of the vase. Lastly, a pair of candlesticks, in the style of Louis XV., with twisted stems, the feet organizated with escutcheous. It is principally as an actist in gilt brouze for room decoras, that M. Paillard has distinguished himself in the Exhibition; and it is on this account the Jury recommended him as deserving of a Conneil Medal, which having been refused by the Council of Chairmen, a Prize Medal was awarded,

Medal was award the Prize Medal to Messers, Water and Sov, of Dablin (15, p. 673), for their broaches and trinkets in gold, ceptied with much taste, yet not servilely, from the antique filoulæ found in Ireland; also for their neckhees, in which they have turned the almost forgotten style of the mediaval age to a very good account. The Jury award the Prize Medal to Lamanar and

The July about the Print Media to Labridge and their carefully-secured, elegant, and morel silvessmittle heir carefully-secured, elegant, and morel silvessmittle work,—in particular, for a round flattened vase, with a long mek and a lot, in the Creatant syile, the body and long mek and a lot, in the Creatant syile, the body and and barrishled bunches of grapes; a los. for a centre was neckon-loped and flattened, hunting a long neck, the divisions of the side and the neck oreassented with fidisless in which would appear to be very darmle, and begitness, which would appear to be very darmle, and begitness,

and the state of t

The jowellery and trinkets of Rowlassus, C. and W., 146 Regent Street, London (118, p. 693), are remarkable for their fine execution, particularly a blue enamel brooch with a large polished and nucnt garnet, two beautiful bracelets, and a brilliant and emerald stonarcher. A Prize Medal is awarded for the enerfulores and elegance of

Modali in Melhadis on Cinciumer and assignment of Causevice, T. J., and N. Sheffield (4.5, p. 680), enhibit articles important in size and of good taste. They are of plated silver, plated by the old poscose of uniting the mench by best the edges and manufage are of silver, examined to the complex of the control of the silver of Louis XV, The workmanthy of their diffusioners, tempots, and tray, is as carefully executed as this style roughters, and tray, is as carefully executed as this style roughters, and professing along the complex of the

A Price Weels is swarded to Axena, J., 10 Straak, London (111), pp. 691, 622, for his examelled articles; opcially a ever vase with silver ground, douted with hourshed enhosings, and ornamented with tempose-blue councir, also another silver-pilt vase, with vine-shaped londs, and humished and expared needlines, with commit ground of green and tempories like and créabil and trappiss blue and red canane, the chain of which is very leastiful, and another-bracelet in the Elizabethan style in gold, lettinas, and light-blue emmel.

Divice and Soxs, Shelfield (i.s., p. 479). These mannfacturers have exhibited a collection of coffee and ics services made of Britannia metal, an imperfect imitation of silver, as are all the compounds used for that partopue;

but the forms are as varied as they are well chosen, and might be very advantageously imitated for the same articles in silver: the workmanship is very good, and the

stary award the Price Medal in consequence.

S. H. and D. Jiasa, 168 Regret Street, London (83, p. 683), exhibit an article of jewellery in the remissance style, representing the figure of Britannis, the face and haids of which are of silver, and the drapery of rubies and diamonds; it stands beneath a canopy supported by four columns of garnets with predicate of pearl. The art with which these precious stores are mounted appears with which these precious stores are mounted appears.

with when mose previous scores are incomercia appears to the Jury to be deserving of the Prize Medal, which they award to Messey, Gass for their skilful workmanship. J. Kerrat, 59 Britonnia Terrace, City Bond (121, p. 694). The commanion services exhibited by Mr. Keith are five in number, of silver gift, and in the mediaval style, well engraved and cannolled. They are rewarded

J. B. Demans, 456 New Oxford Street. (Class XXI, 45, p. 50x). Amongst the arricles made of steel shimilard to their examination, the Jury have remarked a beneathed clastical, earthly of weight steel; it is expected to the control of the control oxford the cont

HEXLEY and Sons, Mount Street, Birmingham. (Class XXII., 305, p. 628.) The Jury likewise award the Prize Medal to these exhibitors for their elastelaines, purseornaments, and buckles, made entirely of steel, and of very perfect workmanship.

very perfect workmanship.

LEXCHARS, W., 38 Piccidilly, London. (Class XXIX.,
44, p. 791.) The silversonith's work in the dressingcases of Mr. Leuchars is well made, elegant, and solid.
A lady's dressing-case of walout wood, mnauted in the mediareal style, with pierced silver fittings, is particularly to be remarked. The Jury award Mr. Leuchars the Prize Medal.

Gapt. L. L. Boccawer Interness, Cliffon House, Old Brougner (Class AXX, 22x, 844), has exhibited one very delicate objects, principally of natural history, below, and estonatory, which he has covered with a nad of melicient traveght to admit of their belop moddled in sand. The casts takes from objects thus prepared retain the exactness of the original, everything on which may be nimethy traved by the dood of amgoriting place when the contract of the contract of the contract of of expections with the most desirable occurses. The Jays award the Piric Robot lost increase.

E. S. MARHALL, 31 John Street, Toricoham Court Bond, London (Class XXIII), 104, p. 689); chibits a collection of gold leaf of all enhurs. The specimens are interest to insulher. This article is used in various for the use of dentities have a special control of for the use of dentities has uppeared to the Jury to combine all the deviated qualities of parity and malleshitity. Samples of platina, polladium, sinc, redminum, and its, in the control of the three of extreme thinness, show to how many different to the control of the control o The productions of Mr. Marshall combine all the conditions of evenuess and perfection in the work. The Jury award him the Prize Medal, Wild and Ronixsox, Oberstein, (Prussia, 889, p. 1097.)

The manufacture of articles in onvx and agate, in their antural state or coloured of various bues by artificial processes, has become a large branch of industry at Oberstein, In the collection of Messrs, Wild and Robinson are to be remarked two very beautiful flower-vases of black onyx, coloured, with natural white veins; two large cups of red chalcedony, coloured; large square links of chalcedoay, counceted together without joints, and alter-nating in colours, --very curious as regards both the work and the material; also a very beautiful snuff-box of green jasper. This remarkable manufacture claims at the hands of the Jury the Prize Medal.

BRAHMPELD and GUTRUF, Hamburgh. (54 Hamburgh, 1138.) A silver inkstand is exhibited by Messes, p. 1138.) A silver inssume is examined by the Brahmfeld and Gutruf, in the shape of an oak, at the foot of which are a stag and a doe; near them are two trunks of trees, cut horizontally, serving for the iak-bottle and sand-box. This work, which is the sand-box. The Jury award the Prize Medal, This work, which is cast, is elegans and

natural. The Jury award the Prize Medal, G. F. Haulick, Hainu (413 Pressia, p. 1073), exhibits a carnation in brilliants and rubies, with gold monutines enamelled green. This may also be ased as a pin for the hair. It is planted in a small vase of tarquoise blue eramel upon gold, with buttons of blue and red cnamel, and gold lions' heads bearing garlands; the base is ornameated with green and red oval-shaped ornaments. Prize Medal is awarded for the ensemble of this work.

STRUBE and Son, Leipzig. (33 Saxony, p. 1106.) A hurnished silver vase, its body encircled by earnations, and containing a bonquet of fifteen silver flowers, executed with so much lightness that they appear as if they had been produced by the same process as artificial flowers. This bonquet is an original work of Messrs, Strube and Son, and the Jury deem it deserving of the Prise

THE ROYAL PRUSSIAN IRON FOUNDRY, Berlin (271 Prussia, p. 1064), has contributed a large vase and two candelabra of cast iron inlaid with silver. The vase represents Alexander's entry into Babylon, after Thorwaldsen, and the candelabra support groups of Amazons on horseback and on foot. Judging of these articles as specimens of inlaying with silver, they are descrine of the Prize Medal.

KELER and Co., Oberstein, (888 Prussin, p. 1697.) The Jury award the Prize Medal to these exhibitors for their tea-service of coloured cornelian, consisting of two pots, a sugar-basin, twelve cups and sancers, twelve small plates, and twelve spoons; and for their jewel-cases in green moss-agate. The workmanship, the quality of these objects, and their unusual dimensions, are worthy of

attention and approbation, A. DUTERTRE, Geneva. (219 Switzerland, p. 1280,) The watch-cases, some in enamel, some ornamented with gold and diamonils, and two engraved gold plates, have attracted the attention of the Jury, who admire the delicacy and correctness of their execution. The gold plates, one of which represents an incident in the life of William Tell, the other a tree with a landscape backround, are engraved with extreme precision and delicary by Mr. Fritz Kundert; the tree, in particular, is of workmanship which will bear the minutest examination with a magnifying-glass. The Jury award N. Dutertre the

P. H. GRANDJEAN, Serrenoud, Chauxdefonds, Neochatel (46 Switzerland, p. 1269), exhibits a gold plate, upon which he has engraved, on a very small scale, a forest, which appears to be enpied from an engraving by Kolbe. Its execution is as fine as it is perfect, and has been awarded a Prize Medal,

A. Dunots, Chauxdefonds, Neuchatel. (43 Switzerland, p. 1269.) Another engraver, M. Dubois, exhibits a old plate, representing ornamental objects of fruit and gold plate, representing ornamental objects of these some flowers, placed upon a console table, supported by Atlanes, the whole in the style of Lepautre, engraved so finely that the plate at the first glazee resembles a photographic proof. The Jury award him the Prine Medal for this faultless work.

L. A. Golav, Seresche, Geneva (220, p. 1280), has exhibited a small sonvenir pocket-book, with cover engraved on white and green enumelled gold, with two modulions upon cnamel, one of which represents two Italian women playing with a child, and the other a landscape after Calame. The perfection of these enamels and their

beautiful effect merit a Prize Medst. J. Bennati, Geron (59, p. 1304). The Jury award the Prize Medal to M. Bennati, manufacturer of silver filigree work, for a statuette of Christopher Columbus

discovering a part of the globe by lifting up a veil which covers it. Notwithstanding the boldness of the idea of executing such a subject in filigree, he has shown so much skill and taste in overcoming this difficulty, that his success is surprising, and attributable to the clever arrangement of impererpible threads, imparting to the ensemble of the figure a form at once indecisive but correct

J. Louzo, Genoa, (58 Sardinia, p. 1304). Another manufacturer of fitigree, N. Loleo, has executed a column commemorative of the Exhibition, not very durable, but of very choice workmanship. The Jury attach more importance to the beautiful manufacture of trays, scentboxes, vide-pockes, sugar-basin with tray, eigar-cases, fans, baskets, and garlands for ladies' bead-dresses, which are of perfect execution, of very good taste, and have been rewarded with a Prize Meda

II. RATZERSTORFER, Vienna. (577 Austria, p. 1036). M. Ratzersdorfer exhibits a toilet-glass, the frame of which is entirely of massive silver, richly decorated with various ornuments, and with numerous groups and single figures. This frame, of elaborate and choice workman ship, merits, in the opinion of the Jury, the Prize Medal, D. Romain, Rotterdam. (104 Holland, p. 1148). The celebrated Dutch setters of precious stones are represented at the Exhibition by M. Romain alone, who has made a stomacher, consisting of a portrait painted in coamel and surrounded by a bouquet, capable of being divided into three parts, and very eleverly mounted in rose diamonds and pearls, for which a Prize Medal is awarded.

J. Falloise, Liège. (384 Belgium, p. 1163.) It is only a few years since the art of inlaying and damascening iron and copper has been revived in France, Spain, and Belgium. M. Falloise, of Lège, exhibits many different articles, to which he applies this description of decoration. Particularly worthy of remark are—a steel hracelet, with a bas-relief representing a Nereid in silver, with drapery of green and yellow shades of gold, mounted upon a dolphin, and standing out from the ground of inlaid steel in very high relief; two covered cups of copper (putine) inlaid with silver, in the Oriental style; three vases, in the Renaissance style, urnamented on the tray and the stem with flowers, foliage, birds, and masks, inlaid in silver, in relief and engraved; a steel chalice, upon which are aumerous tasteful ornaments in gold and silver, inhid and engraved. These remarkable articles entitle their maker to the Prize Medal.

E. Zuloaca, Madrid. (264 and 264s Spain, p. 1346.) Don E. Zulouga has exhibited arms, and a cover for a book, of iron and black oxidised steel, righly decorated with lea-reliefs and with damascened ornaments in gold and silver. The pistob, daggers, and sword are exactly of the same style as the book-cover; the latter, intended to the same style as the book-cover; the latter, intended to contain a Castilian title of nobility, is ornamested on one side with figure-subjects, on the other side with secutebeous and devices. The old Spanish models have served for patterns to all these works, in which the reuly-ture is deficient in grace and elegance, but its combination with a very beautiful damascening produces such a good effect, that artists are already engaged in copying thu articles exhibited by Don E. Zulcogn, to whom the Jury award a Prize Meda

Jann and Bolan, St. Petersburgh. 1377.) The Jury award a Prize Medal to Messre, Jahn and Bolin, of St. Petersburgh, for their beautiful exhibition of jewellery, as rich as it is perfectly set. especially worthy of notice are- A sparkling diadem, containing 11 very beautiful opuls, 67 rubies, 1,814 brilliants, and 1,712 roses,-a lancelet of turanoises and diamonds, and a brooch, in the shape of a knot, composed of 754 turquoises, with a pair of carrings of small turquoises, 709 in number. The settings of these latter objects are almost invisible. The execution of the jewel-

lery work cannot be better.
F. Dunand, 41 Rue du Bac, Paris. (1595 France, p. r. Denamy, 41 fare on mac, parts. (1375 France, p. 1253.) A Prize Medal is awarded to M. Dursnel for a ten-service, consisting of seventeen pieces mounted in stages, forming a pile of silversmith's work, supporting four tea-pots, as many sugar-basins, eake-baskets, and milk-jugs, all in silver, partly oxidised. The silver tenkettle is heated by a lamp. Around are four niches, with female figures; above the tap, between the niches, there are figures of syreus; in the lower niches there are other female figures. Small Triton Atlases support the milkings. The trays are inlaid with enamel, gilt and ornamented; the whole of the ground is in reported work, and richly ornamented. The models of the figures have been made by M. Klagmann, M. Durand exhibits besides a table centre-piece of silver, with infantine figures represeating the four seasons, water and wise, in the style of Louis XV.; and a racing-cup, with subjects relating to tournaments and caronsals in silver gilt, ordered by the late Duke of Orleans.

Obsor, —, 26 Ric Beese du Rempart, Paris. (1671 France, p. 256.) The articles exhibited by M. Odiot consist of large and medium-sized pieces of silversmith's work in the English style, and uf workmassing which this skilful silversmith deems best adapted to tableservices. All the pieces are of silver, mostly east, burnished, matted or engraved, and manufactured with care and solidity. The principal articles are-a large vase, with marine divinities, about 4 ft. 6 in. in height; the table-service of M, de la l'aboustère, all the covers of which are richly ornamented with sculpture of animals or of inauimate nature; an Arabian coffee-pot, with its fingums in burnished and gift silver; a chestant plate, representing a damask table-napkin; a coffee-pot chocolate-pot ornamented with spiral groovings, burnished and beautifully executed; a table centre-piece, representing a wild boar at low; a large candelabrum, with bacchinalian figures; fine specimens of knives, forks, and spoons, &c. The Jury award the Prize Medal to the

exhibition of M. Odiot CHABLES CHRISTOPLE and Co., 56 Rue de Bondy, Paris. (1562 France, p. 1251.) Messes, Christoffe and Co., who are licensed to work the patent of Mr. Elkington, exhibit a valuable collection of silversmith's work in conner laid down, as to articles of every-day use being made of electro-plate, are applicable to all the exhibitors who have had recourse to this process, and the Jury can make no exception in favour of Messra Christofle. They award the Prize Medal to the ornamental articles only which these manufacturers exhibit, such as a centre-piece repre senting Capids fishing with a net around a group of trunks of trees, and candelahra, in the same style, of

agreeable and animated sculpture. CONSTANT VALES, 161 Rue St. Martin, Paris. (707 France, pp. 1212-13.) The Jury have noticed with satisfaction the artificial pearls exhibited by M. Constant Vales, who displays great skill in overcoming the difficulties of workmanship, and producing a superior inita-tion of untural pearls. They award to M. Constant Valès

a Prize Medal. BOULLETTE, HYVELIN, and Co., 46 Rnc St. Avoy-Paris. (1107 France, p. 1231.) The articles exhibited consist of beantiful artificial stones tastefully set, amongst which a stomscher in diamonds, pearls, and emeralds is especially worthy of notice. These manufacturers make the materials themselves, and work for exportation. The Jary award them a Prize Modal.

Taveny, E., 18 Rue du Petit Lion St. Sauveur, Paris. (1045 France, p. 1228.) M. Truchy confines himself especially to the manufacture of imitation pearls, and makes remarkable imitations of those called black pearls,

for which the Jury award him the Prize Medal.

F. Daratque, 8 Rue Jean-Jacques Rousseau, Paris (1575 France, p. 1252), exhibits a collection of jewels, 202 Praise, p. 1223; extunits a contention to green, and conceived, suitar, brothes, and depending of polyclamonic union, with metall and cosmo dorsaments,—a happy intion, well carried out, and for white the Jarry award.

N. Lacarriers the Princ Medal.

P. V. ULERWENS, 57 Bee Saint Avoyc, Paris. (1707

Praise, p. 1223). The principal pit broases manufestered

N. S. Navan, 22 Rose Saint-Gilles, Paris. (1476 Praises,)

N. Willemens are a tehernache, basing estamble on the hracelets, chains, brooches, and especially of polychromic cameos, with metal and enamel ornaments, -a happy invention, well carried out, and for which the Jury award him a Prize Medal.

p. 1246.) This exhibitor cultivates a peculiar branch of manufacture, that of plating gold on red copper. In order to obtain it cheaply, his plates undergo a very accurate process of stanging in steel matrices, which are engraved with great accuracy; and they come out so perfect that they only require to be put together, which M. Navard does with extreme skill. He exhibits miniature frames, bracelets, brooches, and the most delicate orna-ments. The Jury award him a Prize Medal.

SAVARY and Mosnacu, 2 Rue Vaucanson, Paris. (368 France, p. 1194.) The imitation stones of Messrs Savary and Mosbuch comprise samples of various descriptions, executed as well as possible, especially their imitation diamonds. The emeralds, and particularly the sapphires, are hardly so perfect, but hitherto manufacturers have been unable to attain perfection in this description of stones. The settings are in very good taste, and very carefully executed. The Jury award them a Prize Medal,

F. A. Thouser, 31 Place de la Bourse, Paris. (1702) France, p. 1257.) M. Thouret exhibits various articles of silversmith's work in copper electro-plated; but the Jury exclusively notice among the productions of this man facturer the objects of art obtained from autique models with great exactness by means of the electrotype process, such as the Cup of Fulda, and the one representing the lance of the Sabines: perfectly clean moulds, taken in gelatise from the originals, have served to reproduce these charming models in copper deposited by electricity; the deposits are beautiful, and are silvered and gilt. The Jury have also remarked a beantiful cover for a primer, produced by the electro process, ornamented with subjects from the Obl and New Testaments, with superimposed medallions. The Prize Medal is awarded to M. Thouret. Avcoc, -, sen., 6 Rue de la Paix, Paris. (1052 France, 1229.) The beautiful fittings for travelling cases, exhilited by M. Aucoc, containing very important articles of silver and silver-gilt worked in the English style, are worthy of particular notice, and have been awarded a

Lebolle Faines, I Rue de la Chanssée des Minimes, Paris. (1318 France, p. 1239.) The articles exhibited consist of bronzes, clocks, candelabra, groups and figures mostly gilt, and silvered in parts. Their display of arti-cles is considerable, and nothing which they have sent has been made for the occasion. The Jury, though observing in the predections of Mesers. Lerolle Frères a certain

degree of negligence of style, deem them nevertheless deserving of the Prize Medal

Mtnor Faènes, 10 Rue d'Angouléme-da-Temple, Paris. (646 France, p. 1209.) A considerable assortment of decorative articles in zine and alloys of common metals, bronzed, gilt, or silvered, constitutes the exhibition of Messrs. Miroy Frères. This branch of industry places within the means of all classes, and at very low prices, ornaments of rich appearance, such as statuettes, candelabra, clocks, &c., &c., the greater part of these figures are cast in reverse, the broazing, gilding, and silvering, being obtained by the electro process, the effect of which is remarkable in this description of articles, wherein it is desirable to combine effect with economy. The Jary award them the Prize

V. P. BOYER, 38 Rne Saintonge, Paris. (70 France, 1175.) The Jury award the Prize Medal to M. Boyer p. 1175.) The Jury award the Frize oreals to the gold is for his bronze figures electro-gilt, in which the gold is very well couplayed, exhibiting fine, burnished, dead, and confirm of in junitation yellow, and green gold in targe surfaces, or in imitation

of damascening. A. Lacarriere, 9 Rue Saint Elizabeth, Paris. (1284) France, p. 1238.) Amongst the imitations of precious metals there are two large candelabra in cast-iron, partly hroused, and partly gilt with varnish, exhibited by M. La-carrière. These caudelahra, adapted for burning gas, of large size and very beautiful execution, are exceedingly good imitations. The same manufacturer exhibits beautiful gas-fittings well put together, gilt by the same process as the candelahra, adapted very skilfully to ornamental

door and on the rose-work, in the Gothie style,—a ewer with tray, in which the ear-ed work of the helmet and shield of Francis I, is introduced with great ability and judgment,—also two candelates with branches, the bases of which are ornamented with the trophies of the Porte 81, Deails, very ingeniously arranged and silvered. The Jury award the Prize Medal to this exhibitor.

P. Poissantague-Busses 38, 18—Contents

P. Poissantague-Busses 38,

Jury 8 Med (he Prize Stellato In a Cantolicite, Paris, (1405 France, p. 1243). Bly developing himself exclusively to the manufacture of ciure-lephete, M. Pouss-régue Russal to the manufacture of ciure-lephete, M. Pouss-régue Russal has availed himself of the best sacquet and modern models his large examelled whrine, after designs of the Ablé Martin, lan a very leastifial effect with the exception of exception of the control and of the control of the control of the control and of the control of the c

P. J. Lanscutt, 162 Palais National, Paris, (1287). France, p. 1283. Among the articles exhibited by M. Lalpecke, the Jury have remarked a dark-blue powerline Losis XVI. at the process of the state of the state of the state of percelain, of a light-stellar ground supported to add candler; a large oval basket of percelain, of a light-stellar ground supported to hold candler; as the two tendelshers waves which accompany it; finally, two dark-blue percention uses, with a company it; finally, two dark-blue percention uses, with a The Jury award this calculator the Price Medal.

L. D. J. Artsort, et Bue Biobelion, Paris. (11 France, p. 170). The testing-time of the Princest Wolkonski, manufactured by M. Audot, are of the princest Wolkonski, manufactured by M. Audot, are of cograved silter, and of very good workmanship. The same establicter shows a very beautiful vace, with triple form, the proport and landles gift, with over- and follings in releft, and gift in three colours. The fittings of another drawing-teste are entirely of waved silver, ainfail with examel and damacenced, has ting a very good effect. These was the control of the prince of the Prince Medical, within he availed to M. Audot.

C. S. MATTATA P Rue de la Petre, Paris, (228 France, pp. 1224). As a monifecture of gift broaten, M. Meinich has sought torvel, varied, and elegant forms, and has been the property of the pr

A. Tucxuty, 44 Boulevard Roumarchais, Paris, (696) France, p. 1212.) The Jury award the Prize Medal to M. Thoumin for his stamped brass furniture ornaments. The rough patterns of the articles exhibited are placed just justaposition with the finished samplet, in order that the precision of the stamping may be appreciated. The finished comments are lackered in a colour much resembling gold.

A. R. PAYEN, Jun., 18 Boulevard Saint Denis, Paris, (1674 France, p. 1237.) The jewelley is intended for exportation, and composed with much taste. This exhibitor naskes filigree work after the manner of the Indians, and employs to advantage numerous real pearls of small size. The Jury award a Prize Medal to the intelligent workmantship of M. Payen.

The state of the s

LEVY FRÉRES et Co., 76 Rue des Fossés du Temple, Paris. (595 France, p. 1206.) The workmanship of these exhibitors, without making pretensions to an elevated is

fir above an ordinary character. They produce in their own manufactory all their gift broarce, which they use for the decoration of porcehin mounted by them with much propriety and richiness. Turquisoi-blue procedum of subjects in the style of Watton is exhibited; and the Judicion manuser in which it is mounted in highly-orannouted gift broarc, deserves the Prize Medal awarded by the Jury.

A. Wercaxa, 148 lice Vielle du Temple, Paris, (210)
Prance, p. 1213. The blue procedul uses, mounted with
gill benus, representing Syran, and the clock representing
Agriculture, m. gill troute and irvey, exhibited by M.
Weygand, render him deserving of the Prize Nodal. The
work of these articles is generally in good laster necesticles the architecture of the polestal of reagreem on
a beautiful conduction of gold and twey, in our satisface
tory. The remainder of this collection contains some
proving garage tomore, whight the Jary regret it in our

within their province to notice.

A. CARON, Passage de l'Opéra, Paris (1133 France, p. 1232), gunsmith, exhibits pistols very richly silvered, gilt, and damascened. Tho Jury award M. Caron thu Prize Medal for this portiou of his collection.

Mocrina an Panel, II Bue Echelies, Paris. (1864) France, p. 1943. The days award a Prize Medal to M. Mouire I Page for a lunting-knife, the bill of which is commencted with a goomed representing an learning include enablescend with a finer in red enumel, accompanied by knife of pends and armed with pedales calles with silver points; the shield in surmounted by a steel before with a reli wranth and erest. This work is executed in peld of various colours, hidult to a great depth on a need core, and the colour of the pendicate or free effects were the fineless of the properties of precedence with the discovered and the period of precedence when the period of the period

P. Praklat, 41 Rue de la Ferme des Mathurius, Paris, (1681 France, p. 1257.) The arms exhibited, particularly the pistols, are embellished with gold damaseciating, and gilt relievo ornaments. The quality of his work entitles this exhibitor to a Prize Medal.

this exhibite to a Tirm Sodal Montinoreus, Paris (111). Prance, p. 1623), manufactures a variety of articles, units as fur parses, officeorrieles, boxes indial with ename, pocket-companion, recut-bottles, eight-cases, with representations, result-bottles, eight-cases, with representations, result-bottles, eight-cases, with representation of the control of the cont

d — Letaceners, 37 Ros Visione, Paris, (1308 France, p. 1239.) The Jury awards Frize Medal for the beautiful gold mounting of a entinc; for a double-serve plate for a gun, ornamented with dogs, inlaid and semptured in ogold, after models by M. Lechene; and for the fine galvanie riding of his weapen.

 Descontaines, of the house of Lenoy et Fils, Pulsis National, Paris. (1186 France, p. 1234.) M. Desfontaines exhibits a clock and a set of ornameuts for the chimneypiece, which present a novelty in the material employed for the sculptures. The bodies of the clock, and of candelabra vases which accompany it, are of dark-blue porcelain: all the ornameuts and fittings are executed in east-iron, polished and damascened in gold. The clock is organiented with a composition representing five knights struggling for the oriflamme, one of whom is nuhorsed a very animated scene, and executed with talent, caudelabra vases are surmounted by a figure of St. Michael in armour, holding in his hand a drawn sword; on the handles are two knights combating with dragous; and the feet are formed of three lions, with bats' wings: this work, taken as a whole, the effect of which is highly satisfactory, must have presented great difficulties of execution, which M. Desfortnines has surmounted in a happy mauner, while the indicions employment of the gold relieves the harsh colour of the cust-iron. The Jury award the Prize Medal. The Jury of Class XXIII, make HONOURAULE MENTION of the fullowing Exhibitors, their several claims to which are indicated after their names:

LISTER and Sons, Newcastle-upou-Tyne. (27, p. 676.)

Silver plate for ten and coffee-service: a brooch in blue connel with fleur-de-lis-Kilip and Soss, Newcastle-upon-Tyne. (3, p. 673.) Silver plate for table-service, and candelabra. M. McGanton, Perth. (46, p. 680.) A ram's head

richly ornamented.

RETTE and Sons, Aberdeen. (24, p. 675.) Bracelets of Aberdeen and Peterhead granites: Scotch icwellers. MARSHALL and Soss, Edinburgh. (23, p. 675.) Cup, chatelaine, and bracelets in agate. CARTWRIGHT and Illinois, Ihrmingham. (30, p. 676,)

Silver plate for the table. E. and J. Sevyora, 40 Gerrard Street, Soho, London

(72, p. 682.) Portraits upon enamel of the Queen and Prince Albert. HEXRYS and Co., 2 Budge Row, London, (131, p. 694.) Imitations of diamonds, pearls, and precious sto

E. Matthews, 46 Berwick Street, Soho, London. (95, 686,) The Royal Arms of England engraved upon mes on a luckground of tin, in impatition of coansel. E. Nasu, 30 Coppice Row, Clerkenwell, London. (86, (83.) Suuff-boxes in dark tortoiseskell, inlaid with

gold "de burges" and "pique. W. Morr, 36 Cheapside, London. (116, p. 693.) Pencileases and pea-holders in various styles,

J. MAYER, 68 Lord Street, Liverpool. (14, pp. 674-75.) Blue enamelled gold brooch in the form of a knot of ribboo; a necklace in gold, formed of a chain-work of scales, with medallion with three emeralds and two bril-

liants S. WERTHELMER, 35 Greek Street, Soho, Loudon. (Class XXVI., 177, pp. 746-47.) A bronze casket, gilt, pierced, and stamped: an inkstand ornamented with slabs of painted chins and with gilt mountings,

SMITH, NICHOLSON, and Co., Duke Street, Lincoln's Inu Fields, London. (119, p. 691.) Silver flower-stand. R. Attannonovan, 19 Piccadilly, London. (113, pp. 692-93.) A plain ten-set gilt in the inside: a set of soms and forks in the style called the Paxton pattern: bracelets in the form of a cross; one of them in brilliants upon gold and dark-blue enamel, the other in rubies upon

dramonds and tarquoise-blue enamel, W. Baran, 72 Argyle Street, Glasgow, (26, p. 676,) Rum's head righly mounted, the ornaments being silver

II Witkinson and Co. Sheffeld. (44, p. 680.) Large pieces of silver plate and table ornament Window on and Veale, 73 Strand, London. (100, p. 690.) Rings mounted with fice stones: a lundeau of

diamonds with an enerald in the centre: a green and red enamelled curb-chain necklace with pendants,
G. Asukll, 51 Compton-street, Clerkenwell, London.

(103, p. 69tt.) Vases in the Etrusean style, of various G. R. Collis, Church Street, Birmingham. (34, p. 677.) Large silver waiters; ten-service gift and burnished in

the maide and engraved on the sides : a large chocolatepot with outline ornaments. F. Allen, Birmingham. (Class XXII., 293, p. 627.) Vases of red glass surrounded by fligree-work: bouquet of the same description of workmanship.

11. Bess, 13 Great Newport Street, Leicester Square, London, (79, p. 682.) A shield in enamel, representing the healdie devices of the nations whose works are shown in the Exhibition. MARTIN, BASKETT, and MARTIN, Cheltenham. (2,

p. 673.) A chatelaine in gold and turquoise-bluc enamel: a watch of turquoise-blue enamel and brilliants, with a chaio of gold and enamel of the same colour. G. and S. WATERHOUSE, 25 Dause Street, Dublis, (20, p. 675.) Brooches made from materials of Irish

produce, and copied from the antiques of that country J, and F. Hiden, 37 Cheapside, London. (51, pp. 680-81.) The engraving armorial bearings apon stones, for private and official seals, C. Goodwin, (64, p. 681,) Bloodstone cup.

PHILLIPS BUOTNESS, 31 Cockspur Street, London, (87, p. 684.) Statuettes in oxidi-ed silver: pius and fancy jewellery in gold and cuamel.

Paris, November 1851.

G. W. Anans, Hosier Lane, London. (88, pp. 684-85.) Kuives, forks, and spoons, of the pattern called Tudor.

Massarx and Lizarano, 14 Kue de la Perle, Paris.

(332, p. 1193.) Stamped yellow copper for furniture deco-

(Awarded a Prize Medal by Jury of Class XXII.) F. LAURENT, 5 Rue Chapon, Paris. (564, p. 1205.)

Fittings for dressing-cases in waved silver. (Awarded a Prize Medal by Jury of Class XXIX.) L. ROUVENAT, 62 Rue Hauteville, Paris. (1460, p. 1245.) Patterns of sword-hilts and mountings.

A F. Pichand, 26 Rue des Blancs Manteaux, Paris, (1388 France, p. 1242.) Imitation of gold and precious stones: brooches, bracelets, and flowers, made in imitationdiamonds with cutmelled ribbon.

E. MAILLOT, 28 Rue Grenier Saint Lazare, Paris, (597 France, p. 1296.) Mountings for smelling-bottles, J. B. MARCHANT, 57 Rue Richelien, Paris, (607 France, p. 1207.) Changey-organients in gili and silvered bronze military figures. (Awarded a Prize Medul by Jury of

Class XXII.) B. Hotelier, 36 Rue de Cléry, Paris. (1628 France, p. 1255.) Damascene piatols inlaid with gold of various

J. H. Convillon, 36 Rue du Temple, Paris. (95 France p. 1166,) Scent-bottles for the toilette-table coated with copper by the electro process, and afterwards carved, enraved, and gilt.

DEMARDING-LIEUX, 4 Passage St. Avoye, Paris. (1588) France, p. 1253.) Statuettes, bus-reliefs, and medals, in stamped silver and broate. DETOCCHE and HOUDIN, 158 and 160 Ruc St. Martin,

Paris. (1389 France, p. 1253.) Mountings of a large clock in gilt bronze, in the style of Louis XVI. F. Kinstein, Strasbourg. (281 France, p. 1190.) Deer

in a forest, in reponse silver. JUNGER JACOB, widow of, Hanau. (409 Prussis, p. 1073.) Samples of enamels,

M. Goldschmidt and Son, Frankfort-on-the-Maine. (20, 5 Zolly., p. 1122.) Set of jewels in gold, green enamel, and brilliants.

B. Scharger, Darmstadt. (51, Grand Duchy of Hesse.) Jewellery in oxidised silver G. L. HOFFMANN, Duntrig. (440 Prussia, p. 1075.) Yellow amber necklaces,

L. HOLEAU, Lemgo, Principality of Lippe. Mountings. for meerschaum pipes, G. E. Jantzen, Stolp. (205 Prussia, p. 1059.) Neck-

lace, brooches, and articles for dressing-cases, in lemoncoloured amber. L. German and Co., Wieshaden. (13 Nassan, p. 1132.)
Brooches and lids for boxes, rarved in ivory, with subjects
of the chase. (Awarded a Prize Medal by Jury of Class

XXVIII.) WILLIAM BERGMANN, Warmbronn, near Hirschberg, lesia. (207 Prassia, p. 1059.) Brown rock-crystals ent. C. Wearn, Manuheim. (325 Prassia, p. 1069.) A ring

of Rhine pehble, S. MERCIER, Geneva. (96 Switzerland, p. 1273.) Funmelled watch-cases. (Awarded a Prize Medal in Class Xn.) J. F. BAUTTE and Co., Geneva. (236 Switzerland, 1281.) Paper-weight of cnamelled gold, with mecha-

ical singing-bird. J. PATTON, Chanxdefonds, Neuchhtel. (44 Switzerland, p. 1269.) Plate of gold engraved with inscriptions in

H. GROHMANN, Prague. (576 Austria, p. 1036.) Bohemian garnets set in buttons; buckles, necklaces, smell-

ing-bottles, and bracelets.

A. PORTELLI, Valletta, Malta. (23 Malta, p. 944.) Filigree-work. E. CRITIEN, Valletta, Malta. (24 Malta, pp. 944-45.) Filigree-work

S. Fatsox, Valletta, Malta. (25 Malta, p. 945.) Fili-R. G. MANEDE, Portugal, (1023 Portugal, pp. 1316-17.)

Set of amethysis in gold filigree-work, with earrings in the form of parasols placed one above another, A. DE FRANCA, Portugal, (1022A to 1022c Portugal, p. 1317. Souff-box of silver, waved and engraved,

D'ALBERT DE LUYNES, REPORTER.

CLASS XXIV.

REPORT ON GLASS.

(The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE, I

Jury.

Lord Dr. Master, F.R.S., Chairma and Ryserts, 21 St. Januari, Place, E. B. Battowe, M.J., Papper (Commerce, 2) which Park France, R. L. Chaves, Tolkas Works, Eliminigham, Gliss Manufacturer, L. C. Daves, Tiesel Sateri, Burraiser, St. Manufacturer, L. C. Daves, Tiesel Sateri, Burraiser, err. Member of Chamber of Commerce at Charleroit, Rouare Onstain, 2 Civerent, Blackfriary, Merchant Rouare Onstain, 2 Civerent, Blackfriary, Merchant Dr. Schurler, Zoffverein; Mining Councillor.

Associates,

GEO, BONTEMPS, at Messes, Change and Co.'s, Birmingham; Glass Manufacturer. Sir Davin Baussten, Principal of the University, St. Andrews. Justo in Class X. JOSEPH CRATER, 23 St. Dunstain's Hill, Tower Street; Window Glass Dealer. ALPHED B. DANIELL, 18 Wigmore Street; First Glass Desler. W. Montlock, 18 Regent Street; Flint Glass Dealer. PHILIP PALMER, IN St. Martin's Leav; Window Glass Bealer, JAMES Powers, In Temple Street, Whitefrines; Filmt Glass Manufacturer. ANDREW Rose, 2 Featherstage Bulblings, Holborn; Optician. ASDAM MOSS, 2 COMERCIAGE DESIRING, HOUSENING OF HEAD AND ASSAULT OF THE METERS OF THE

* Professor Jears Changeon, Proxy for M. Frison.

THE limits to which the Reports of the Juries must necessarily be confined will admit of a very brief and eursory sketch only of the rise and progress of this manufacture

Its origin is uncertain, and has been ascribed by some of the writers of antiquity to accident. Josephus claims the discovery for the Israelites; Pliny assigns it to the Phonicians, and states that the first glass-loones were erected in Tyre, where the only staple of the manufac-ture existed for many ages. Herodotus and Theophrastus likewise confirm the fact of the use of glass hewing becu known in the earliest periods of civilization, and of the establishment of works for its fabrication in Egypt and Phoeniein, and even in India, where rock crystal was em ployed in its composition. It is mentioned in the book of Job, "Hast thou with him spread out the sky, which is strong, and as a molten looking-glass?" But possibly this expression may have been intended, in the original Hebrew, to refer to the metallic speculum. The Egyptian philosophers had made chemistry their

study, and attained to a very high degree of profesency in that science. They involved it in the same mystery as they did their religious rites, and elainsed for it from the people the same respect as for an institution of divine origin; and it is not surprising that they should have discovered in the prosecution of their researches, the simple process of vitrification, resulting from the action of intense heat upon siliceous particles, enphined with alkaline salts; and that they should at once have perceived the facility of working the malleable substance thus produced, which possessed the quality of becoming hard and transparent as it gradually cooled This fact once established, their artistic skill, with the

aid of science, could not fail of edvancing another step, and of availing itself of the means of conveying form and colour to the shape, and of dealing with it for purposes of ormment and utility; as we see exhibited in the few beautiful remnants which have been brought to light in the exeavations of modern times, The process of manufacture, detailed by Pliny in the

curious and interesting chapter of his "Natural History. (lih, 36, cap. 25,) oppears to have been very much the same as that practiced at the present time: and Sir same as that preserved as one proceed tomes awarent Gardner Wilkinson (vol. iii, page 99), gives the repre-sentation of two gluo-blowers inflating a piece of molten metal, by means of hellow tubes; taking from a painting of Beni Hossan, executed during the reign of that monerels, who lived about 3,500 years ago, and adds, "That merca, who rived about 3,340 years ago, and adds, "That glass vases, if we may trust in the representations in the Theban paintings, are frequently shown to have been used for holding wine, as early as the Exodus, about 1,490 years before the Christian era." The remains of Alexander the Great are said by Suctionis and Sarabo to have been delivered to Augustus, when he was in Egypt, in a glass case, in which Sciencus had deposited them after removing them from a golden urn. This substance is supposed to linve been pard by

Archimedes for scientific purposes, and an urb of glass is mentioned, as having been constructed by him, which gave rise to the epigram put into the mouth of Jupiter by Claudian-

Jupiter in parvo enm cerneret athera vitro, Rish, et ad superos talia dicta dedit. Hucelne mortalis progressa potentia curse; Jam meus la fragili luditur orbe labor! Jara peli, rerumque fidem, legesque virorum, Ecce Syracusius transtulit arte Senex l

There is in the British Muscem a perfect and beautiful goldet, excavated by Captain Layard from among the ruius of Nineveh. It has a name (probably that of the contemporary sovereign, or of the maker) engraved upon it; and from the characters employed, and the locality in which it was found, it is believed to be of a date not less recent than seven centuries before the Christian era, and is probably the most ansient piece of maenfactured glass in existence. The Barberina, commonly known as the Portland Vase, likewise in the British Museum, and broken u few years ago by a fool, or a madman, shows the perfection to which the art was carried at a some what later period,

The commercial intercourse of the Phomicians and Egyptians with the islands of the Mediterraneau, and with Etruris, extended to them, and even to more reregions, the use of this material. But it was not till the reduction of Egypt imparted to the Romans a more intimate knowledge of the arts practised in the conquered country, that the use of glass became general in Italy,

and formed a very important article of commerce.

In the reign of Tiberius, works for the manufacture of glass were first established in the neighbourhood of Rome, and many instances are given by the writers of the day of the estimation in which it was held, and of the enormous sums occasionally paid for vases, or goblets of that substance, which were preferred by many to those made of the precious neetals. It was employed by them not merely as an article of luxury in their feasts, or as an ornament in their palaces; but it served to decorate their altars, and for a pions offering in the tombs of the dead. Many fragments have been found in the catacombs, showing it to have been used likewise by the early Christians

in their places of worship.

How far glass entered into the common purposes of donestic economy does not clearly appear; but it has been described as having been employed in the construction of hollow columns in the theatres, in which lamps were placed for the purpose of illumination; it was likewise used for incrustmion of the walls of apartments, instead of marble; and to this use the expression "vitrese enmere," some commentators have considered that ex-pression as referring to windows. But there is no positive authority for the use of glazed windows earlier than the close of the third century, when they are alluded to by Lactuatius, who compares the researches of the mind with the operations of the eye, regarding external objects "per fenestras lucenti vitro, aut lapide speculari ob-ductas." St. Jerome ulso mentious windows, formed of meited glass, cast into plates (a.p. 422).

A sheet of glass is said to have been found a few years ago in a window-frame at Pompeli, but the fact does not appear to be very well authenticated, and at all events it can only be one of very rare occurrence. After the removal of the seat of empire to Hyzantium, the arts suffered amidst the disturbances and confusion which prevailed in Italy during the decline of the Western Empire. Constantine had assembled around him all that could tend to the cultivation of art, and the embellishme only that to the constraint of any and the cabinets of our days some few specimens, showing the perfection to which the manufacture of glass was carried in his time, and that of his immediate successors,

Venice, according to her early writers, had been in ssession of the art of glass-making almost as early as the foundation of the city itself; but the capture of Coustantinople (1204), in which she took so great a part, and the extension of commerce which this event afforded her, induced her wealthy merchants to avail themselves of their jucreased relations with the East for the improve-

ment of their domestic manufactures As early as the beginning of the 13th century, glass had been a subject of special attention to the Venetian government, and was regarded by them with so much care, as to have been, according to Carlo Marino, " in ogni tempo considerata dal governo, qual pupilla degli occhi suoi." The trade and manufacture of this article increased so rapidly as to require a large number of additional buildings for currying it on, and great measuress was excited among the inhabitants, lest fire might accidentally occur among them. In 1291 they were in con-sequence removed from the city, and the island of Murano was assigned by the government for their reception Considerable privileges were, at different times, accorded to the merchants of Murano, with the view of adding importance to their operations. A separate jurisdiction, independent of all the authorities of Venice, excepting the supreme council, was granted to them; and a libro d'ore, in which the most eminent members of their guild, or fraternity, were registered, placed them io a position equivalent to that of the nobles in a monarchical state, But, on the other hand, they were subject to very

stringent regulations. They were prohibited, under severe penalties, extending to their families, and even to their relations, and involving the loss of life and property, from conveying to any foreign country the secrets of the manufacture, or the materials employed; or even from affording their own individual services, by which the competition of foreigners with the trade of Venice might be promoted. An immense trade in beads, initiations of pearls and of precious stones, was carried on with the coasts of Asia and of Africa, and extended to India and to Chian; and continues by means of the commercial intercourse of England with these countries to the prescut

The revival of art in Italy had a beneficial effect on the manufactures of Venice, and improved the design and the colours of her produce. Her mirrors, her tableglass of variegated colours and spiral stems, her bottles and cups, obtained a very high reputation, and became the source from which the wants of Europe, Africa, and

Asia continued for a time to be supplied,

But, in the 15th and 16th centuries, events occurred which greatly affected the prosperity of Venice. The Hope, and the discovery of America, changed the whole system of European commerce, and threw open to Poringal and to other States the advantages which Venice had almost exclusively enjoyed. England and Holland had forced their way into the Levant trade, up to that period monopolised by the Venetians and Geneese. The policy of Solimus, who, after the capture of Constantinople (1453), endeavoured to turn the commerce of the East into channels which he could control, or from which he could derive advantage; and the loss of Candin and of Cyprus, operated still further to the disadvantage of Venice. The mystery in which she involved all her transactions, and the severity of her fiscal arrangements, by which she endenvoired to preserve her monopoly, impeded her own progress, whilst her exclusive system excited a spirit of competition among her neighbours, which rendered them successful rivals; and her own commerce and manufactures, assailed and undermined in so many different quarters, were rapidly giving way. Her trade in glass suffered with the rest; and Bohemia

Germmuy, France, the Netherlands, and England, derived advantage by the dissolution of the Venetian monopoly, by the improvement of their established manufactures, or by the introduction of a new process into their respective States; where, to this day, the works of the artists of Venice are still adopted as models of great beouty and skill, inferior only to the still more perfect productions

of ancient Greece and Rome.

Bohemia was the first to emancipate herself from a state of commercial dependence upon Venice, and to resort to her own resources for her supply. Her forests afforded fuel and potash in abundance; silex and lime of excellent quality were to be found in the immediate neighbourhood of her existing works, and probably led, in the first instance, to the introduction of an improved system into that country; giving the manufacture an im-pulse which, combined with skilful manipulation, caused it to make rapid progress in the peculiar qualities requisite

The Bohemian proprietors having no other means of obtaining a return for those resources, which abounded on their estates, were induced to support the manufacture by their own exertions, and even to embark in the trade themselves. They have thus been embled to bring into the market a beautiful article of commerce, and to compete successfully with countries possessing larger capitals, but where a higher price is paid for labour, and where many of the substances used in the manufacture require to be imported. The Venetian origin of their craft shows itself to this day in the reticulated pattern, the Eastern forms, the taper stem, and the variety of colours. Their colours, and engraving, and imitations of precious stones are likewise very beautiful; but at the best they are but an imitation of Venetian art,

Bohemian glass is a silicute of potash and lime, and has no lead in it. The manufacturers of that country make use of the same materials in the construction of the with this exception, however, that for the last 25 years they have been using sulphate of soda, instead of potash, for osaking commun window-glass. The same combina-tion of materials prevails generally throughout Germany. The manufacture of glass had probably been introduced into France at the same date us into Germany, and had been practised for common purposes from the earliest been practised for common purposes from the contract centuries of our era. Both countries derived their know-ledge of it from the Romans; or probably from their commercial intercourse with the East, improved by the Romans, and still farther advanced in quality and artistic ornamentation, adopted from the Venetians. But it was not till a later period that France sought to increase the supply of her own demands, by paying greater attention

metal, whether employed for window-glass or mirrors;

to her manufactures at home.

As early as the fourteenth century, her government, with the view of inducing persons of education and capital to enter into the business, had declared that occupation to be in nowise incompatible with the dignity of the aristocracy, and decreed that none hat gentlemen should venture to engage in any of its branches; and, as late as the latter part of the seventeenth century, the glass-blower might be seen laying aside his cocked hat, ress-coat, and sword, to prepare for the performance of his daily work. Other important privileges were granted to the manufacturers, and confirmed by a Royal Charter of Incorporation. But as education and capital became more generally diffused, those exclusive privileges were found to be injurious to the prosecution of trade, and have from time to time been modified; they still, however, remain in sufficient force to have an injurious effect upon the operations of the manufacturer and the merchant, and the convenience of the public. Privileges of this nature were no slouht intended for the promotion of trade, by holding out advantages to individuals disposed to apply their capital and industry in the pursuit. But the import duties, which afforded protection to the speculator, were likewise resorted to by the government, in order to assist the revenues of their States; and whether a sort of patent right were conceded to the speculators, or import duties were imposed for the purpose of checking foreign competition, the result was the same, --iojary to the manufac-turer, and inconvenience to the public. The fiscal regulations affecting glass to the reigns of James and Charles were of this character; and the excise and customs' duties in England, imposed at a later period, proved still more objectionable.

The first tax on glass was imposed 6 and 7 William and Mary, subjecting all glass wares manufactured to England. or imported from fareign ports, to a duty therein prescribed. It was shortly afterwards reduced to one-half; and in 10 and 11 William III. "it was totally repealed, being found to be regations, and troublesome in the levying and collecting, and of small advantage to the Crowo, and, if continued, it would lessen the duty on coals emplayed in the manufacture, throw great numbers of poor out of work, and endanger the loss of a manufacture so beneficial to the kingdom."—Parliamentary Reports, 1835. In the latter part of the reign of George 11, an attempt was made to renew the tax in a somewhat different form, but it was again found occessary to modify it. Several Acts were passed in the reign of George III., which not only added very coosiderably to the duties weighing upon the home manufacture, but likewise established regulations relating to the process of fabrication, the thickness and weight of the articles manufactured, and the powers and duties of the officers employed, which, in addition to the pressure of the tax, were particularly disadvantageous in a business "which necessarily depends for its success on the application of scientific prisciples to the various combinations of the materials, which are used, either as fluxes, or to form the basis of the product; and especially to the due regulation of heat, both as to its intensity and to the due regulation of near, oon as to its intensity and duration." A uniform system of regulation, prescribed by Act of Parliament, and executed by officers, who, how-ever well meaning, were generally ignorant of the details of the business, could not fail of being vexatious, and of operating to the detriment of the manufacturer.

The 6 George IV, extended the duty to Ireland, the

immediate consequence of which was a great and general depression of the trade. The primary intention of the excise laws was to secure the due payment of the tax, and to establish checks both on the nanufacturer and ou the officers employed in levying the tax; but they likewise assisted one branch of the manufacture at the expense of another. For instance, a severe restriction was inposed on the bottle and crows-glass trade; the object of which restriction was to promote the use of fliot-glass, which is prepared from much more costly materials, and was charged with a rate of duty jouch higher than that on bottle glass. The repeal of the excise laws removed the restriction, and was consequently more advaotagrous to the manufacturer of bottle and crown glass, than to the persons engaged in the manufacture of flint; as the former were thereby enabled to supply a much chesper article than flint glass, for all those purposes in England to which this material is adapted, as is the case in three countries where excise regulations do not exist. gobletterie on the Continent (including phials and small glasses) is usually made of crown-glass, and is much cheaper than in England, where the pressure of the tax impeded the manufacture; so much so, that in many instances in England bottle and crowo glass were manufactured of such good quality, as to lead to the strong suspicion that their improvement must have been effected by the use of materials not authorized by law, and couseently not consistent with the protection afforded by But there were other that law to the flint-glass trade. provisions of the statute equally injurious, and which led o evasions in the highest degree disadvantageous to the legal trader, as well as to the revenue. The most considerable advance is duty took place in

1812, and the immediate effect on consumption was as follows:-The annual average quantity of glass of all kinds, made far home use during the three years enling in 1812, was 413,414 cwt.; the average of the three following years cading in 1815, was 264,931 cwt., showing a decrease of about 35 per cent, in the quantity nude. In the quantities retained for home use in 1793, when taxation was comparatively low, and in 1829, there was a decrease of 9,626 cwt., notwithstanding the great in-erease of population, and the advance of civilization made

during the interval by all classes.

So much has been written on the anhiest of glass, that it would be merely a repetitino of the able and interesting information given in the different Encyclopedias, and in the many treatises on the history and manufacture of glass, if io our Report we attempted to do more than briefly allude to the details of the ounufactore. But it is important to bear in soind that the basis of all glass, at all times and in all couetries, is the same-silex and alkali, two apparently opaque bodies, which by their fusion pro duce a transparent result.* The alkali acts as a flux, and facilitates the vitrification of the earthy particles, which separately are unvitrifiable; and gives to them a pliability, wheo hot, which admits of their being blowo, wrought, extended, and even hammered. It is remarkable that the glass found by Mr. Layard at Nineveh, now in the British Museum, bears the marks of having been turned, a process seldom attempted by the modern artists, though the applientino of the grinding tool, fixed on a lathe, approaches

to the practice.

To the silex and alkali other substances are added, for the purpose of facilitating the flux and of purifying that metal, and imparting to it some peculiar quality or colour. Metallic oxides are employed for this purpose. The oxide of lead, in the form of ninium, is principally used in flintglass, and increases its brilliancy, the purity of its colonr, and the power of its refraction. Manganese, formerly koowo as glass-makers' soap, is also in general use for the purpose of clearing the glass of all colouring matter. Its effect may probably be ascribed to the facility with which it gives up its oxyges, which combines with the colouring priociples and destroys them. But very great care must

^{*} Where sand is used, it is found, on examination with u microscope, to comist chiefly of small rough, rock crystals, which, by the action of alkali and fire, are aggregated and

be taken lest the remedy, applied for the removal of one I ain principles dependent upon science, according to which description of defect, should give rise to others of an opposite character. The presence of too much alkali attracts humidity, and (to use the glass-makers' phrase) disposes it to sweat. It also dispuishes the refractive power of the glass, and when used in the state of nadecomposed sulphate of soda, or potash, renders it opalescent. Lend in excess will produce equally lud effects: it will soften the substance of the glass, affect its clearness, and, in course of time, render the surface liable to be altered and decomposed. The importance of lead in this manufacture, whether in the form of lithage or of mininm, which is obtained by oxidizing litharge, is so well understood in England, that very great attention is paid to its preparation, as well as to the quality of the is one cause of the excellence of British flint-class.

Bonx, white arsenie, and nitre, are also useful, and powerful agents when well applied; but danger may arise from the employment of arsenie in vessels intended for domestic use. Borax, or borate of soda, is too expensive to adoit of its being employed for common purposes. It is, therefore, far from being generally adopted, and is applied rarely even to objects of great importance. was formerly imported from India, being a product of Thibet, but in a very impure condition; and a better sort in the form of borneic acid is now supplied from the works which M. de Larderel has established at Monte Cerboli, near Volterra, in the Tuscan Marconne. ascertained the presence of large quantities of boracie acid in the district, he ubtained a grant of land for a term of years from the Grand Duke, and immediately commenced operations. He began by diverting a stream to the spot where the borneic acid was found to abound; and after the water had become impregnated with the acid, it was allowed to fluw on through pipes to large pans, for the porpose of evaporation. Vulcanic heat likewise prevails in the same district, and in order to avoid the expense of fuel, which M. Larderel found extremely high when he first undertook the works, he has availed himself of this volcanic agency, and conveyed the heat in tubes, so as to make it pass onder the pans, by which means the evaporating process is effected, and the borneie acid remains in the rans.

Notwithstanding the facility afforded by this natural agent, the manufacturers complain of the high price of agent, the manufactures company of the fight price of this substance, about 54. less the metrical quintal (205 English lbs.). The price is said to be regulated by a contract, made with some merchant at Leghorn; but it has the effect of excluding the material from the manufacture of glass for dumestic purposes; and it is likewise to be observed that the Tuscan boracie acid, even at this price. contains nearly one-half its weight of water of ervstailization; so that the glass manufactorer has to pay at the present day nearly is, per pound fur the material in its available form as a flox. There are, also, other objections to its employment; for it is so extremely pungent that, unless applied with great caution, it corrodes the nots, introduces alumine into the fased metal, or passes away

through the pores of the vessel. It is said that this material has been found in abundance on the western coast of America, in combination with lime, as borate of lime; which, if correct, will be of essential service in many branches of manufacture. It is described, for the first time, by the American mineralodescribed, for one first time, by the American insugran-gist, Hayes, and has been called Hayesine, from its dis-coverer. It is met with in the Peruvian province of Tampara, not far from the port of Iquique, in the same locality where the nitrate of soda, now so extensively exported to England, has been found. The borate of lime contains nearly 45 per cent, of boracie acid, combined with 19 per cent, of hime, and 35 per cent, of water, substances which cannot deteriorate its quality as n flux whilst its moderate price, white colour, and absence of any metallic oxide, render it well suited to the use of the glass emeible

The first chemists in England, France, and Germany have directed their attention to the fabrication of glass. Experiments have been tried by practical working men. with great liberality and intelligence; but there are cer-

all operations connected with the art must be directed. It is to the accuracy and judgment exercised in adhering to these principles, in providing for the selection and application of the component substances, in determining their proportions, and secoring their purity and quality, in the working of the metal, the construction of the furnaces and the pots, in the management of the fires, and the annealing process, that we must look for the production of a good composition, and for improvement in the art of glass-making.

The silex mostly used in England is sea-and, consisting chiefly of quartz. The finest qualities are obtained from Alum Bay, in the Isle of Wight, and from near Lynn, on the coast of Nurfolk, Black flint, when raised to a red heat, and plunged in cold water, is frequently used, and probably gave the name to the species of glass, flint-glass,

or crystal, to which it is most commonly applied.

The alkali used in this manofactore is either seda or stash, which is preferred for the finest works in the con dition of the carbonate, and is then called carbonate of potash, or pearl-ash, from which the carbonic acid is ex-Soda is used as dry carbonate of soda, when a more than ordinary degree of whiteness is required, as in plate-glass. It is also used in this state in coloured glass. In window-glass crown and sheet) soda is more generally used as a sul-

phate of sods. Colour is imported to glass by the application of the metallic exides, and when it pervades the whole mass is termed pot-metal, as distinguished from that to which the

colour is applied in the form of enamel.—(See Coloured Glass.)

Cobalt produces hine. Manganese produces violet, Antimova produces vellow

Procipitate of cassius, or gold, produces pink, Uranium produces opalitie-greenish coloor.

Chromium produces green. Copper produces ruby, or greenish blue, according to its degree of oxidation

Copper with iron produces ruby, or green, according to the degree of oxidation of the copper, Silver produces a pure and beautifol yellow, but only hy staining the surface at the fire of a muffle.

These colours, however, will be modified, or even completely altered, by different combinations of the metals, the degree of their oxidation, the greater or less degree of heat employed, the addition of vegetable earbonneous matter, and other circumstances.

The manufactore of glass has been chased by the Commissioners nader the following heads:-

- A. Window-glass, including-
 - 1. Crown-glass.
 - 2. Sheet. 3. Brown plate, silvered or unsilvered.
- 4. Colonred sheet, pot-metal, or flashed. B. Painted and other kinds of ornamental windowglass
 - C. Cast plate-glass. Rough plate. Pressed plate. Rolled plate. D. Bottle-glass, including -Ordinary bottles, Moulded bottles. Medicinal bottles Water-pipes and tubing.
- E. Glass for chemical and philosophical purposes. Natrass-retorts, &c., &c. Water-pipes and tuhing.
- P. Flint-glass, or crystal, with or without lead; white, colonred, ornamented, for table-vases, &c., &c .-
 - 1. Blown. 2. Nonided and pressed,
 - 3. Cut and engraved.
 - 4. Reticulated and spun with a variety of colours incrusted, flashed, enamelled of all colours,

opalescent, imitation of alabaster, gilt, platinised, silvered.

- 5. Glass mosaic, millefiori, Aventurine and Venetian glass weights.
- Bends, imitation of pearls, &c.
 Canadeliers, candlesticks, apparatus for lamps.
 Optical glass, fliut and crown,
 Hough discs of flut and crown, to make lenses
 - Rough discs of fliut and erown, to make lenses for telescopes, microscopes, daguerreotype and
 - enlotype apparatus, &c.

 2. Flint and erown, blown, or east in plates for the optician.
 - Thin glass for microscopes,
 Refractive apparatus, prismatic lenses for light-houses,—(See also Class J.)

houses,—(See also Class J.) Section A.—Window Glass, &c.

It has been observed before, that some degree of ancertainty pecusits respecting the period when this description of glass came into general use. It was a firstregarded as an article of incurry used splendour, and representations of the state of the state of the state France about the sixth century. Fortunatus of Politers, who was contemporary with Gregory of Tours, mentions it in his Latin poeus, as doing known to the hishops of his day, by whose care the Curriers had been this sup-

his day, by whose care the channels had leven um suphardering in blead printfers shilled in making glass were invited into England by Albot Beschet, in the Warmansh and Yarma were glassed and aborted by his care. Wilfelf, Hologo of Westerler, about the same time, Warmansh and Yarma were glassed and gard and animalization as exceeded, and supermateral agency suspected, which excluded the intenency of the worther. York Cathedra's why glassed shourt the same times; and in the graymous the control of replication of the property of graymous the experience of replication of replication of the graymous the experience of replication classes.

rally employed in the windows. If appears to have been used last every againstyly in flasquares to have been used in the very againstyly in cause in the gradually adopted in the revisioness of the windows which are hard to be included for increasing content of the windows and the last of the windows desired by the the desired has the hard for a dark high value day, during the should be attended with number content of the windows of windows that its Scottand, even in 16th, the windows of ordinary because were not fashed, and myly three of the pickupil being supplied with dustrees, we admit light and just a factor of the windows of the windows of the windows of the windows of the pickupil being supplied with dustrees, we admit light and just a Tare to a contract of the windows of the windows of the windows of the pickupil being supplied with dustrees, we admit light and just a Tare to a contract of the windows of the windows of the windows of the windows of the pickupil with the windows of the windows of windows. The windows of windows in the windows of windows with the windows with

dates from the sixteenth century, greatly facilitated the manufacture.

There are two methods of making this description of

glass:--

By the cylindrical process (sheet-glass).
 By the effect of centrifugal force (crown-glass).

In the first, as soon as the fund metal is in a condition for working, a sufficient quantity is collected at the extreor of the control of the control of the control of the below at the same time, dil it scapitres the form of a labtor place of the control of the control of the theoretic of the control of the control of the theoretic of the control of the control of the theoretic of the control with a function of the control of the with a function of the control of the control of the control with a function of the control of the control of the control with a function of the control
By the second operation, the glass collected at the end

of the tube is made to assume the form of a flusk, or rounded lump; and then, by a rapid rotary motion, the centrifugal force causes it to acquire the shape of a large circular alacet, about 50 laches in diameter. The thickness of this glass is nearly equal throughout, except at the knot or bullion, formed at the centre, where the rod

or tube was attached to the metal.

The cylindrical process is the ooly one referred to by
the monk Theophilus, as being la use in his time, whose
wark, entitled "Diversorum Artium Scedula," was written
about the ead of the twifth or early in the thirteenth

This mothed was principally engloyed by the Vereitars, and was found to prose the advantage of inserting unimal was found to prose the advantage of inserting uniquest produced to the control of the control of the congressive equality of their thickness. But as the domain for colored glass of their thickness. But as the domain of the control of Germany, by that make on the eventy price for most of the control of the control of the control of the north of Germany, by the make on the eventy price was converted to a price of the control of

This state of the manufacture continued till the beginn ing of the eighteent contray, when a Proche officer, time of the eighteent contray, when a Proche officer, Proce. W. Dobestura formed a compare for this purface. W. Dobestura formed a compare for this purparation, and the state of the process of the proches. In the process of the process of the process of the number of the process of the process of the protain and hose, in 1720. They carried on their works with no much success, the being small to involve the Lind, to make success, the being small to involve the Lind, to make a success, the being small to involve the Lind to make the process of the process of the protain of the process of the process of the protain of the process of the prompts, the protain of the process of the propagation of the process of the dead principle, in the Lyopania, in the north of Praces,

in Belgium, and latterly in England, The first workmen, bronght over from Bohemin, had been induced in leave their country by the offer of high wages, and fearing a diminution of the advantages which they sujoyed, in the event of competition, they entered into a combination for confining the business exclusively to their own families. They constantly refused to allow strangers to be taken into the establishment in which they worked, or even to give them instruction; and if a maste attempted to break through this regulation, the whole establishment would throw up their engagements, and leave him unprovided with workmen competent to curry on the business. They thus transmitted their occupation from father to sou; and the names of Schmidt, Zeller, Theber, Walker, Stenger, Huy, Mayer, &c., employed in the manufactories of France, even at the present day, testify their German origin. A similar practice prevailed to a certain degree in England, where the stlass-maker's trade is likewise a very exclusive one; and the benefit societies, of which the workmen frequently are members. reader it exceedingly difficult for the masters, even if willing, to depart from ancient practice, and attempt amendments, which are looked upon by the workinen as prejudicial innovations. Another evil of a very serious nature has also arisen from this system of exclusion, which has been more particularly felt since the alteration of the excise and customs' duties. This measure, and the consequent reduction in the price of glass, have caused a great increase in the demand; and the supply of workmen in this country, properly educated and trained for the nice and difficult process required of them, is so limited, that the manufacturers have found themselves unable to execute the orders, from want of hands connectent to enrry them into execution. Consequently, they have been obliged to resort to the Continent, and to bring over workmen to assist in the works, which can only be accom-

plished by means of increased expense in wages. The great advantage of sheet-glass, obtained by the eviludrical process, is that of affording plates of larger dimensions, and of avoiding the waste arising from the circular form of the crown tables, and from the knob, nr half-seye, in the middle, where the metal was attached to the tube. But the surface is much less brilliant than that of erown-glass, and is more wavy and undulated. The manufactories of glass in plates, in France, Idejum

The manufactories of guass in panels, in France, Jesgellin, and the north of Holland, where the six let of building required panes of large size, were in consequence gradially abundoused, and towards the close of the last cuntary, a unanufactory of that description near Abbaville, in Normandy, one in Hanover, and two others: near Aschaffenburgh and Bamberg, were the last in which this process in the construction of window-glass was used.

Crown-Glass.

In England, on the contrary, the manufecture of glass on tables, under the name of crowing place, had attained to so great perfection in the quality of the metal, vortunal-properties of the properties of the pr

plass to the purposes to which the latter was applied in this country.

This served to projudice the public against all gloss made upon the cylindrical principle; and it was not mult the year 1832 that the manufacture of cylinder or sheep glass was introduced into this country upon the principle.

generally adopted upon the Continent.

It was then introduced by Messrs. Chance and Hartley. of Smethwick, near Hirmingham, whose attention was specially called to the advantages attending this mode of manufacture by a visit paid in the year 1830 to the manufactory of M. Bontenns, of Choisy-le-Roi, near Paris. They were struck with the saving effected by the roctangular shape of the sheets of glass obtained by this process, and especially by the absence of the bull's-eye or knot in the centre, which rendered it impracticable to obtain, out of the tables of crown-glass, pages of greater superficial measurement than about one-third of that of the tables themselves; whereas, in sheet-glass, the panes could be obtained of the full size of the sheets blown, and the only limit to their dimensions was the strength of the workman; much greater facility being, moreover, afforded for accommodating the dimensions of the sheets to those of the frames required. Considering these advantages more than sufficient to counterbalance the disadvantage nuder which sheet-glass laboured in respect of evenness mid brilliancy of surface, and taking into account the facility afforded by this process of manufacture for making glass shades (for covering clocks and other ornaments) which had hitherto been almost entirely imported from the Continent, and having secured the valuable co-operation of M. Boutemps, these gentlemen determined to commence the manufacture of sheet-glass, and started their first furnece in the autumn of 1832. They had, however, many difficulties to contend with, which it required all their energy and practical and commercial experience to overcome. The partnership was dissolved in 1836, and the following year Mr. Hartley established a manufactory for erown-glass at Sunderland. Not the least of these difficulties was the excise duty upon windowglass, which was at that time very heavy (amounting to nt least 300 per cent, upon the cost of the glass itself), and being levied upon all the glass manufactured, whether ood or bad, much enhanced the cost of experiments; and good or bad, much enhanced the cost of cap-had it not fortunately happened that some advantage was allowed, in the shape of drawback, upon that portion of the glass which was exported, this obstacle might have

proved insurmountable.

The waviness of the surface of this glass proved, as
war anticipated, a great obstacle to its introduction for
general glazing purposes, excepting in such cases us those
their products is shighly appreciated.

in which surface was of no moment, and strength the chief quality requiries; and it was not multi the year chief quality requiries; and it was not multi the year in the control of the co

The manufacture of broad or spread-glass was continued for many years after the introduction of sheet-glass, with which it was able to compete, in consequence of a difference in the rate of excise duty which was levied upon it; but this difference having been done may with in the year 1843, and the duty capatized with that most absentor in the contract of the of its inferior quality; and the manufacture was slarify after a bindows.

It was not so with the manufacture of glass shades, which, as le-fore mentioned, was introduced at the same time, and by the same firm, as that af sheet-glass, and which has keep larse with It, and increased to a very great extent; and it has likewise undergone much improvement in the quality. The shapes have been shaped to the taste of size than were ever made on the Continent, to the almost entire exclusion of those of foreign manufacture, with

which his nurker was supplied until the year 1832. In the year bits, new variety of animorpius was not help politic which they chained from thereights by a new year of printing and polsibility. Many attempts had proved or granting and polsibility. Many attempts had not attain his object; and small please for intering parties of the process and long hear months traver in France and Germany the process of grinding, historic nodpred in these continues, which made it were consequent man, and of the explainment of the process of grinding, historic nodpred in these continues, which made it were covered an interior of reference to the process of the process of grinding, historic nodpred in these continues, which made it were covered to make not the explainment of the process of grinding, historic nodpred in these continues and the process of grinding, historic nodpred in these continues and the process of grinding, historic nodpred in the continues and the process of grinding, historic nodpred in the continues and the process of the process of process of grinding, historic nodpred in the continues and the process of the continues of the process of th

This improved process has, within the last few years, been introduced into France by Messrs, Patoux and Co., of Aniche; and has been successfully established, though upon a comparatively limited scale.

If the temperature, america exact, one plane, which was decired from view, has never been dependent from, nor replaced by the new for and plane. They are not, however, or replaced by the new for and plane. They are not, however, on the control of
SECTION B.

Painted and other kinds of ornamented window-glass have been assigned to this Section, but will be reported on elsewhere.

SECTION C .- Cast Plate, Rough Plate, Pressed Plate, Rolled, &c.

Notwithstanding the encouragement afforded to the manufactures of glass of these descriptions in France, their progress does not seem to have been very rapid, until the ministry of Calbert, when some French artists who had been employed at Murano, and become thoroughly cognizant of the method of making blown plate-glass adopted in the Venerian manufactories, conceived the project of introducing the art into their own country.

They were taken up and warmly supported by Colbert during his ministry, and established works at Tourfavilier, near Cherbourg, its 1688, in a situation resembling that of Murano, as nearly as possible, which they imagined to be calculated to promote the success of the enterprise.

We over to Alarham Theorat, a verhige muinfesterre, the process of existing the metal, flood in the glass pots, of the anadicture, he at one provided the advantage of the anadicture, he at one provided the advantage to be deried flow it is producing glasses of these flumtions are provided to the property of the advantage to the provinces and chaining a pixet, validation that the government, and chaining a pixet, validation that the government and chaining a pixet, validation that we are the property of the provided that the provinces and the second of the provinces of the provided that the provinces and his noociates had to entate with much opposite and his noociates had to entate with much opposite and his noociates had to entate with much opposite and to the provinces of the results of difference by untiling under a common charge of incorporation. This company were reduced to the greated fairness, when a new anomalium was formed, under the management of new anomalium was formed, under the management of the application of the provided flowers, when a new anomalium was formed, under the management of magnification was formed, under the management of the magnification was formed, under the management of the magnification was formed, under the management of the provided of the provided flowers of the management of magnification was formed, under the management of the provided of the provided flowers of the provided of the provided provided to the

The company of St. Querin, which had been the flat to make sheel-plane on the eyindirect phencipal in France, was not backward in adopting the great improvement in the process of cauting with their other works. Their lease from the monks of St. Querin explored in 15th, but can be such as the state of might arise from the competition of a rival company at tableshment at Circy, in the eighborhood of St. Querin, which, after the lapse of the term, merged in their more rever establishment at Circy.

The two great manufactories of St, Gohain and Circy, for a time, continued in opposition to one another; but a new enterprise entering the lists against them, the two long-established companies, without actually forming a partnership, cutered into an agreement for their mutual advantage, and used a common depic for the sale of their produce, and for regulating the price in the different markets.

Another company established works at Nonthqua host three years ago, and has sent some of their glast shout the Exhibition. Their recent establishment does not afford them a large stock from which to select the best produce, that the difficulties of a commencement, there is every reason to loop that, with time and encouragement, they will not fall short of the high reputation which no deservedly attacks to this branch of manufacture in

sincers for the admission of objects thisming to compact for the Medals, and on terming that an unexp feeling prevailed on the subject among those exhibitors who had with the subject among those exhibitors who had with the original triversion of the Commissioner, and who consteaded that it would not be just that the Freech planes, nelected from a large store after the Directors planes, nelected from a large store after the Directors been so long in the Exhibition, should be pixed on the same festing, the Sc. Golania and Circy exhibitors, with a mederation which did them honour, consented to withductions, without claiming the require.

lu England, plate-glass, for mirrors and couch windows, had been jutroduced for the first time by the second Duke of Buckingham, who brought over workmen from Venice, and established a manufactory at Lambeth, where the works were carried on with success. The great improvement which had taken place in the process in France, and more particularly the important inventions of Thirart, found their way to England; and the first manufactory for east plate was established in 1773, at Ravenhead, near Prescot, in Lancashire, hy a society of gentlemen, to whom a charter was granted, under the name of "The British Plate Glass Company," under which title they still enjoy a high reputation, though their firm, their capital, and their privileges, have undergone considerable alterations. When this company was first established, the only east-plate manufactory was that in France, supported by the government; and all the processes of grinding and polishing were done by hand labour. In 1788 this company ordered of Messrs, Bolton and Watt, of Birmingham a steam-engine, which is believed to have been the second ever erected; and in the following year they commented the machinery for grinding and polishing. They were thus the first to introduce machinery for bringing their work to perfection, and the example was followed by all the other companies. It is remarkable that though many attempts have been made to improve the machinery, it remains, in all the manufactories, without any alteration of its principle. The glass produced by this company is tinged with a slightly-like colour, which they attribute to the fact of their avoiding the use of the metallic oxides in their metal: and consider that this practice gives hardness, brilliancy, and transparency to their glass, and admits of a finer polish; and they assert that their glass is not liable to the change of colour which occurs when arsenic, lend, or mauganese are employed. The gluss which is exhibited by this company is placed in the

The establishment at South Shields, founded by the Cookans, in 1728, likewise added the process of entiring to their existing works. A very considerable business Swinshmen, who have supplied several large glasses for the decentrion of the Building, and point out one in the furniture department, number in the Catalogue No. 4, as exhibited a dome of opaque white glass, large tablets of glass, coloured in institution of marchi, and a great variety glass, tolkered in institution of marchi, and a great variety glass, coloured in institution of marchi, and a great variety glass, coloured in institution of marchi, and a great variety glass, coloured in institution of marchi, and a great variety glass, coloured in institution of marchi, and a great variety glass, coloured in institution of marchi, and a great variety glass, coloured in institution of marchi, and a great variety glass, produced in institution of marchi, and a great variety glass, produced in institution of marchi, and a great variety glass, the produced produced in the produced produced produced in the produced
of other objects composed in plate glass.

The rough plate glass of Messr. Hartley, of Sander-land, likewise belongs to this section. A great variety of articles are manufactured by them; but it is this notful product that they particularly specify as the object contributed by them to the Exhibition.

The Thames Plate Glass Company was established in 1835-6 at Blackwall, and have exhibited two glasses of very large dimensions.

Two others in Lanneabire, and that at Smethwick, nore flyrmingham, have all been brought into existence within the last half-entury, and considerably increased since the repeal of the existe laws. Their joint produce now exceeds two millions of square feet annually, which are used, first, in the shape of cough plates, for glaring, for roofing-in the trailway stations, skylights, and other similar purposes.

similar purposes; seconary, as potisted gains, for shop windows, and large plates, for the windows of houses. The process of casting is much the same as that employed by Thevart; but where manual labour was formerly used in the grinding and polishing, the use of nuclinery now assists the operation, and has led to a diminution in the cost of production, and consequently to increased consumption.

Section D.-Bottle-Glass, Water Pipes, and Tubing. The manufacture of bottles is of very considerable importance, from the amount und value of its produce. In France alone, the trade is estimated at above 60 millions of bottles annually; and their value at more than half a million sterling. The earliest and one of the than half a milhon sterling. The earliest and one of the most important manufactories of this species of glass

was established in 1294, at Quinqueogroue, in Normandy The lottles used for the effervescing wines, and for utaining cotain acids, require very great care in their fabrication. In the former, it is necessary that the component parts should be thoroughly mixed, when the mass is in a state of fusing; and that the glass should be uf equal thickness throughout, that in every part the bottle may be equally storing, and able to resist the pressure of the fixed air confined within,

The loss of bottles by bursting, in the champagn trade, is stated to amount to from 21 to 30 per cent.; and a machine has been invented for testing their strength, which ought to be equal to hear the pressure of from 25 to 35 atmospheres. The price of bottles for this purpose to 35 atmospheres. is generally nearly double that for ordinary purposes. In bottles intended to cootsio acids, care should be taken to combine chemically the alkali and the lime, so as not to incur the risk of their being acted upon by the acid, and subjected to decumposition.

SECTION E. - Glass for Chemical and Philosophical Purposes.

The glass to which this section refers requires peculiar qualities, according to the purpose to which it is to be applied. Ha, doess, evaporation of the salts by a lang-continued exposure to heat, but which cannot be effected without deteriorating the colour, are the most essential qualities for glass of this description; and will bring it under the heads, partly of buttle-glass, and partly of flint-glass. Several other products, useful in the slairy, the farm, the garden, &c., may be referred to this section.

Secretox F .- Flint-Glass, or Crystal, with or without Lead,

The glass comprised in this section is derived from the remotest antiquity. Among the excavations which have been made in Egypt, Greece, Italy, &c., are found fragments of blown-glass, moulded, pressed, ent, engraved, mosaic, reticulated, &c., and adorned with cameos of the finest workmanship. Venice and Bohemia followed in the same branch, and were only surpassed by the substi-tution of a metallic oxide in the manufacture, and the production of a silicate of lead and potash, in lieu of the silicate of potash and lime to which they still adhere.

The first manufactory of flint-glass in England was established in the Savoy House, in the Strand, in 1552, established in the Savoy House, in the Scraud, in 1992, and another in Crutched-Friars; but it was not till lung afterwards that the great improvements which have brought it to its present state of perfection, by the use of minium, or oxide of lead, and closed pots in the furnace, were introduced.

In 1635, Sir Robert Mansell obtained a natent for making glass of this description, in consideration of his nudertaking to employ pit-coal, instead of wood, in his furunces. He was also granted, on the same grounds, the exclusive right of importing drinking-glasses of fine quality from Venice, which were not made in England till half a century later.

The use of coal was soon found to affect the colons of the metal; closed pots were then used for the purpose of obviating the evil, but from their use arose another objection. The fusion did not take place in the closed objection. The fusion did not take place in the closed nots so rapidly as when the metal was more immediately exposed to the action of the fire. A larger supply of alkali was required to assist the fusion, and the colour was still affected. This led to the adoption of a metallie flux, and the oxide of lead was applied in as large quancolour. This new process not only remedied the evil, but has been found to produce glass of the purest colour, most brilliant effect, and most perfect in quality of any yet made.

This method of fabrication was not so much required on the Continent as in England, wood being principally used as feel in the furneers. It was not till 1784 that the metallic oxide was introduced in a small factory at St. Cloud. It was afterwards removed to Munt Cenis, near Autun, which possessed the advantage of coal in the neighbourhood, and was known as the glass-works of the Queen, and continued its works till 1827.

Another manufactory of crystal, or silicate of lead, using wood fuel and open pots, was established in 1790, at St. Louis (M-selle). It has continued to carry on a very extensive business during the last thirty years, and only yields in importance to the glass-works of Bacarat, which were purchased in 1816 by M. D'Artigues, whose works at Voucsch, near Namur, had become, by the Trenty of 1815, a part of the Belgian territory, and who preferred to curry on his business in his own country

The coloured glasses of Bohemia, of which Count Harmeh, Count Schaffgotsch, and others, have exhibited very beautiful specimeos, and their imitatious in Germany, France, and England, are comprised in this section; and likewise the mille fiori style of work, adopted for making presse-papiers and other ornaments, and sold by hundreds of thousands, which, by the extent of the trade, have become a very important branch of manufactore.

The description of glass referred to in this section sustains the high reputation which it has earned, and is ably supported in the Exhibition by the products exhibited by the Oslers, the Pellatts, the Powells, the Richardbited by the Oslers, the Penatts, see Possess, and many other exhibitors. The American glass sous, and many other exhibitors. It is a silicate of protoxide of lead, and is remarkable for the parity of its

Section G .- Optical Glass, Flint or Crown,

The properties which are usually considered as constituting excellence in glass for ordinary purposes may easily be attained; but in glasses intended for optical instruments, and to be employed in the examination of objects so remote or so minute as to require the most undeviating accuracy, the difficulty of obtaining the metal sufficiently free from the defects to which glass is incident, had hitherto bufficil every attempt to produce a lens, except of very small dimensions.

Purity, unchangeableness of colour, transparency, and a certain degree of refractive power may be obtained; but perfect uniformity in the structure of the glass, so as to render its composition absolutely homogeneous in all its parts, is not so casy to be accomplished; and it is precisely this quality which is the most indispensable in the manufacture of optical glass, The great difficulty seems to occur in the difference of

the specific gravity of the several constituents of the metal: some melt at a lower temperature, and sinking through the mixture, leave a streak or trad in descending: some evaporate or decompose in a beat required for the fusion of others; and different substances cool at different temperatures. Hence arise discoloration, aweating, threads, globules, strire, irregular crystallization, which cause irregular refraction by the interruption of the mys of light, and their deflection from the course which they ought to

The discovery of the achromatic telescope has been of the atmost importance in the science of astronomy. first idea is due to Galileo; but Euler, in recent times, applying his mind to the investigation of the came of frequent failure in the construction of the telescope, adverted to the perfection of the arrangement of the ery talline bummurs of the eye, bestowed by the bounty of Providence on man, which are so disposed as to provide for the variation in the different rays of light, and draw them to one focus; and he imagined that glasses of different media might, on the same principle, be so adapted to one another as to correct and regulate the distities as the fusion would bear without an alteration of persive powers of the different rays. But the experiment

In 1753, John Dollond directed his attention to the same object; and, aided by the co-operation of Euler, and of Kliogenstierns the Swedish mathematician, he succeeded, after a long series of experiments, in discovering the due proportions of the curvatures of the two lenses, of which the object-glass of the achromatic telescope is composed; the one being flint-glass (silicate of white lead and potash), the other, crown or plate (silicate of soda and line), which, having different refractive and dispersive powers, may be so arranged, that while, by the comhination of the two, the rays are brought to a focus, the rester dispersion of the flint lens may be corrected by the less dispersive power of the plate; the one being negative, the other positive. "The refractive power of the glass beads the rays of light fulling upon, or rather entering its surface, according to a certain law, in which it proceeds through the medium, while the glass is of the same kind. The same occurs again when the ray, having passed through the lens, arrives at the other surface an passes into air, the ratio here being the inverse of the former."- Eacyc. Met.

Hence srises the importance of avoiding any variation in the media of which the glass is composed; as the slightest difference would act as a disturbing cause to the progress of the ray of light in its due course, derange the refraction, and distort the object.

reinferind, and untook une buject. Dellored and the After this principle was attained, Dellored and the After this principle was attained, Dellored and the course of the property of the dellored of their purpose, The Academy of Sciences, at Paris, offered prints in value for this object. The celebrated elemints, Macquer Boxx, of St, Gobnin, and Anut, of Langres, devised their attention to it in vain; and even when processed, 3 to 3½ inches in dismeter was the largest size they could obtain.

M. d'Artiques, me of the first mannfesturers of crystal (fint-glas) in France, and who to his high reputation for practical skill added that of scientific knowledge, equally ailed, or produced insufficient results; and it, remained for a man in no degree conversant with science, tot a glusmaker by trade, nor distinguished by elacation, but endowed with extraordinary energy, spirit of inquiry, colution of the influence of the control of the control of solution of the difficulty.

Guinand des Brueets, near Noufebatel, a workman in the clock and watch trade, who had heur accrusioned to the fusing of metals in the prosecution of his hashess, observing that in the odinary process the waving and the removed by stirring and thoroughly mixing the metal by means of an iron bur, applied the same process to flinglass, and combining it with close attention to the attration of the same process of the complex of the composition of the comtraction of the composition of the comtraction of

strie.

M. Utzachaeider, of Munich, hearing the result of his experiments, on making further inquiry, proposed to him to join him and M. Francohoffer in their establishment at Munich: he accepted the offer; and one of the largest plasses resulting from their experiments, the diameter of which is 9 inches, is now in the Observatory at Dorpat.

Guinard returned to his own country, but not being a gloss-maker by profession, he prosecuted his reconscient discovered the process only at intervals. He had discovered the principle; he had careed a well-envired reputation in the world of had careed a well-envired reputation in the world of results of his experiments had not attained to certainly in practice, and he had not overcome the difficulties in the fabrication of crown-glass, which requires the asset in the fabrication of crown-glass, which requires the asset finite.

In the latter years of his life, Guilanad entered into communication with the Astronomical Society of Loodon, and sent over some dises of flint-plass, of which Mesus, Dollood, Herschel, and Pearson made a favourable report. The largest of these plasses was 6 inches in diameter; and it is remarkable, that in England, which had supplied the Continent with flint-plass, a dise of 6 inches should have been regarded as a rarity. Som after, a Commission, composed of Mesers. Heredel, Dendays, Dabella, and Beget, was interested to prove Frankey, Deballa, and Beget, was interested to prove Frankey took the lend, both is his own hidoraticy and at the phase-work of Pinners. Pellatt, and could not find of restance of the Pinners of the Pinners of Pinners of Pinners or mentackles proving. The Lords of the Transary had restackles proving. The Lords of the Transary had since the Pinners of the Pinners of Pinners of Pinners in favour of the Diquil Society, or person actuing from similar proposes made that holy. But, not writing the debty in obtaining the necessary Hence, proved so controve and Encouracies, in a completely to haddle their controvers and finners were the province of the Pinners of the necessary of experiments and the questions at to the fairteness of experiments and the questions at to the faircasion of finning-base figurity typoson in Pinners and

mems of experiment; and the question as to the haircation of fins-place being actively pursocal in Funce and cation of fins-place being actively pursocal in Funce and Shortly afterwards M. Gainand died, without leaving, any information as to his process. But in Havrais, the works in which he had taken part had been continued according to his system; and his wife and two sous had witnessed his experiments, and were derivous of availing themselves of their father's invention for their own in themselves of their father's invention for their own in

M. Bostonya, who had devened much struction to the manufacture of gian generally, and particularly of such manufacture of gian generally, and particularly of such M. Lernbern, of Pinh, to one of the sone of Golimad, who was collectorized to suffile hadred vere in Engthematically and the superior of the contraction of the contraction of the contraction of the contraction of the distribution of the contraction of the contraction of the principal of property algorithms of the experiments at his weaks without exclusing feinined, the experiments at his weaks without exclusing feinined, and did not affirm at 1 to 1 stokes, and a large quantity of smaller also. From that time the numericarries and smaller also. From that time the numericarries are the smaller also. From that time the numericarries are to the wine of Giannan and her other one or by works to be without the contraction of the state of the contraction of the state of the contraction of the c

evolved by M. Diguest, of Solverts, who has sent to the Exhibition some of his products to incoderate size, not pure in rother (14-54 silps); but they prove the diffithere is the size of the size of the size of the size there are even tone impoliments in fibricating revenglass of large size, than in making good crystal. In order to reader it free from importly, it becomes most offer to reader it free from importly, it becomes most another to reader it free from importly, it becomes most acceptance of the size of the size of the size of the societies. It requires a higher temperature. By increasing the finity of fusion, the disposition to struct hamility, on to overs, it is greated. In readering it too in cooling, it increases all the size of the incoding the size of the

The insecurity in which political events in France involved the pervous engaged in industrial pursuits was experienced by M. Boutemps: he contended against it, however, till the year 1848; when, after attaining to a high degree of emincoce, and receiving the decorations which are awarded in that country to distinguished merit, he was induced to retire from the difficulties and dissensions which prevailed around him, and to accept the invitation of Messrs. Chance, Brothers, and Co., to unite with them in the attempt to improve the quality, nod extend the utility of this important branch of manufacture. They have succeeded in producing discs of extraordinary dimensions in flut of 29 inches in diameter, weighing 2 cwt., and of crown-glass up to 20 inches. These discs appear to be pure in colnur, good in structure, and exempt from those defects which tend to polarization of light, &c., and were considered by the Jury of Class X., Sir David Brewster, Sir John Herschel, Lord Wrottesley, and others, to be so important, that they invited Mesers. Chance to submit their disc of fliut to the operation of grinding, finishing, and other processes, necessary in order to ascertain the uniformity of its density through-

* Since the above was written this remarkable disc has been subjected to the tests required is order to prove its

Mr. Ross, the celebrated uptician of London, was the first to call attention to a defect, which may be detected by polarization of light; and there is no doubt but that many failures, which had occurred previously, were to be attributed to the absence of this searching test. A glass, exceeding only the small diameter of 6 inches, undergoes the annealing process with difficulty, and is liable to cool at the surface more rapidly, than in the interior; and this tendency increases with the size, which renders the production of a disc of 29 inches a very remarkable work In this section are comprised the optical glasses of M. Maos, of Clichy, which have been distinguished by the award of a Council Medal (see p. 532), and likewise the annular lenses and cylindric refractors, which are applied in the construction of lighthouses, according to the principle introduced by Augustin Fresnel. Buffon in the last century, and Sir David Brewster in our own times, had recognized the advantage resulting from the arrangement of lenses in separate pieces, having a enumon focus. Fresnel, without being aware of the exertions made by Sir David on the subject, submitted, in 1822, to the French Commission on Lighthouses, a plan for sub-stituting, along the coast, lights on this principle, and introducing the refracting apparatus instead of the metallic reflectors then in use

In 1814, Mr. Alan Severous was sent to France to compare the tenical argumans with the paradoidal compared to the paradoidal arguman and the paradoidal for the paradoidal arguman and the paradoidal compared to a larger scale, of which not is rehilled by Messer, Chance, The sets of light have likely the born contracted on a larger scale, of which not is rehilled by Messer, Chance, and which the contracted to a larger scale, of which not is rehilled by Messer, Chance, and which the contracted to a larger scale, of which not is rehilled by Messer, Chance, and which the contracted to a larger scale, of which not is rehilled by Messer, Chance, in which the contracted to the compared to

quality; and if it is found not to be liable to humidity, the colour is certainly much in its favou The apparatus contributed to the Exhibition by Messrs. Chance was constructed at their manufactory, ander the superintendence of M. Tabouret, formerly employed in the department of the Ponts et Chansses in France, who, after thirty years of practice under that Board, had accepted the invitation of Messrs. Chance to direct the manufacture of the dioptric lighthouse apparatus, which they were desirons of establishing at their works. They they were desirons of establishing at their works. They have exhibited a dioptric apparatus of the first order, with remarking lenses and catadioptric sones, constructed on the principle of Present. The npper and lower parts of the apparatus consist of a series of prismatic rings, each of which reflects, at the luternal surface of its base, the incident rays of light. The advantage of this mode of incident rays of light. The advantage of this mode of reflection over the ordinary system of opaque reflectors consists in its saving a considerable loss of light, and being less liable to imperfection of surface. The middle portion of the apparatus is refracting, and produces by its revolution a succession of flashes or blazes of light, which may enable the mariner to distinguish any particular lighthouse. The revolving part consists of eight annular lenses. Each of these lenses is composed of a number of concentric rings round a central lens, so as to produce all the refractive effect of a single solid lens of correspond dimensims, but with less loss of light. A more perfect optical figure is moreover given to these compound lenses than to a single piece of glass, spherical abortation being in some measure corrected, and lenses of larger size may thus be formed than could otherwise be practicable. The glass used in the apparatus now in the course of adoption in the lighthouses on the coast of Scotland is made in France, and it has been alleged that it is liable to attract

quality: and its merit has been so satisfactorily established as to justify the Jury of Class X. in recommending that a Council Medal be awarded to the mannfacturers.

minister or "n weat," and consequently to love a portion of its heightons. But her Pracular manniturers deep the charge; and when the judgment and cure manifested the charge; and when the judgment and cure manifested to the consideration, a strong presentagetion is affected that the commissioners and Mr. Servenson as yet find the Presch the contrary options to be correct, it sold press to the Petith associations of the overall press of the pression of the contrary options to be correct, it sold press to the Petith associations of the principle in the place made a fact experience with the view of promoting disc branch of experience with the view of promoting disc branch of exact the deep of the pression of the pression of the size of the pression of the pression of the pression of the size of the pression of the pression of the pression of the size of the pression of the pression of the pression of the deep of the pression of the

object-consist.

The question of lightheness does not properly come upon to absert to the apparents in the Exhibitor, of which the glass from sometical part, we cannot quilt question to absert to the apparents in the Exhibitor, of which the glass from sometical part, we cannot quilt question to the properties of the part of o

The Eddystone, 23 miles from the Run's Head, on the coast of Corwall, was erected of timber by Winstanley in 1696-88, and washed away in 1703. It was rebuilt by Rudyard in 1706, and destroyed by fire in 1735. Tha present edifice was erected by Sineaton in 1737-78 present edifice was erected by Sineaton in 1737-78 present edifices were need in the first instance for the lights. In 1807 argand harmers and paraboloidal reflectors of silvered copper were substituted.

The Bell Rock Lighthouse, commanding the line of approach to the Firths of Forth and Tay, constructed of stone by Mr. Robert Stevenson in 1807-10, is too well known, and reflects too much honour on his name, to require any further notice.

The most remarkable work on the coast of Ireland is

The most remarkable work on the coast of Ireland is that of Carlingford, near Cranfield Point, erected in 1830.

The Skerryvore Rocks, about twelve miles south-west of Tyree, off the coast of Argyllshire, lying in the track of the shipping of Liverpool and of the Clyde, had long been regarded with dread by the mariners frequenting those seas. The extreme difficulty of the position, ex-posed to the unbroken force of the Atlantic Ocean, had alone deterred the Commissioners of Northern Lights from the attempt to place a light upon this dangerous spot; but in 1834 they caused the reef to be surveyed, and in 1838, Mr. Alan Stevenson, their engineer, inheriting his father's energy and scientific skill, commenced his operations on a site from which "nothing could be seen for miles around but white foaming breakers, and nothing could be heard but howling winds and the lashng of the waves." His design was an adaptation of meaton's tower of the Eddystone to the peculiar situaing of the waves," tion-a circumstance with which he had to contend. He established a circular base 42 feet in diameter, rising i a solid mass of guess or granite, but diminishing in diameter to the height of 26 feet, and presenting an even, concave surface all around to the action of the waves. Immediately above this Ievel the walls are 9.58 feet thick, diminishing in thickness as the tower rises to its highest elevation, where the walls are reduced to 2 feet in thickness, and the diameter to 16 feet. The tower is built of granite from the islands of Tyree and Mull, and its height from the base is 138 feet 6 inches. In the intervals left by the thickness of the walls are the stairs, a space for the necessary supply of stores, and a not uncomfortable habitation for the three attendants. The rest of the establishment, stores, &c., are kept at the depôt in the island of Tyree. The light of the Skerry-vore is revolving, and is produced by the revolution of eight annular lenses around a central lamp, and belongs to the first order of dioptrie lights in the system of Fresnel, and may be seen from a vessel's deck at a distance of 18 miles. An arrangement of apparatus of considerable importance has been suggested by Mr. Thomas Stevenson, whereby true lenticular action may be extended by the adoption of total reflection for that end, arrangement, combined with the use of spherical mirrors. he has been enabled to use all the light of a lamp, and he has therefore termed it a bolophotal system. Much has been done of late hy the English, the Scotch, and the Irish Boards for the improvement of the lighthouse system; but the interests of commerce and of humanity require that much more should be done, as the funds set apart for this object will permit, in order to afford still greater security to vessels approaching our coasts; and we trust that the British manufacturers will not be slow in availing themselves of the opportunity of supplying a material of the very best quality for this important object. In a sketch of this nature, it is for obvious reasons extremely desirable to avoid anything like a comparison

CLASS XXIV.]

extremely desirable to avoid anything like a comparison between the products of different countries or different intervals but it manifest younge within the rogar of position of the principal establishments which have conposition of the principal establishments which have controlled their productions to the Exhibition; and to take rounded to the production of the Exhibition; and to take rounding the production of the Exhibition; and to take constitus, which have, at express much inconvenience to themselves, intrusted their property to our care, and condition in the property to our care, and condition in the property of the condition of the controlled in our imparatially and patient in determining to in the properse of this moleratality, we have felt as increasing seaso of the importance of the subject, and of the increasing seaso of the importance of the subject, and of

the responsibility arising out of the task. We have felt that the contributors might reasonably desire a more detailed description of the products which they have contributed to the Exhibition, and of the art to which they have applied their intellect, their resources, and their industry. But our limits are necessarily restricted within narrow bounds, and we fear that we have already trespassed upon the Commissioners and the public, further than the object, intended in calling for Reports from the Juries, fully justifies. But we must plead in our excuse the interest and importance of the subject—an interest which we have felt growing noon us as we proceeded; and though we are aware that the subject has frequently been well and ably treated, yet we trust that in pointi ont some novelties and improvements in the art, to which recent practice has given rise, we shall obtain forgiveness for exceeding in some small degree the limits assigned to us. In the remarks which we feel ourselves called npon to make, it has been our most anxious desire not to wound the feelings of any exhibitor, still less to do him an injury in his trade by any observation of ours, applying to his We have endeavonred to confine ourselves to general principles, not to point out defects; but to leave it to the exhibitor to judge for himself, whether our prin-ciples are correct, and whether he has acted in accordance with them; and if not, to amend his practice, and entitle

himself to commendation on some future occasion. There are, hovever, point as i suce to which it is extraord. There are, hovever, point as i suce to which it is extraord to a succession of the point of the contract of the area of th

With respect to the first question—the composition of the metal—upon this mast depend the merit of the glass, and consequently its value. The combination of as much brilliancy of refraction with as perfect purity of colour as can be obtained is the object desired.

By some manufacturers, parity of colour is sacrificate to brilliance of efrancius; by others, the reverse in the case. The real object, the just a silice, can only be the case. The real object, the just a silice, can only be the materials employed; and this can only be the result of careful experiments, and the study of the effect of careful experiments, and the study of the effect of ratiosa chemical combinations. The expedient or retended to the case of th

In some descriptions of glass the defect of colour is negative than in electric. In alterna precisis hose, the apparent than in electric. In alterna precisis hose, the superior of the superior of the colour importing to the object reflected a persion of its colour descriptions are proposed to the plant. The Provis had the Registat have paid great structions to this electromatonic, the superior of the glast. The Provis had the Registat have paid great structions to this electromatonic colour plant in the Exhibition, and of the Belging glass, shad not the opportunity of exhibiting them, we should also the opportunity of exhibiting them, we should also be a shad to be a shad of the provided approxition of the properture of the properture of the prolate law makes in the art, and a very perfect article of the Default, the frequentioned pressure of transition in Rapidal, the frequentioned pressure of transition

extended its influence over this species of these vertex of the consequence of in bids price, was not in very great demand and the removal of the evil combode the manuscript of the confluence
We reply, that we are informed the precise of the Crey and St. Goldmann immediators in a beep a very power of the control of the control of the control control of the power of the control of the law granted the control of the law and the control of the and the fraiddows by the qualities of amounts and beauty and and the fraiddows by the qualities of amounts and beauty and with the defect of cool, or dirtie, of polishies, of malalations, for. We believe that success in trade, as with a lation, for. We believe that success in trade, as with a time in Education, untails to the nearest and thatter of the different clauses of purchasers, but that each gradties are the control of the control of the control of the process will assist of the large male.

With respect to the third question, that of price, it is of course a most important question; and it is a most difficult one to answer. The Commissioners had the question due to answer. The Commissioners had the question under their considerable time, and at last wisely determined not to meddle with it. If does not deeped upon arbitrary regulation. Capital, transition, supply and demand, flashion, all more or less affect prices, and pervent them from being the real indicators of the

intrinsic value of an article exposed for sole.

Having ventured to make these general observations, it only remains for us to state the principle upon which the award of Medals has been made, and the grounds npon which the Jury has decided in favour of the suc-

conful competitors. We trust that in what we have said, it will be believed that we have no other object in view than to act in accordance with our duty, and deliver our opinion faithfully, according to the best of our judgment; and in doing so, if we "just hint a fault," we do not "hesitate dislike." We are proud of our manufactures; we enter warmly into the interests of the persons engaged in their production. Perhaps we are over anxious for their success. But we see, and we see it with satisfaction, that the foreigners are making rapid advances; and are bringing their intelligence and their taste into competition with us. We see new and extensive fields, opening every day by the wisdom of Providence, for the application of our energies and our resources; and it becomes our duty, as well as our interest, not to be backward in the struggle. "Up and be doing, and God will prosper," His bounty has prospered us in a most abundant astonishing degree; and, from the tiller of the soil, the manufacturer of her produce, to the fabricator of the most delicate work, it will be by our own fault if we cense to exect. On behalf of that art which is more particularly under our consideration, we claim the exercise of increased energy and science. It is a manufacture for which the primary constituents are easily and cheaply supplied; and it combines, in a remarkable degree, the purposes of ntility, of comfort to all classes, and of decoration. It reflects the splendour of the palace, and the beauty of the toilet. It lends its aid to science, and con-veys the power of vision into infinite space; and, within the last few years, has enabled the astronomer to detect, in the obscurity of their remoteness, planets on which the eye of man had never rested before; and likewise, by its aid, amid the rains of a former creation, countless millions of animalcular may be observed through the microscope in the oditic formations of our globe. It imparts comfort alike to the rich and the poor, by the admission of the bright rays of the sun into their abodes, and the exclusion of the inelemency of the westher. It assists the sight of declining years, and enables the aged man to seek comfort in his hible, and impart its Divine truths to his family. It directs the seamon in his midnight course, warning him of danger, and eheering him by the prospect of security and home.

In drawing up the foregoing Report, information has been most liberally supplied, of the advantage of which the Reporter is fully sensible, and he begs leave to return his warmest thanks to John Wood, Esq., Chairman of the Inland Revenue Board; to M. Boutemps, and to Charles Winston, Esq., for their valuable assistance and advice; to Sir David Brewster, and Mr. Ross, more particularly for that which relates to the question of the structure of glass for optical purposes; and to Mesers. Zuccani, Wood, Pellatt, and others, for the information which they have so readily given. The highly-interesting articles in Larther's Cabinet Cyclopredia, in the Encyclopredia Britannica, and Metropolitana, and in M. Labarté's work on the collection of Dehruge Dumenil, have supplied very valuable information, and will amply repay the trouble of referring to them; and the Reporter cannot conclude without taking leave of the English and Foreign Associates in the Jury, over which he has had the honour to preside; and affording his testimony to the seal and intelligence which they have manifested in the discharge of the duties which they have been invited to undertake; and without expressing his satisfaction in witnessing the cordiality with which Foreigners and Englishmen have acted together; and though differing in habits and opinions, acted together; and though differing in habits and opinions, and urging those opinions with acuteness and with earnestness, have gracefully conceded, where they failed in persuading the unjority; and he begs them to accept his sincere thanks for their able support, and their courtesy, kindness, and indialgence to himself in the discharge of kindness, and indialgence to himself in the discharge of their mutual duties.

AWARD OF THE MEDALS.

the Jury.

The Instructions of the Executive Committee are understood by the Jury to be to this effect:

No question of nationality is to affect the judgment of

No comparison of the respective merits of exhibitors is

to be made. In recommending for the Council Medal, and in awarding the Prize Medal at the disposal of the Juries, the merit of the article exhibited, simply, is to be regarded.

Where an exhibitor is a member of a Jury, he cannot comprete for may Medal. But the Jury think themselves institled in adverting in their Report to the merits of the object which a Juror may have exhibited; and likewise in mentioning favourably those works, which are not of sufficient immerstance to far claim to a Medal.

summerate importance or my claim to a steady.

Excellence in manufacture, being, in other words, a
more difference in dereye of merit between subjects inmore difference in dereye of merit between subjects incouncil Media without a deviation from the principles
haid down by the Commission. Novelty of intention, or
adaptation, or peculiarity in the mode of manufacture, if
deemed of sufficient importance, may entitle to the reward
of a Council Media!

It is important that the exhibitors, as well as the Juny, should keep the principle involved in these Instructions clearly in view; because it cannot but appear at first portance or value of the proper and proper at the proportance or value at Causail Model, while this distinction as recommended for products, which, if not inferior in importance, boundary, or utility, are at least attended with infinitely less expense and rick in the manufacture. But this point, as to relieve the Jury from all doubt upon the

In Class XXIV, these observations gaply particularly as plain-disk, and no crystal, in the floracisation of which mortis of a high code may be obtained. But understood, and the control of a high code may be obtained. But understood, and the control of a high code may be obtained. But understood, and the control of the code of th

The magnitude and brilliant effect of the Building itself, which have obtained for it the denomination of the Crystal Palace, reader it the first and principal object of admiration.

and rational states of the state of the stat

these preliment. All has been excelled, on the reconcionate of the Ayr, to M. Mais, of Chely, user Dreis, for the reason assigned in their Beyer, viz, the Paris, for the reason assigned in their Beyer, viz, the Section of hasse for special paperson, by means of which glass, remarkable for lar printy, brilliary and benay, the control of the printy of the printy of the printy of the special prints of the prints of the prints of the facilitate their facilitate and ensy triffscalists. This facility of prest impresses, printed by the intended for of prest impresses, printed by the intended to the control of the special prints of the prints of the special prints of the prints of the prints of the special prints of the prints of prints of the prints peculiarly injurious to glass of this description. It is true that this glass has not stood the test of time; and that the borax, required for its production, is extremely expensive, and liable to other objections;* but novelty is the principle insisted upon by the Commissioners, and the experiment, as far as it has been tried, has been em nently successful in the production of glass of remarkable brightness and purity; and the object in view being one of great importance, the Jury have viewed with satisfac-tion this first step made by M. Mass at considerable expense and risk to himself; and in the hope that it may lead to important results, they have thought themselves justified in recommending bim to the Council for the award of a Council Medal.

M. Maes has likewise exhibited some very beantiful specimens of coloured, and other ornamental glass.

The name of CHANCE occurs so frequently in the preceding observations, and is so honourably connected with every branch of the manufacture, that we cannot but regret that, according to the regulations laid down by the Commissioners, their firm is precladed from entering into competition for the Medals by the fact of one of the partners having consented to act as a Member of our Jury. But though Mr. R. L. Chance is thus disqualified by his own act, he has entitled himself still more to the consideration of the Jury by the valuable assistance which his practical experience, and intimate knowledge of the details of the subjects committed to our investigation. have enabled him to afford.

When we witness the magnitude and variety of the operations undertaken by this firm, the merit of their works, the liberality, intelligence, and spirit of enterprise, which they have manifested at great cost and risk in experiments, tried for the purpose of introducing into this country branches of manufacture almost exclusively practised by continental enterprise-when we consider the advantage of inducing men, so eminent in their occu-pation as M. Bontemps and M. Tabouret, to settle in this country, and superintend our works—we feel that we should not act with justice by Messrs. Chance, or do our duty by the Commissioners and the public, if we did not call rir attention, in a special manner, to the merita of the firm.

In addition to the improvement effected by Messra Chance, in crown or sheet glass, and the introduction of their patent plate in the market, they have also exhibited specimens of coloured window-glass, of painted windows, of glass shades made by the application of machinery and far exceeding the dimensions of any similar work of this description hitherto attempted, and glass for optical purposes, described in the section to which that substance

is referred, They also exhibit some extremely thin glass, 200 to

300 to the inch, for purposes connected with the use of the microscope, and for experiments relating to the polariaction of light, the want of which had formerly found to be a great disadvantage in researches of this nature. This thin glass was introduced by Messrs. Chance as far back as the year 1840; and the Jury were informed by Mr. Ross, that by its use microscopes were made of very far higher power, than could otherwise

have been produced. M. JULES FRISON, of Dampresmy, near Charleroi,

being a member of the Jury, is likewise disqualified from entering into competition for the Medals. He is sole proprietor of the mannfactory, and carries on an extensive business; the larger part of his produce being made for exportation. He has sent to the Exhibition sheet windowglass of very good quality, well blown, well flattened, with a very good surface, and free from fire-speeks and scratches. He has also contributed some good glass, obscured by mechanical process; likewise some flated glass,

SECTION B.

In the classification of objects exhibited, which has been delivered by order of the Commissioners to the Jarors for their instruction in determining the merits of * The facility with which boracie acid fuses earthy particles is so great, that if not used with much caution, it acts upon the earthen pots, and conveys alumina into the metal, when in a state of fusion

the articles contained in each Class, "painted and other kinds of window glass" are referred, in Section B, to the Jary appointed to consider and report upon Class XXIV., and they proceed, accordingly, to discharge the duty assigned to them by delivering their opinion in the subjoined Report,

But the Medals having been awarded by the Jury of Class XXX, to the exhibitors of the objects referred to in this section of Class XXIV., we shall confine our Report to the statement of what we consider to be the principles of this branch of the manufacture of glass, and the use which the exhibitors appear to us to have made of it,

GLASS PAINTINGS.

Of the class paintings, displayed in the Exhibition, there are some whose subject is a picture, a pattern, no heraldic device, or an intermixture of these three; and some of the pictures, and of the pattern glass paintings appear to have been designed and executed in a particular style of their own. The various works thus present so many different points for consideration as to render it impossible to lay down any one general rule for deciding on their pretensions; but by stating as concisely as we can, the principles by which we have been guided in making the following observations, an opportunity is afforded of ascertaining their correctness or incorrectness; and the exhibitors may be enabled to draw their own conclusions as to the opinion which we entertain of the merits of their works.

It is hardly necessary to observe that glass painting must be judged by a different standard from that which is applied to other kinds of painting. The material employed imposes upon the artist an obedience to certain conditions in the design and execution of the work. His object should be, not to produce the best possible picture, but the best brilliant and transparent picture. Among the excellencies which are equally essential to a good glass painting, and to an oil or fresco painting, may be mentioned, a design which is pleasing in itself, and which is composed with reference to the effect sought to be produced at the distance from which it is intended to be viewed, correct drawing (which includes the course of the shadows as well as mere outlines), and harmony of colone. But such a composition must be chosen, and such a mode of colouring must be adopted, as are calculated, among other things, to display to the best ad-

vantage the brillisney and transparency of the material and to accord best with the mechanical construction of glass painting, which, unless it is of very moderate dimensions, must necessarily consist of several pieces of glass, connected together with lead or other metal, and supported with iron bars. As a general rule, the best, because the most effective,

composition for a glass painting (not being a mere pat-tern), is a single figure, or a group consisting of fore-ground figures, with either a landscape, an architectural, or a plain coloured back-ground; the landscape, if any, being treated as a mere accessory to the group, And the mode of execution which appears to display to the best advantage the hrilliancy and transparency of the material is, where the colonring is chiefly produced by means of glass coloured in the nunnfacture; where the shadows are transporent, but have hard and sharp edges; and, above all, where a large proportion of the lights are left

clear and unencumbered with coanuel paint.

Of the correctness of the view, so far as it relates to the sort of composition, and to the mode of colonring best snited for a glass window, we have the less doubt, since nearly all the exhibitors have acted consistently with it; hat we also find that our opinion of hard-edged shadows and clear lights is opposed to the practice of nearly all the exhibitors, including those most distin-

guished by their works,

* We are speaking of the art in its present state; if ensured painting were to be so far improved as to admit of glass being, by this means, as strongly and vividly coloured as it can be coloured in its manufacture, the objection to colouring glass with coamel colours would fail. But to such an improvement certain physical obstacles appear to be opposed.

To their authority we can only oppose that of the glass painters of the first half of the sixteenth century, when, owing to the similarity of the material, the conditions of glass painting very closely resembled the conditions of modern glass painting; and we would invite a comparison of such works as, for instance, the windows of the chapel of the Miraculous Sacrament, on the north side of the choir of St. Gudule's Cathedral, Brussels, and the two transept windows of that cathedral, with the windows of Gouda Church, Holland, and of Amsterdam Cathedral, both which are of the last half of the sixteenth century, with any of the works now exhibited; and if it appe that the Brussels and Lichfield windows are more liant, more glass-like, and (allowance being made for modern improvements in drawing) as pictorially effective as any of the other works to which we have referred. as any of the other works to which we have referred, then we are justified in considering that the limit to which the obscuration of the glass may be carried was reached at the end of the first half of the sixteenth century, and, consequently, in regarding the works of that period as standards of true glass painting by which nther glass paintings of similar nature may be judged.

The question, however, must ever be matter of opinion, and must ultimately resolve itself into a question of taste, which can only be determined by actually making the comparison suggested, and inspecting the windows themselves. In estimating, then, the merits of a glass pointing, we have to consider, first, to what extent the conditious of

the art have been observed; secondly, its artistic merit as a pieture or painting.

According to these principles, a work in which the emposition and drawing are indifferent, but which dis-plays vivid and powerful colouring, or is brilliant in effect, is preferable, as a glass painting, to one which is dark and dull, but in which the drawing and composition nre good. Of this, we have a striking example in the ante-chapel of New College, Oxford. Sir Joshna Rey-nolds' window, with all its excellencies of drawing and composition, is not to be compared in effect with the rude windows of Wykeham's time that surround it. Still, though n due regard to the conditions of the art is of such preponderating weight in the merits of a glass painting, other artistic qualities, as has been said before are not to be overlooked; consequently, of two glass paintings in which the conditions of the art have been equally of served or equally violated, that is to be preferred which displays the highest merits in composition, drawing, and

other qualities of a good picture.

But besides the two points of view just mentioned, in which a glass painting is to be considered, it is necessary, in order to estimate the quality of a work professing to be executed in imitation of any ancient style, to judge of it with reference to the standard which its anthor has himself chosen. To condemn it, on the one hand, if it falls short of the model which it professes to follow, and fails in the effect which it professes to produce; and, on the other hand, perhaps to make some allowance for pecu-

liarities which wunld be objected to as faults, if they were unt excused by the uccessity of adhering to some characteristic features of the adopted style.

On examining an original specimen of any ancient style of glass painting, we cannot fail to be struck with the general harmony of its features. Not only does a strict consistency exist between the character of the figures and of the ornamental details, but these agree with the nature of the design and mode of execution, which again seem to be adopted and formed with reference to the nature and quality of the material used. The changes effected in process of time in the composition and texture of the glass appear to have involved, in the opinion of the an-cient artists, corresponding changes in the very conditions of glass painting.

In all the glass paintings of earlier date than the last uarter of the fourteenth ceutury-until which period the material commonly in use was not over clear, substantial in appearance, or intense in colour-the artists seem to have relied for effect principally on the richness and depth of the colouring. In these works the means of represent-ation may be said to have been reduced almost to the lowest degree. Even the picture glass paintings are little

else than exceedingly powerful and brilliant mosaics. The figures are hardly distinguishable from each other, unr from the back-ground of the composition, otherwise than hy their ontlines and local colouring. The style of the by their ontlines and local colouring. The style of t painting is simple, bold, and foreible, as if the artists appr hended that softness of finish and nice gradations of light and shade would be useless and ineffective, and deemed those qualities to be alike incompatible with the simplicity of the composition, the positive character of the colouring and the general brilliancy of the work. The drawing is effected by thick black outlines, which always strengthen, and sometimes even supply the place of broader shadows, and these shadows, when compared with those of later times, are weak, and are in great measure lost in the depth

times, are weax, and are in great measure lost in the depth of the local colouring; which circumstance, however, readers their hardness the less perceptible.

The same style of execution is extended to patterns as well as to pictores. The design is traced on the glass with firm and strong outlines; and it is hardly necessary with firm and strong outlines; and it is hardly necessary to remark-for this is observable in every original work. that the harmony in form and character between the figures and the proamental details, proclaims them to be the production of the same hand, and the conception of

the same mind.

In all subsequent glass paintings, until the revival of the more ancient styles, which took place about twentyfive years ago, we may observe that in proportion as the glass became more pellucid, more flitnsy in substance and appearance, and less powerful and intense in colour, a less mosaic and an increased pictorial effect was aimed at. The weakness of the individual colours was in a great measure compensated by their employment in larger masses, by judicious contrasts, and by harmonious ar-rangement. Their depth was increased by means of hroader and more powerful shadowing, and a certain degree of richness was imparted by the more liberal use of disper patterns and other minute embellishments. The drawing became more delicate, nicely-graduated and highly-wought shadows were to a great extent substi-tuted for stiff hlack outlines, and in many instances considerable attention was paid to perspective, and to atmospherie effects. In short, it would seem that the artists considered that the more refined nature of the material demanded as well as favoured a more refined material demanded as well as invoured a more refused pictorial treatment, find sought to compensate for its comparative thinness and weakness by the introduction of heanties of another description. The new system, it is true, was not fully developed until the middle of the sixteenth century; but its commencement may be easily traced as far back as the end of the fourteenth, by which time the principal change in the nature of the material had taken place.

Many persons, and among them some whose opinions are entitled to consideration, differ from the opinion that the material used previous to 1380 has not hitherto been successfully imitated; but on a point of so much importance we are bound to retain our opinion until convinced of its fallacy. That there is a visible difference in the appearance of modern glass and of that belonging to these early periods is admitted; but it is attempted to be ac-counted for by the supposition that it is solely due to the counted ter my the amposition that it is solely due to the effect of nge and exposure to the weather, and that the ancient glass, when first pnt np, must have impeared as weak and filinsy as our own. But as it is evident on breaking a piece of ancient glass, that the effect of minimity is confined to its surface, the above supposition is a contract to the modern of the contract o destroyed by the observation that modern glass whose surfaces have, by artificial means, been reduced as nearly as possible to the same condition as that of the old glass, fails, nevertheless, in its resemblance to the old,

One of the most favourable examples of the eloseness One of the most favourable examples of the eloseness to which institution of the thirteenth century glass can be carried by splashing the glass with enamel hrown and other expedients, is afforded by a window recently put up in Mans Cathedral (the third elevestory window from the west on the south side of the choir). We are unable to west on the south side of the choir). We are unable to say by whom it was painted. But ulthough the design, owing to the breadth of its colouring, is favourable to modern glass, the deception is decidedly incomplete. Equally unsuccessful are the admirable restorations of the earlier thirteenth century windows in some of the apsidal chapels of Bourges Cashedral, executed, we believe, by M. Lasson. The modern glass may here be easily distinguished from the old by its want of crispness and its thinness, although it has been obscured in imitation of the

effect produced by age and long exposure to the atmosphere. We are strongly impressed with the opinion that the difference in effect between such ancient and modern glass does not depend on the state of the surface, but on the composition of the material, and this opinion has been much strengthened by the result of some chemical experiments recently made, by which the very great difference in the composition of modern glass and that of glass of

the thire-subt century is clearly demonstrated.

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The detected which played to an to provid the most than the contract of the contract of the contract of the case of the contract of the contract of the contract of each of the contract of the contract of the contract paners, The ill effect of the confonding the principles of painting on an opage antice with principle of planting paners, The ill effect of the confonding the principles of painting on an opage antice with principle of planting in the Exhabiton, the difficulties the arise has due to withstanding the descript of his handling. The vividnees of effect produced is largely superfor to that of an oil withstanding the descript of his handling. The vividments of the contract of the contract of the contract handling the contract of the contract of the contract handling the contract of the contract of the contract which is follows a handling the contract of the contract which is follows a handlings which does not accord with

Secondly. Non-adherence to the style, which has been selected by an artist for imitation in any particular work. For instance, we have sometimes found associated together in the same glass-painting, borders in the style of the fourteenth century, canopies of the fifteenth, and figures of the sixteenth. In others, though the ornamentation is drawn and executed in the style of an early period, the figures are either wholly in the style of a later one, or else accord with the ornamentation only in the drawing or composition; the elaborate softness of their execution having been borrowed from a considerably later period Others, in which the drawing, mode of execution, and composition of an early period are scrupniously observed, both in the figures and ornamental details, are executed in a material, which, owing to its greater pellucidness, is essentially different from that in use at the period chosen for imitation; so that sometimes the different portious of the design itself are incongruous; sometimes the design is of such a character as to be unsuitable to the nature of the material in which it is worked; and we may add that the various attempts which have been made to imitate the richness and depth of the ancient material, hy coating the glass with enamel paint, have produced no other effect than that of depriving it of its brilliancy, and consequently the glass paintings, in which this expedient has been re-sorted to, of one of their chief and distinguishing merits

sorted to, of one of their chief and distinguishing merits.
These observations apply, in our opinion, very generally to the modern style of initiating necion glass paintings. Improvement in the style of drawing, and many other beauties, are to be met with in the objects exhibited.

in Hyde Park, but these beauties are too often neutralized by the defects to which we have ventured to allude. The works are not original compositions, nor are they correct copies of the various styles which they profess to imitate.

BERTINI, of Milan. "Dante and his Thoughts."—In point of size, harmony of design, and beauty of drawing, this window his certainly cuttifed to elaim a first-rate place; now is there any work in the Exhibition, which, taken as a whole, is so superior to it as a glass painting as to prevent its merit as n work of art prepondersting. Its defect is certainly the want of general hrilliancy. Except in the Queen's glory, in the letters of the inscrip-tion over Dante's head, in the shields below, and the wreath surrounding his name (all which are true specimens of glass painting), and in the border of the windows, there are no sharp clear lights; and although pot-metal or flashed glass is used in places, as in Dante's robe, in the steps of the seat, in the sky to Domenico and Francisco, and in the role of the figure in No. 4, it has been reduced to the same opacity as that of the enamel colouring employed in other parts of the window. subjects taken from the infernal regions, Nos. 1, 2, 3, 4, are scarcely fitted for a glass painting, which is not suited for dark effects. The whole work is executed with so much softness, and is so highly finished, that the metallie fastenings have a harsh effect and form black lines, which do not harmonize with the delicacy of the painting; and though in general they are concealed with wonderful though in general they are concealed with wonderful skill, yet they do appear in places, and rivet the attention the more the window is looked at. It may seem pre-sumptuous thus to criticise one of the best works of the day; but the admiration which we feel for it has led as to compare it more rigidily with the windows at Hrassels, and to arrive at the conclusion that it would suffer by comparison in point of general effect, though it would doubtless be superior to them in artistic refinement and drawing. Compared, however, with the more modern works it appears to advantage; for the quantity of white light introduced in the upper part of the design, in the Madonna, and in the trucery above, the angels, the erockets, and above all, in the organiental bands or fillets which serve at once to connect together and to frame the dif-ferent subjects, imparts to the window a silvery or glasslike effect, which none of the others possess, and which completely rescues the work from the imputation of being like n fresco painting. The execution of the cruckets and of the folinged ornaments round the shield is quite per-fect; but perhaps the greatest display of skill is the manner in which Danet's head is made to stand free from the chair's back. The representation of one of the belies' silk dresses and of the lining of Dante's clock is a wonderful achievement in painted glass, and perhaps could not be accomplished in a work in which elear lights were considered indispensable.

In conclusion, we have only further to observe, that the defects which we have ventured to notice are those which persuit very generally in the works of the present day; but the beauties exhibited by M. Bertini in this production greatly preponderste, and are his own. Capronners, J. B., Brussels.—The conditions of the

ant of plass painting appears to have keeps compiled with, on the whole, it this work more thilly than in any other of equal or superior size in the Exhibition; for nor only for distortions of critical and increase and decision of the control of

The above is an extract from a very able Report upon the art of glass painting, and the objects exhibited, which Mr. Churles Winston, of the Temple, has had the kindness to supply.

JURY AWARDS, CLASS XXIV.

PRIZE MEDAL

	PRIZE MEDAL,							
France	1540	1250	Andelle, G., and Co	French bottles.				
l'nited Kingdom -	19	699	Barchus and Sons	Cut glass, imitation of Venetian glass.				
Belgium	3 80	1163	Bennert and Bivort	Window glass.				
France	53	1173	Berliez and Co	Pinte glass for mirrors.				
Anstrin	F(m)	1037	Bignglia, P	Venetimi glass.				
United Klngdom -	408	700	British Plate Glass Company (Cl. XXVI.)	Pinte glass for mirrors.				
United States -	113	1440	Brooklyn Flint Glass Com-	Flint glass.				
France	39	1173	Burgun, Waller, Berger, and	Watch-glassos.				
United Kingdom -	47	706	Conthupes and Co	Glass pipes; curtain poles.				
United Kingdom -	1.5	699	Davis, Greathend, and Green -	Cut and coloured glass, Greek and Etruscan vases.				
France	1187	1234	Deviolene Brothers	French bottle glass.				
France	1396	1243	De Poilly and Co	French bottle glass,				
United Kingdom -	32	701	Green, J. G	Design-form engraving on glass.				
Austria	587	1036	Harrach, F. E., Count Von -	Bohemian glass.				
United Kingdom -	21	700	Harris, R., and Son	Cut glass, pressed, monlded, and coloured.				
United Kingdom -	100	708	Hartley, J., and Co	Rolled pinte glass for roofs, rough plate.				
United Kingdom -	18	699	Lloyd and Summerfield	Cut-glass mednilions.				
Austria	593	1037	Meyr's Nephews	Bohemian glass.				
United Kingdom -	13	600	Molinesux, Wehb, and Co	Cut glass, coloured or pressed.				
United Kingdom -	20	700	Osler, F., and Co	Cut glass, various—novelty of design in fountain candelabra, &c.				
France	674	1211	Patonx, Drion, and Co	Glass,				
United Kingdom -	33	701	Pellatt, Aprley, and Co	Cut-glass crystal—imitation of Venetian glass, gems &c.				
United Kingdom -	81	701	Powell and Sons	Fine crystal (purity of colour, pipes and joints).				
Netherlands	99	1148	Regout, P	Tubing and table-glass.				
United Kingdom -	14	699	Richardson, W. H. B. and J	Cut crystal-coloured pipes, coloured glass.				
France	1445	1245	Robichon Brothers and Co	Crown glass,				
Prussin	208	1959	Schaffgotsch, Count	Bohemian glass.				
United Kingdom -	4	698	Swinburne, R. W., and Co	Glass dome, plate glass.				
United Kingdom -	339	759	Thames Plate Glass Company (Cl. XXVL—Main Avenue West.)	Plate glass.				
France	714	1213	Van Leempoel de Colnet and	Bottle glass.				
United Kingdom -	27	701	Varnish, E	Silvered glass.				
United Kingdom -	17	699	Webb, T	Cut class.				

HONOURABLE MENTION.

Portugni	1023	1317	Affonso, M. J	Cut glass,
United Kingdom -	6	698	Aire and Calder Bottle Com-	Bottle glass.
Portugal	1044 to	1317	Basto, Pinto, and Co	Sketched window ginss.
	1046			
Belgium	387	1163	Capellemans, J. B	Bottles.
United Kingdom -	25	701	Claudet and Houghton	Glass shades (from Messrs, Chance).
United Kingdom -	2	711	Copeland, W. T., Alderman,	Table glass.
			M.P. (Class XXV.)	
France	1157	1233	Corderant, A	Door handles, &c.
United Kingdom -	37	705	Davies, G	Imitation of marble.
Egypt	386	1411	Egypt, H. H. the Viceror of -	Rose-water bottle.
United Kingdom -	40	705	Ford, D	
United Kingdom -	12	698	Gntchell, G	Glass centre-dish.
United Kingdom -	41	705	Hall, J. W	Oronmental ent-glass window.
United Kingdom -	46.A	706	Binneock, Rixon, and Dunt -	Cut-glass chandeller.
Bayaria		1101	Hechinger, H	Mirrors, &c.
Bavaria	61	1101	Hellbronn, L	Mirrors, &c.
	1 1			

589 1036 Abdele F -

HONOURABLE MENTION-continued,

Nation.	No. an in Cat	d Page alogue,	Name of Exhibitor.	Objects Rewarded.
,values,	No.	Page.		0,000
Austria	589	1037	Hegenbarth, A	Bohemian glass.
Austria	589	1037	Hellmich, F. A	Bohemian glass.
Auttria	590	1037	Hofmann, W	Bohemian glass.
Turkey	-	1396	Indgir-keny, Imperial Glass-	Venetian glass.
Inited Kingdom -	11	698	Jones and Sons	Coloured glass,
United Kingdom -	3	698	Kidd, W	Engraving and silvering on glass.
Austria	596	1037	König, F. P	Centre-pieces, fruit-dishes, &c.
United Kingdom -	23	701	Lockhead, J	Glass ventilators, &c.
I nited Kingdom -	30	701	Naylor, W	Engraved glass, &c various forms and patterns
Bavaria	62	1101	Neft, M. C	Specimens of white crown glass.
Austria	597	1037	Pelikan, J	Glass goblets.
United Kingdom -	36	705	Perry and Co	Cut-glass chandelier.
France	981	1236	Renard and Son	Plate glass.
Prussia	768	1002	Röhrig, C	Glass shades, &c.
United Kingdom -	1	698	Ross, O'Connor, and Carson -	Watch-glasses.
Russin	293	-	Sallvsky, Madame	Table glass, &c.
United Kingdom -	8	698	Shephard, J	Glass tubing.
Frankfort-ou- Maine	23	1122	Vogelsang, J., and Sons	Bohemiau glass.

SWITZERLAND (No. 75, p. 1271), DAGUET,* F., Optical Glass.

London, September 1851.

DE MAULEY, REPORTER.

537

^{*} This exhibitor was awarded a Council Medal by the Jury of Class X., and his name appears in their list of awards.

CLASS XXV.

REPORT ON CERAMIC MANUFACTURES.

[The Figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the Official Discriming and Lillestrated Catalogue.]

Duke of Austra, Chairons and Reporter, Stafford Hoors, St. Innet's, and Roccouth.
CRAILER BLANCY WALL, M.P., Et S., Payer, Cholinon, 44 Berkeley Square,
E. ERLANCY, France; Director of the National Manufactures, Sevres; Member of Central Jury, &c.
GARMER, KARMANY, Russia; Connellior of the Administration of Finances, and Commissioner in

W. MORTIOCE, 18 Regent Street, Waterleo Piace; China Manufacturer. F. Ooranneimen, Zollverein; Director of the Board of Trade and Commerce, Wiesbaden.

Accousto Pixto Basto, Portugal.

Joua A. Wise, Clayton Hall, Newcastle-under-Lyne, Staffordshire.

F. H. Balescea, M.P., 5 Hyde Park Place. (Juror in Class XXIV.) Thomas Hermangron Hener, F.R.S., 18 Lincoln's Inn Fields; Analytical Chemist.

In framing our Report on Class XXV, we are desirous of explaining, in the first place, the view we take of the duty assigned to us, as determined by the rules of the Royal Commissioners, and by the nature of the Class

In the first place, the appointment of Juries implies, of course, that they are to judge of the comparative merits of the articles submitted to their inspection. In the second place, the fact of Medals being intrusted to their award implies, farther, that it is their duty to specify those articles which, in respect of high degrees of merit, they deem most remarkable. And lastly, the injunction tney seem most remarkable. And lastly, the injunction to accompany their judgment with a Report, implies an expectation that the Jaries, besides explaining to a certain extent the grounds on which that judgment has been come to in respect of Medals, should also indicate their opinion generally, on different kinds or minor degrees of merit.

These duties, however, become somewhat complicated by a special instruction from the Royal Commissioners that the Juries are to avoid giving encouragement to the distinctions of a merely individual character, and by an explanation that the award of Medals of different orders should not imply corresponding differences of degree in merit in the same class of subjects." We have been much impressed both with the importance of complying with this instruction of the Commissioners, and with the difficulty of reconciling it completely with the necessary exercise of our functions. We have felt that in case of the Conneil Medal being awarded to one or more exhibitors of ceramic manufacture, "individual distinctions" would be necessarily involved between those exhibitors. and others to whom only the Prize Medal may be given; and again, whether the Council Medal is given or not to any, the same distinctions may be felt between those exhibitors who do get the Prize Medal and those who receive non

The withdrawal of the Council Medal from the direct award of the Juries, and the limitation of their duty to recommendations merely for that award, has divided the responsibility, but has not removed the difficulty arising out of these considerations; inasmnch as recommenda tions, whether acceded to or not, involve the same distinctions as an actual award.

It has therefore been a matter of anxious consideration among the Juries to come to something like a common understanding as to the grounds on which such recom-mendations should be made; and the Group to which we belong, accordingly laid down the following general defi-nitium of the kinds of merit which ought alone to be so.

distinguished:--" Important inventions and discoveries or originality combined with excellence of design; novel application of known discoveries; great utility combined with economy and beauty; excellence of workmanship ned quality

Some of these definitions are obviously not easily applied to the kind of merit usually claimed for articles of ceramic manufacture; whilst others would require to be taken in an adapted sense. "Novelty of invention," unless displayed in entirely new compositions of the elementary earths, or in entirely new modes of dealing with them, will, in such manufacture, be generally re-ducible to improved methods of execution. Or if a higher sense be attached to "invention," as applied to form and high artistic meet, it will then fall under the other defi-

Understanding "invention" in the former and stricter sense, there is only one article in our Class in respect to which any important claim could be well advanced: we refer to that particular pasts or body which has been variously called Parian, Carrara, or Statuary Porcelain, and which must undoubtedly be viewed as marking an important advance in the ceramic manufacture of this important savance in the ceramic manufacture of this country. The facility and comparative cheapness with which the highest works of soulpture can be reproduced in this material—its durability and its beauty, have comhined to give an important stimulus to the trade, and if well employed may much contribute to improve the public taste. It has already led to the great multiplication of copies of both autique and modern groups and statues, as

well as to new designs of a similar kind. But whilst fully acknowledging the importance to the ceramic art of this material, we do not feel called upon to found upon it any recommendation for a Council Medal. In the first place, the amount of novelty in the material is not easily defined, it being a modification of that which has long been known, and applied to the same department of art, under the name of Biscuit. However important this modification may be, it is hardly entitled to rank as an entirely new invention, especially as the improved result is attainable by several varieties of com-This seems sufficiently established, not only by nosition the fact that different manufacturers produce substantially the same material without identity of process, but by the further fact, that one of those who prefer a claim to the

origination of parian expressly states that in his hands it has already undergone one important change. In addition to this consideration, the Jury find that

disputed claim of priority between very eminent firms, who severally advance that claim with equal confidence. We have not felt it to be our duty to come to any such decision; especially as it would appear from the statement of each party that, whichever may have actually been first in publicly producing articles in this material, both were contemporaneously working with success to-wards the same result. We may add that the introduc-tion of parian took place several years ago,

There is one other claim to novelty of invention in onr class which, perhaps, goes nearer to failfil the necessary conditions: we allude to the process of M. Bapterosses for the manufacture of buttons by pressure applied to a dry body in the state of powder; but here also we consider the merit to be to a great extent divided. The original idea of this process is due to Mr. R. Prosser: and, under a patent obtained by him it was carried on for some time by Messrs. Minton. improvements, however, effected upon the process by J. F. Bapteresses, have been so great and so important, that the invention has, in a great measure, become his own, and has emabled him to beat the English manufacturers entirely out of the market. The principle, however, is identical. Under these eirenmstances, we have been unable to recommend M. Bapterosses to an award of the Council Medal on the ground of novelty of invention; although his merit is undoubtedly so high that we deem him well entitled, not merely to the award of the Prize Medal, but to very Special and Hunourable Meution, on account of the inventive talent displayed in his process.

As the Jury do not, therefore, think that any sufficient ground for the award of the Council Medal has been

presented, as regards priority of invention, it has only remained to consider whether they could recommend that award on the ground of "beauty and originality of Although we do not hold ourselves bound to any yes

close or literal interpretation of this definition, we should still be departing from the whole intention with which the Council Medal was withdrawn from the direct nward of the Juries, if we were to recommend it for any article or set of articles on account simply of superior execution in the same class of subject; and that, in as far as possible, we ought to limit ourselves in such recommendations to merit capable of being clearly separated from others in kind, and not merely in degree. It is only by adhering to this distinction that we can comply with the important instruction to avoid giving encouragement to "individual competition;" and although it is a line which cannot always be laid down with perfect precision. it is still capable of being followed with substantial fairness. For example, if two manufacturers exhibit each vases, plates, &c., with flower or laodscape painting, and if the articles of the one were of great superiority is execution to the other, this saperiority, however great, ought not to be expressed by a recommendation to the Council Medal, because these two exhibitors are evi-dently competitors in the same kind of merit; whereas, if one manufacturer shows articles of the above description, whilst another shows articles of new and beautiful form, and of high artistic merit in the grouping and design of figures, such two exhibitors are evidently sor competitors in the same kind of merit, and the latter might be recommended for the award of the Council Medal without any "individual distinctions in the same class of subject" being drawn between them. The same distinction may be truced even in kinds of merit, which are both in a certain sense imitative. The successful introducer, into this country, of important processes of manufacture formerly confined to other lands, possesses a merit very different in kind from imitations more or less successful of the paintings and ornaments of old Sevres

or old Dresden. Having thus explained the principles on which we have thought it our duty to consider recommendations for the Council Medal, we have only shortly to point out the consequences which result on the value to be assigned to the Prize Medal. Being the only one which we have to award fur the whole articles of our Class .except the few which answer the conditions demanded

for the Council Medul,- it follows that very wide differences in degrees of merit must indiscriminately receive the same acknowledgment-so far as the Medal merely is concerned. This circumstance will be strongly felt by many of the exhibitors who receive the Medal, and will diminish the value set on our awards. We have only to explain that it has tended equally to diminish the satisfaction with which we have made them; but that no evil or injury can arise from the result, provided the cause of it is publicly known and understood. The task of petitors in the same class of article was not only not given to us, but was ndvisedly withheld; and we have, therefore, only to explain emphatically that we by no means regarded as on the same level, or even near the same level, all those exhibitors to whom, nevertheless, we have been obliged to give the same award. In our Report we have held ourselves at liberty to depart, to a certain extent, from the rale which applies to Medals, and to point out the broader individual distinctions observable in our Class.

Oue other circumstance has presented itself respecting onr awards, which we feel it necessary to meution. Our Class contains the produce of royal, national, or imperial manufactories; and it has been argued that these ought not to be brought into competition with the produce of not to be brought into competition with the produce of private enterprise. In a certain sease we admit this reason, in a certain sease we will be a case of the ca to overcome. The element of price, being an element of the most important character, does not euter into the the most important canneter, soes not enter into the view of the one, whilst, for the most part, it strictly limits the efforts of the other. The merit, therefore, as regards commercial value of their respective works, can-not be easily compared, and is certainly not measured by a comparison simply of their beauty. We are relieved, a comparison simply of their beauty. We are relieved, however, from the difficulty which might arise out of these considerations by understanding that we are to judge of the articles in our Class as they appear before us, without reference to extraneous considerations respecting origin. We think it our duty, however, in the Ideport to point out the important distinction above referred to, and to explain distinctly thut, in admitting, as we unanimously do, the very high character of the Sevres Exhibition, and in recommending it to an award of the Council Medal, we do not hold that in point of merit it can be justly compared with any other series of articles in our Class, except those which are similarly reumstanced.

Refore proceeding to notice particulars, we may observe that the ceramic art of the world is represented by a series of articles, which, though not calculated to illustrate its past history and progress, is at least sufficient to give a very adequate idea of its present condition. The imperial, royal, or untional manufactories of Russia, Austria, Prussia, Saxony, Bavaria, Denmark, and France, have all sent specimeos of their production. Private enterprise in the same art is honourably represented from France, from many of the States of the Zollverein, and from Austria. A few exhibitors appear from Portugal, One article is shown from America. Turkey is also exhibited in a limited number of articles. The East India Company show specimens of the graceful forms of Judian pottery; whilst the well-known productions of China are among the articles collected from that country. But, undoubtedly, the collection which most largely represents the commercial importance of the ceramic art as a branch of manufacture, and the advances it is capable of making under no other infinence than that of private enterprise and public taste, is that which is exhibited on the British side, and mainly contributed

by the Staffordshire potteries.

Minros, H., and Co., Stoke-on-Treat, Staffordshire (1, pp. 709-711), stand foremost among the British exhibitors for the number, variety, and beauty of their

"We have found it necessary to view this collection in two divisions: first, in respect of a group, of articles which we have considered distinguishable is kind, and not merely in degree of merit, from all others in the class; and, secondly, another group which, though of high excellence and beauty, must be tooked upon as high excellence and beauty, must be tooked upon as by several other manufacturers. The first of these is the great deserts ervice, which has attracted universal

notice.

or "Jay" has principle for history protects the two different bodies of port/chin and potate, an detection of which the bodies of port/chin and potate, an detection multip of effects, and, in a certain extent, from next or the principle of the protection of the potation of the protection could be nutation, except on a potent nine which would be for from receiving universal assent reference to the position of the figures, as being too pretty and evidently for erament takes, and having too pretty and evidently for erament takes, and having too two which they are appled. To this it may be produced to the protection of the figures, as being too two-based or dispure, for oursand taking, it is clearly now which they are appled. To this it may be produced, that such as well and become relationship, it is clearly now which requires to be very strictly governed by pool took, just the subsidial become relationship, and the protection of the pr

The Jary were, however, ananimously of opinion that the dessert service of Mears. Mirrow, being one of original design, presents a very high degree of beauty and harmony of effect; and that the design and modelling of the figures in many of the pieces are full of grace and spirit, evincing a remarkable degree of artistic merit.

The Jury mint specially mention, as belonging to the first group of articles, the grade-upots and vases exhibited by Mesers. Minnes, modelled in initiation of the old with which the effect of that ware is attained, but for novelty and beanty of design. A large vase, intended or similar purpose, designed by Baron Mascenters, both for beauty of style and great size. Thirdly, the attention of the Jury was directed to the

mounterier of hard povedan for cleanies) purpose, lately established by Meser, Murrow, I is well known that for such articles the liberatory has bithered been muniforteries; there existles and opposite have been subjected by Mr. Benry, at the instance of the Jury, to Dreden, and have been found to stand these tests with prefer inscess; and besides being fully equal to the being considerably chepur. The Jury have considered the meseral citabilishment of this manufacture in a security point of view of hypothesis and the second and the second control of the manufacture in a security point of view of hypothesis and the second of the manufacture and interest in

The second group of strickes exhibited by Messer, Morrow includes ratio of very remarkable most and Morrow includes ratio of very remarkable most and while other Doglish calculates comprete, and would alone page Messes. Misson among the very fast of these. It Most Minstein instance of the Server, the reservations of the server of the strickes exhibited by Messes. Minstein instance of the Server, their fowerteries, on their extrictive basins, every. See, and the sundier articles of a more parely decorative thanteries, on their extrictive and the strickes of the strick of the server of the strickes of the strickes of the services, and the strickes of an extractive of the strickes of the st

The Jury were manimous in recommending Mesers. Mistrox for a Council Medal, but founded it only on those articles first referred to, in respect of which originality and beauty of design, and not mere excellence of execution, were prominent merits.

execution, were prominent merits.

COPPLAND, W.T., Stoke-on-Trent, Stafforthinire (J. pp. 711-714).—The exhibition is remarkable in several groups and figures, several of which we enlimited processed and the complete mastery over this material in its best and not legitimate application. The Jury correlation of the proposed discovered with flower-pushing and other parterus, and sow much used for fler-places, panels, tables, and a suriety of other purposes connected with publication of the properties of the propose connected with publication of the properties of the

and some Pompeina pattern are particularly plenning. Mr. Cortax, as whose a large assortion of planes and Mr. Cortax, as whose a large assortion of planes and painting and gilding are, in many of them, every good, and eventually in the entering of the planes, much tasso and vectodially in the entering of the planes, much tasso large sense of Eurosean shape and typic of decoration as large sense of Eurosean shape and typic of decoration as which the effect of intelligence of the entering of the planes of the entering which we have the entering entering entering which we district with this color are enhalted, the days are unable to state how far it can be required to exhabit this as an improvement in censale

The earthenware of Mr.Copeland is of excellent quality; and on some plates the Jury observed prints worthy of special notice un account of simplicity and effect. A Prize Medal is awarded him for the general high

mort there in his extensive collection.

Wittorcowo, T., and Sox, Dirmin, Sufficialise (6, pp. 717-719). The nuriesce stabilited by this time not possible the property of the state of the

loss, J., and Co., Coaltrook Dale, Shropshire (47, p. 727), have calkhilded proceiols services and other articles, which have attracted the special attention of the Jury. A dessert service of a rose ground is in particular creamtable, not only as being the nearest approach we imitate, but for the excellence of the flower-parallel, gilding, and other decorations, and the hardness and transparency of glaze. The same observation applies to other procedula sarticles exhibited by this firm. The Jury have awarded to Mosers, Ross and Co. a Pract

Befare proceeding to mention the remaining English exhibitors to whom the Jury have awarded the Prize Medal, it may be well to state generally that this reward labs respect chiefly, if not entirely, to that humch of the ceramic art which has been so extensively developed in England, and which has constituted it an important branch of our national industry, viz., the manufacture of stone and earthenware for domestic use. Articles of precision are also enablished by some of the firms herenamed; but the 24th was not been able to consider after named; but the 24th was not been able to consider cases, indexed, they are open to unsuch articleins. Visition closes, and forms of force indefinite shirings, with much content and the contract of the contract of the content of the contract of the contract of the content of the contract of the contract of the contract natural, visit, the application of elaborate and amendment of the contract of the contract and amendment of the contract of the contract and amendment of the contract of the contract and contract of the contract of the contract of the same of the contract of the contract of the contract and contract of the contrac

the Prins Modal.

Marcan T. J. Joid J., Braniem, Staffigshahir (b, p. 710).

Marcan T. J. Joid J., Braniem, Staffigshahir (b, p. 710).

Barre children and interesting soortment of articles have exhibited a most interesting soortment of articles that the control of the control

DYRNOCK, T., Shelton, Staffordshire (12, p. 722).—
This manufacturer has exhibited also eartheaware of
first-rate quality; and the Jury have much admired the
neatness and good taste of his printed patterns, the agreeable effect of his "flowing blue," and in general the
excellence of his ware. They have awarded a Prize
Melal to this exhibitor.

Acces, S., and Co. Burdens, Saffeethire (7, p. 12),—
This is another very important tall, as exhibiting the
productions of a most extensive nanofacturer, as well in
porchain as in the cheaper warrs. Faney articles in
partia or hisealt, of most delicate excention, are shown
in this still; and the Jury may neverious as remarkable
for facey and feebases of effect a number of yases and
with white figures on a blue ground,—and some with
green ornaments an the same ground. The Jury have
avarded a Prize Medal.

MITOR, C., and Soss, Hanley, Staffordshire (10, p. 720), have exhibited excellent earthen ware, and some specimens of very remarkable size, especially two great vases, of one piece each. Their white enamel ware is of first-rate quality, and has an extensive hold on the market. The Jury have awarded a Prize Medal.

Boots, T. and R., Burslem, Staffordshire (11, p. 722).

—The articles exhibited in this stall are well worthy of special notice, on account both of some new processes in the mannfacture of eartherware, and for the remarkable grace and beauty of some of the productions. The inlaying of one clay spon another,—as white upon blee,

—in a process patented by Messrs. Boote, and has important results in readering simple and easy certain effects and combinations of colon, which it was before impossible or difficult to produce. Some vases or jars exhibited by Messrs. Boote, of a pale hrown elay colour, with rise leaves and tendris in high relief, are deserving and the colour of the process of the colour of the

of moster, and the property of
Garxs, S., and Co., Lambeth (Class XXVII., 125, p. 775).— This firm exhibits some very remarkable specimens of stoseware, of great six, designed for the use of breweries, distilleries. &c., and which, on account of their hardness of glass and other qualities, are of great value in many processes of chemical inamufacture. The Jury have awarded a Prize Medal.

Fixen, J., London (38, p. 725), exhibits articles of earthenware for wash and steam-tube, and other sanatory purposes, which have appeared to the Jury deserving the award of a Prize Medal.

The Jury, in addition to the Exhibitors before mentioned, to whom they have awarded Medals, desire to notice, as deserving very Honourable Mention, the following names:— KENNEDY, W. S., Burstem, Staffordshire (4, p. 714), who

exhibits a large assortment of door-handles, "placques," and other similar applications of china and earthenware, which has becume in his hands a separate and important branch of ceramic manufacture. In the objects in this stall, utility of application is combined with cheapness and agreeable appearance.

KERS and MOUNTERAD NEWSSELEANDER, JAMPS STATIONAL

ness and agreeabee appearance.
KETS and MostTyota, Newcastle-under-Lyne, Staffordshire (14, p. 722), exhibit a series of statuettes in parian,
well exceuted, and of a pretty effect.
Part, F. and R., and Co., Featon, Staffordshire, (22,
P. 724), exhibit some very remarkable specimens of a
process which they seem to have greatly improved, via,
and of coloured prioting under the glaxe. The freshness

p. 224, éditinit some vey remainance specimens of a process which they seem to have greatly improved, via, that of ecloured prioting under the glass. The freshold from pictures by Multing, Wilkie, &c., are excellent. They also exhibit some eartherware of very good forms and style of ornament, Hitz, J., and Co., Glasgow (26, p. 724), being the only exhibitors in this Class from Sectuals are deserving of

exhibitors in this Class from Scotland, are deserving of notice, not only on this account, but on account also of the good quality and design of the ware they show. Chanderland and Co., of Worcester (44, p. 726), ex-

hibit some perforated chisa nf agreeable effect.
Enwans, J., and Sons, Dale Hall, Staffortshire (37, p. 725), exhibit a very large and fine model of the Warwick vase, in terra-cotta, and an eartheoware tea-

ursy, ec. Giainora, G., and Co., Worcester (46, p. 726), exhibit articles of semi-porcelain, the good quality of some of which, for ehemical purposes, is well attested.
Sourmons, W., and Co., Brosely, Shropshire (29, p. 725), exhibit superior tobacco-pipes.
Woon, G., Brentford (34, p. 725), exhibits some orma-

mental orange-tree garden-pots of remarkable sizemental orange-tree garden-pots of remarkable size-Shanez Beothers and Co., Swadlincote, Burtonfrent (36, p. 725), exhibit specimens of ironstone caneware and printed earthenware, which are worthy of

Lee, J., Rotherham, Yorkshire (48, p. 728), exhibit the application of eartheaware to letters for sign-boards, &c., which is a nseful and pretty adaptation. Challison, E. (Class XXVII., 104, p. 772)—Earthea-

ware.
The attention of the Jury has been much attracted by two designs, one of a bust, the other of a wase, executed by Janes Maxes (34, p. 752), a young pupil of the School of Design, Hanley, Staffordshire, which possess

remarkable sucrit, and deserve very Special and Honourable Meution.

In the French Department of this Class the Jury need bardly state, that they have unanimously assigned the first place to the Sevans Manifactor, and have recom-mended the Council Medal to be awarded to its produc-They must, however, again explain, that the light in which these ought to be regarded is wholly different from that in which the productions of commercial industry and enterprise are viewed. Their position is analogous to that of articles produced in a school of design; and in the French expositions they have never been sllowed to come into competition with the ordinary products of private enterprise. There is no reference to cheapness of production. The manufactory is maintained by a large production. namual grant from the public fuods, and the sale of its products, though the prices are very high, is so far from being successful, in a commercial point of view, that the result is a large annual loss. The articles are, for the most part, purely decorative. But considered as a school of design, which is not to follow but to guide the public taste, the importance of the Sevres manufactory can hardly be too highly estimated. Its influence has extended over the whole of Europe, and a large proportion of the most beantiful forms and styles of decoration, which are exhibited in the English and other departments of this Class, are derived either by direct initiation, or by slight modification, from the old productions of the Sevres school. The Jury are not prepared to say that the articles exhibited from Sèvres are equal, either as regards variety or excellence, to those which were sent forth from the same establishment at a former period, and on which its tra-ditionary fame is principally founded: but without any attempt at the mere imitation of its own old forms, it still produces wares of admirable texture and workmanship, and equally remarkable for great refinement and purity of taste, both as regards form and decoration. It is to be observed, bowever, that in respect to texture, extreme lightness and fineness are incompatible with the strength requisite for domestic use, however beautiful for merely ornamental Chinn. The Jury may specify in the Sovres department several large vases,—one or two of unusually largo size,—which are all remarkable for beauty of form, and some of them for flower-painting, of admirable freshness and force. A large tazza, of fine blue, mounted in or-mole, is extremely handsome. As a work of pure (16) a Celadon green wase, with white figures in relief unipulated in a novel and peculiar manner by the pencil. The handles are also of porcelain, the whole deriving no adventitions attraction from or-molu or gilding. The Jury also observed a beautiful adaptation of a cinquecento form to a porcelain tazza, in white and gold; also a large plate or slab of porcelain for picture-painting, re-markable for great size, combined with truth of surface, Two perforated porcelain lanterns are worthy of Special Mention for very elaborate and accurate execution. articles are exhibited with painting of figures (in Pompeian atyle), executed on an ungiazed body, which produces a novel and agreeable effect. There are also two vases and covers, and a large tazza finely painted with figures in a subdued shade of blue, which are very beautiful.

MM. JOUHANNEAUD and Dunois, Limoges (1630. p. 1255), are exhibitors to whom the Jury have had great pleasure in awarding a Prize Medal. Articles in pore-lain, of great size, good design, accurate excention, are among their productions. In particular, the Jury would refer to a stork vase, in which the hirds are modelled with great boldness and effect, as also the green foliage. white ground is of excellent colour and glaze, and the whole result most agreeable. Some large white perforated bottles and a white and Celadon green was, with leaves of blen-de-roi, &c., are objects well deserving special notice. Altogether much taste and spirit distinguish these exhibitors.

LE BARON A. DE TRENDLAY, Rubelles, near Melun (393, p. 1197), exhibits a series of articles equally remarkable for ebcapness, for novel and agreeable effect, and for the ingenuity of the process by which that effect is attained. It is called "caudi ombrant," and consists in

flooding coloured but transparent glazes over designa stamped in the body of the ware. A plane surface is thus produced, in which the cavities of the stamped design appear as shadows of various depths, the parts in highest relief coming nearest the surface of the glaze, and thus having the effect of the lights of the picture. taste is evinced in the selection of designs to which the process bas been applied; and perhaps there is no other in the ceramic art by which, at so chenp a rate, designs of bigh artistic merit can be reproduced in the most harmobigh aristic merit can be reproduced in the most harmo-nious tinting, for dessert or table services, and for other useful domestic purposes. The Jury have awarded to Baron Du Trembhya Pritze Medal. Gille, J. M., Porcelain Mannfacturer, Paris (848, p. 1220), exhibits a variety of articles of fancy porcelain, which show taste and skill in the misnagement of the

material. Some statuettes, birds, &c., are executed with great delicacy and sharpness. The Jury have awarded a

Prize Medal to this exhibitor.

M. DE BETTIONIES, St. Amand les Eaux, near Valen-M. DE HETTIONIES, SI. Amand SE LEARS, BERY VAIG-cience (1008, p. 1250).—This manufactory is remarkable for keeping up the old "like tender," which was so eighteenth century; and this and the neglulouring manu-factory of Tournay, in Belgium, are now the only two in Europe which maintain this particular kind of body. Much improvement has lately been effected by M. de lettipuies in the coloning and decoration of this ware; Bettignies in the cooloring had decoration of this ware; and specimens are exhibited, especially some vases of integories blue, which will be deserve, in the opinion of the M. Massaan, Paris (1342, p. 1240), is an exhibitor whose potteric grise is excellent in its forms. There is an enamelled vase which is deserving of pariental notice, and the Jury have awarded a Prize Medal.

Baytrasonaya, J. P., Rue de la Muette, Paris (409,

p. 1197), exhibits buttons made by a process equally effective and ingenious, described in the earlier part of this Report, by which an importance has been given to this branch of ceramic manufacture, which could not have otherwise attached to it. The Jury have had no hesitation in awarding a Prize Medal to M. Bapterosses, and Special Commendation,

The Jury have also awarded Prize Medals to the following Exhibitors: BASTO, PINTO, and Co. (Portugal, 1047 and 1108, p. 1317).

Copenhagen, THE ROYAL PORCELAIN MANUFACTORY at (33, p. 135) MADRAS POTTERY, THE (p. 921)

St. Petersburg, THE IMPERIAL CHINA MANUFACTORY at (318, p. 1376). STRAHL, ОРТО (Prussia, 206, р. 1059). VILLEROY and Носи (Prussia, 361, р. 1071).

ZIEGLER-PELLIS, (Switzerland 260, p. 1283), terra-cotta,

deserves Honourable Mention. Besides these Exhibitors, the following names in the French Department have been thought deserving of Special French Jepartment have oven thought deserving of Special Mention:—H. I. Nart (659, p. 1209); ALLUAUS, sen. (1051, p. 1229); E. Honorić (877, p. 1221); C. Avisseau (1543, p. 1250); J. Pitt (1629, p. 1255); and Gorsas

and Peries (1253, p. 1237).

Austria. — The Imperial Porcelain Manufactory of VIENNA (615, p. 1038), has exhibited a series of articles for table-services, of different kinds, flower-baskets, a table painted with shells, corals, &c., &c., which have certain merits, and the Jury have agreed to award a Prize

FISCHER, Moritz, Hungary (618, p. 1038), exhibits po celain articles of table-ware, embossed with white and gold, and with other patterns. The texture and colour of the white are good, and the Jury have awarded a Prize

The Jury also considered, in the Austrian Department, the Mesars. Haidinger Bhothess, Ellbagen, Bobenia (620, p. 1039) as deserving Honourable Mention; as also

FISCHER, Bohemia (617, p. 1038).
In the Department of the Zollverein, the Royal, Porce-LAIN MANUFACTORY AT BERLIN (Pressis, 213, p. 1060), exhibits a variety of articles, of which the chief merit consists in the landscape-painting, which is extremely consists in the landscape-painting, wraten is extrusery well excented, and is employed in the decoration of vases, plates, &c. The same good execution is carried out in picture-paintings, ebiedly copies of pictures of the Flemish sehool, on similar articles of poreclain. Much of the Berlin china is so covered with gold and painting that the body of the ware is almost cantirely concealed. There are also exhibited from Berlin some statuettes in porcelain, and candelabra of the same material, with leaves and figures on a pale greenish-grey ground, which are of good execution and design. The Jury have awarded a Prize Medal.

THE ROYAL SAXON CHINA MANUFACTORY, Meisser (Sexony, 10, p. 1105), exhibits the hard porcelain for ehemical purposes, for which it has been long eelebrated; also a considerable variety of ornamental china, as well as of dinner and coffee services, &c., &c. Some of these with ennmelled paintings are well executed. A camellia plant in full flower, entirely executed in porcelain, is a very re- p. 1060). markable example of a kind of work which has long

maintained its ground in this manufactory, aided by the natural ductility of the clays which are employed. The flowers of this plant are executed in white of the greatest purity; and the leaves are all finely glazed. The Jury have awarded a Prize Medal.

THE ROYAL BAVARIAN PORCELAIN MANUFACTORY (Bavaria, 64, p. 1101), Nymphenburg, near Munieh, exhibits articles in biscuit, and a variety in hard decorated porcelain, which manifest decided ndvance in taste both as to form and decoration. The picture-painting on some of these is extremely well executed. On the whole the Jury observe in this exhibition much spirit and originality, and have awarded it a Prize Medal.

Honourable Mention is accorded to the following:-

Annoldi, C. E. and F. (Prussia, 778, p. 1693). Constantinople, Porcelain Factors at (p. 1397). Mattschass, J. G. H. (Widow), and Son (Prussia, 217,

TIELSCH, CARL, and Co. (Prussia, 219, p. 1060).

October 1851.

ARGYLL, REPORTER.

CLASS XXVI.

REPORT ON DECORATIVE FURNITURE AND UPHOLSTERY, INCLUDING PAPER-HANGINGS, PAPIER MACHE, AND JAPANNED GOODS.

[The Figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DISCRIPTIVE AND ILLUSTRATED CATALOGUE.

Jary.

Professor Rossner, Chairman and Reporter, Austria; President of the Imperial Academy of Fine Arts. Professor Bonness, Choleman and Reporte, Austria; Prosident of the Imperial Academy of Fin. Lead Assuments, Progress Choleman, 18 Fred Superalistics.

CARLES on Brevs, Bandis; Architecture, Carles of Press, Bandis; Architecture, Carles of Press, Bandis; Architecture, Carles of Press, Bandis; Architecture, Carles of Carles, Anderson, Saraforder, Carles of Carles, Carles of Carles

Lieut. Colonel Denairy, 90 Warwick Street, Pimileo.
L. Genzan, 21 Fitney Sparser; Architet. (Jurer in Class XXIII.)
Chev. Lixyriax; Commissioner to the Exhibition for II.M. the King of Sardinia.
M. Wotowna, France; Professor to Museum of Arts and Selences, Member of the Central Jury, and of the Legislative Assembly of France. (Juror in Class XXXX.)

Tax objects comprised in this Class are of a kind intimately associated with the comfort and adornment of our dwellings; of great importance from the vast amount of skilled labour employed in their production; and of high interest, as displaying the state of industrial art in various countries.

A popular taste must be greatly influenced by those things which are ever before the eye as brusehold com-panious, and in the manufacture of these it is therefore most essential to attend to the principles of tasteful design, for by those principles an article obtains its power of attraction.

Farniture

It is important, both for the strength and good effect of furniture, that the principles of sound construction be well carried out, that the construction be evident, and that if carving or other ornament be introduced, it should be by decorating that construction itself, not by overlaying it and disguising it.

It is not necessary that an object be covered with ornament, or be extravagant in form, to obtain the element of beauty; articles of furniture are too often crowded of beauty; articles of furniture are too often crowded with unnecessary embellishment, which, besides adding to their cost, interfers with their use, purpose, and con-reninese; the perfection of art manofacture consists in combining, with the greatest possible effect, the meful with the pleasing, and the execution of this can generally be most successfully carried out by adopting the simplest

The Jury, though fully sensible of the great beauty of many of the ornamental works in furniture collected at many of the ornamental works in furniture collected at the Exhibition, yet regret that there have not been more specimens of ordinary furniture for general use; works whose merits consist in correct proportion, simple but well considered design, beauty of material, and perfect worksmabilp. Few have the means of purchasing such beautiful works as the sideboard of M, Fondulosis, or the cabinets of M. Ringuet-Leprince, which come almost under the head of fine art rather than of manufacture; and it is much to be desired that attention be directed towards improving the taste of those more ordinary objects that come into daily use by the many.

Cabinet furniture first became an article of general Cabinet furniture first occame an arrived vi geogram luxury about the beginning of the 16th century. At this period inlaid, as well as richly-carved furniture, was manufactured in Italy, and exported to various parts of Europe. Among the works now exhibited by Italy, some are distinguished by great excellence, particularly in the

carved examples, From Therang.—M. A. BARBETTI, of Florence, Sienna, (91, p. 1298), exhibits, with other things, 2 casket of great merit, most elaborately carved, introducing bas-reliefs of figures, ornaments, chimeras, &c.

A large cheval screen frame, in waluut wood, by Lutor MARCHETTI, of Sienna (26, p. 1228), is very beautifully wrought with delicate ornament of good taste. An oval medaliion frame, by PIETEO GIUSTI (123, p. 1500), is also

a fine specimen of carving a nne specimen of carving.

From Sardinia.—M. B. Capello, of Turin (64, p. 1304),
exhibits a very elegant inlaid table, a curule chair, and a pedestal-all ornamented in very pure taste in the Etruscan style, and of good execution

In France ornamental cabinet-work had acquired considerable reputation in the time of Louis XIV. Its manufacturers have since then continued to produce works of great beauty, and have brought the art of marqueterie inlay to a high state of perfection: this work consists in inlaying woods of a great variety of tints in the form of flowers, ornaments, &c., and was greatly advanced in the last century by Reisner, who produced very beautiful

In buhl-work, siso, wherein metals are inlaid upon grounds of turtoisesbell or ebouy, or rice versi, the French have greatly excelled. This kind of ornamental inlay takes its name from M, de Boule, a celebrated French cabinet-maker in the time of Louis XIV.

In Germany there has loog been established cabinetwork of a high class, more especially for those exquisite ebony cabinets, inlaid with precious stones, and various woods and metals, surmounted with carved figures, and elaborately fitted with innumerable drawers, and with perspective recesses—presents fit for kings and princes: of these an excellent example is presented in the clony cabinet of M. Grioca, of Vienus (631, p. 1039)—a most beautiful work, exquisitely finished.

Cabinet-work of a more useful description has been carried to a bigh stote of perfection io Great Britain, whose manufacturers have studied to produce objects in which the prominent excellence is substantial quality and

fioished workmanship.

It was in England that mahogany, now so generally used, was first employed for eabinet furniture, about Dr. Gibbons, an emineut physician, baving bad some planks of this wood given to bim by his brother, a West India captain, who had brought them in his vessel as ballast, wished to use them for a bouse be was hailding in King Street, Covent Garden, but the carpenters com plained that the wood was too hard; it was therefare laid aside as useless. Soon after, Airs, Gibbons wanted a candle-box, and the Doctor called in his cabinet-maker, Mr. Wollaston, to make bim one of this wood, then lying in He also declared that it was too hard: Doctor said he must get stronger tools; the caudle-box was completed and approved, insomuch that the Doctor then insisted on having a buresu made of the same wood, which was accordingly done; and the fine colour, polish, &c., were so pleasing, that be invited bis friends to come and see it. Among them was the Duchess of Buckingham, Her Grace begged some of the same wood from Dr. Gibbons, and employed Wollaston to make a bureau for her also; on which the fama of mahogany and Mr. Wollaston was much raised. The wood became the fashian, was

was much raised. The wood became the fashian, was much admired, and from that time has continued to be used for furoiture more than any other. It will not be possible to give a description of the various details of the manufacture of cabinet-work, but an account of some of the more ornamental processes and

results connected with it may be desirable.

Of these the marqueterie inlay is one of the most beautiful and interesting. In this work the design, baving been first drawn on paper and properly coloured, is pricked with a fine needle, so that the outline of the ornament or other objects can be pounced on the various coloured woods proposed to be employed; these outlines being carefully marked in, are cut with a fine watchspring saw, worked in a lathe; in most cases the wood forming the ground is cut with that forming the ornament, so that a piece cut out of white wood corresponds exactly in shape and size with the opening left in black wood, in which it therefore fits and forms the required

pastern. Tursia-work, or the art of inlaying woods, had been practised from a very early date in Italy, and extensively employed in the decoration of wall panelling; and extensively employed in the decoration of wall panelling; and re-mains of this kind of work, revived by Fra Giovanni di Verona, in the 15th century, still exist in some of the Italian churches.

The earlier specimens of this work were executed in woods of different shades, but natural bues; afterwards, when flowers, hirds, and coloured ornaments were intro duced, various stained woods ware employed: these, in most cases, have the disadvantage of fading, but in the admirable specimens of marqueteric inlay exhibited by M. CREMER, of Paris, (1573, p. 1252), the woods are stained by the process of M. Boucherie, which is stated to give them a permanent due to a considerable deput. Notwithstanding, however, the beantiful effect of this work, it is desirable to adopt, as far as possible, the employment of woods of natural hues, as being more harmonious and more consistent with the nature of the

work. in those ornaments which are shaded, the effect is given by immersiog the pieces in hot sand. The various parts, being cut out of the required tints in the proper form, are then placed according to the design, and fixed on paper; afterwards they are applied, like veneer, to the piece of furniture; being monnted, they are cleaned off and slightly polished, and the floer lines are then engraved. The manufacture of habl inlay is by exactly the same process, only that metals, tortoisesbell, and chony are

here the moterials employed; the nature of the design is somewhat different, depending more upon simple outline forms. There are many beautiful specimens of this kind of work in the Exhibition, more particularly the cabinets

where the figures and ornaments are designed and finished with infinite talent and skill,

There is another kind of inlay applied to furoiture, which may be called mosaic inlay. The beantiful boxes made in India give some good specimens of this work in ivory and metal, equalled, however, by the inlaid furniture and and meth, equaled, however, by the mind furniture and boxes of M. Marcelin, of Paris (606, p. 1207): the ex-traordinary table of Schor Pranz, of Spain (2714, p. 1346), gives a fine example of this style of work, executed entirely io minute portions of wood; the same principle is carried out in a table by NYE, of Toubridge

Wells (54, p. 733), Where the patterns assume geometric forms, this kind of work is executed by laying together slips of wood or metal, &c., in the particular forms required; these united slips are then cut transversely, and affixed to the grounds, as in marqueterie.

Immediately connected with inlaid cabinet-work is the manufacture of parqueterie, for floors; in this work the same principle is carried out as in marqueteric, only on a bolder scale; woods of different colours are cut to pattero. and inlaid one in the other, or so arranged as to produce very beautiful effects for floors. The specimens exhibited of MM. Couvert and Lucas (404, p. 1163), and M. de Keyn, of Belgium (406, p. 1063), of MM. Leistlen DE KEYN, of Degrum (400, p. 1003), of Nov. Livisian and Sox, of Vieuna (633, pp. 1039-40), and of Mr. Miz-len, of Russin (199, p. 1376), show the perfection to which this art bas been brought.

which this art has been brought.

A very beautiful novelty at this Exhibition was the introduction of porcelain inslaid in furniture like marquetrie, by Messrs. Rivarr and Axborizz (1439, p. 1245); in these examples, not only were panels of porcelain inserted, but the painted flowers were cut to form, and injuid like the oronamental woods. In the eahinet of Mr. Downtooth, of London (404, p. 760), porcelain of a very high class of art is mounted in the panels and pilasters; and M. Gambs, of St. Petersburg (297, p. 1376), contributes a cabinet in tulip-wood, mounted in or-molu, containing beautiful panels in porcelain. M. A. E. RINGUET-LEPRINCE (1437, p. 1245) has introduced enryings of ivory, mounted with ormolu, on one of his cabinets, with excellent effect; and in his most beautiful ebouy cabinet for medals, relieved with exquisite carvings, fine stones are inlaid so as to form part of its decoration. Many of the pieces of furniture owe much of their attraction to the metal ornaments with which they are mounted; but the ebony cabinet of M. Barsedienne (1709, p. 1258) combines, in the very of a high class of art, so arranged as to form one nuited

whole. Of carved furniture there are many magnificent examples in the Exhibition. In the struggle to produce objects that might be specimens of the talents of the parties employed upon them, utility and purpose have in some degree been forgotten, and works brought forward that are objects of art rather than manufacture; still it is one of the advantages of this result that it tends to improve the art workman; it gives opportunity for the display of his skill; it causes a school of art to grow up nod extend itself; and if it err by excess, it at any rate creates the buffet of M. Focadinois, of Paris (1231, p. 1238), is of the highest merit: whether for its composition, the execution, it is a noble work. The specimens by M. Lienand, of Paris (1826, p. 1239), though not large, are of great excellence, showing to what perfection and beauty the art of sculpture in wood can be brought, A large frame in pear-tree wood, very beautifully curved by M. Lecheson (573, p. 1205), affords another fine spe-cimen of this branch of art.

The grand callection of furniture by MM. LEISTLER and Sox, of Victors (633, pp. 1039, 1040), exhibited in four rooms, displays considerable fassey and excellent workmanship, though the oranment is far too redundant for ordinary purposes.

The grand bookense of Messrs, HotLAND, of London of work in the Exhibition, more particularly the cabinets (161, p. 745), is another example of carved furniture of a of M. Fortuga, of Wurtzhurg, Bavaria (69, p. 1101), high class, and the sideboard and bookease of Messrs,

JACKSON and GRAHAM (261, p. 755), the buffet of Messes, Cooke, of Warwick (110, p. 827), the bed and toilet furniture of Messrs. Thollow (162, p. 745), the carved glass frame and other furniture of Messrs, SNELL (17tt, p. 746), the beautiful eradle and other objects by Mr. Rougus (353, Class XXX., p. 842), a writingtable in walant wood, with other specimens, by Messes, Gillows (186, p. 748), and many works by other manufacturers of Great Britain, show that industrial art is well

represented in this country There is another branch of cabinet-work which merits particular notice, that in which mechanical action is inroduced; the specimens exhibited by MM. DAUBET and DAUMARET, of Lyons (1579, p. 1252), are most ingenious and curious; in their secretaire, which is full of con-trivances, one key unlocks all the drawers. These run in the most easy and perfect manner, if touched in the slightest degree; and the closing of one particular drawer shuts and fasters all the others. M. KHEGES, of shuts and fastens all the others. Paris (1283), also exhibits some farmiture of excellent mechanical action, such as card-tables, toilets, &c.; and M. Von Hagen, of Erfurt (770, p. 1093), has a cabinet of fine workmanship, in which the secret mechanism is

skilfully carried out In the Austrian Collection are some curious chairs and furniture by M. Thoner, of Victor (641, p. 1040), in which the wood, inlaid with metal lines, is bent to the required forms without the usual framing.

Many excellent billiard-tables are exhibited: in one, by M. Bornamper, of Paris, (1106, p. 1230), the curving is of very beautiful design; another, by M. Kelle, of Vicunn (632, p. 1039), is bandsomely mounted in buhl inlay, and the inlaid ones of this manufacturer are very beautiful specimens. The billiard-tables of Messrs. THURSTON (17, p. 731), and of Messrs, Burnoughs and WATTS, of London (4, p. 730), are of simpler construction, but solid, and of excellent workmanship.

Decorations.

The specimens exhibited under this head are decorations for walls and ceilings, imitations of woods and nearbles, and painted blinds,

Several of the ceilings under the galleries of the Exhibition Building have been decorated with more or less taste, principally in the arabetque style. One, painted by Signar MONTANABI, of Milan (738, p. 1044), in one of the Austrian apartments, deserves particular notice: it is a coved ochiag, executed with great breadth of effect. The imitation of gold is excellent, and the general

errect. The institution of good is exceiters, and use general reatment is fall of spirit and force. In wall decoration Mr. Monany (164, pp. 745, 746) exhi-hits a landsome panel, mounted with gilt ornaments and mouldings; the Inter upon a ground of looking-glass. In the centre of the panel is pinited in figure arroyanded by foliage nrabesque

Mr. Moxox's panelling (252, p. 754), nvcr a chimoey-piece, by Mr. Thomas (252, p. 754), in the English Fur-niture Court, is a tasteful specimen of decoration; and the imitations of woods and marbles by this gentleman are executed in a very superior manner, united with an ornameatal character of a high class.

Messrs. Hollann, of Warwick (407, p. 760), exhibit table-tops in imitation of marbles, ornamentally arranged

in the old Italian style, with good effect.

Mr. Kershaw's imitations of woods, Class XXVII. (1, 764) are also very excellent; and those by Messrs p. 764) are also very excellent; and those by Messrs. Nicola. and Allen, Class XXVII. (69, p. 768) of wood and marble, have likewise considerable merit. Some of these imitations of woods are painted on glass, the

these imitations of woods are painted on gass, the polished surface of which gives great finish to the work. Among the painted blinds, of which there are many axhibited, those by M. Bater Pasks, of Paris (1061, p. 1229), were considered good speciment. The wax-cloth hangings, by M. Vyær, of Paris (774, p. 1215), are painted ornamentally in the style of Francis I, and are stated to be so prepared as to resist the effect of moisture.

Paper-hangings.

Paper-hangings form a manufacture of considerable importance, carried on in most of the principal cities of Europe, employing many artists and designers, and thousands of operatives, consuming also wast quantities of paper, colours, wool, and metal. They are important also, because they may be made the means of extensively diffusing taste for mrt; and from the low price of the cheaper kinds, enabling the humblest mechanic to give to

his home an air of elegance and comfort It is difficult to determine the period when paperhangings were invented. They are supposed to have been first made in China, and the introduction of these hangings into Europe probably suggested the manufacture here.
They may be divided into three kinds—the flock, the
metal, and the coloured; and each of these seems to have been invented at a different time as an imitation of a distinct material. The flock, to imitate the figured tapestries and stuffs; the metal in imitation of the gilt leather hangings; and the coloured as a substitute for

painted decoration. It is generally allowed that flock-hangings were first manufactured in England, and invented by Jerome Lanyer, who obtained a patent in the reign of King Charles I., dated 1st May, 1634, and carried on his art in

London,

In this patent it is stated, "that by his endeavours he
hath found out an art und mystery of affixing wool, silk,
and other materials of divers colours upon cloth, silk, cutton, leather, and other substances, with oil, size, and other cements, to make them useful for hangings and other occasions, which he calleth Loudriniana; and that the said art is of his own invention

M. Savary, in his Dictionary of Commerce, 1720, saya that touture-de-laine or flock-hangings were first made ut Ronen, but in n coarse manner, being only used for grounds, nu which, with flocks of different kinds, were furmed designs of brocades. They essayed to imitate tapestry-hanging, but not satisfactorily; and at last a manufactory was established at Paris, in the Faubourg St. Antoine, and there flowers and grotesques were introduced with success.

The manufacture is thus described by him: - "The artist, having prepared his design, drew on the cloth with a fat oil or varnish the subject intended to be represented; and then the flocker, from a tray containing different tiuts of flocks, arranged in divisions, took the colours he required, and sprinkled them in a peculiar manner with his finger and thumb, so that the various

masher with his hoger and thumb, so that the virious shades and colours were properly blended, and an imita-tion of the wove tupestry produced." These descriptions, though detailing the mannfacture of flock-hangings, yet do not allude to the use of paper as a ground, nor to blocks for printing. A French author, writing in 1723, says that paper-hangings, called tapestry in paper, were, till lately, only employed by the country people for their cottages, or by small tradesmen in their shops and rooms; but towards the end of the seventeenth eentury, the manufacture was raised to such a point of perfection and beauty, that, besides the quantities that were exported abroad, and to the principal cities of the kingdom, there was scareely a house in Paris not deco-rated with it. The manifecture at that time is thus de-

scribed:-The design, having been drawn in ontline on paper pasted together, of the size required, was then divided into parts of a suitable form, and given to the carver or wood-engraver, to cut the design on blocks of pear-tree, much in the same manner as at prescut. The outline thus cut was printed in ink, with a press, on separate sheets of paper: when dry, these were painted by hand in dis-temper colours, and afterwards joined together, so as to form the required design. Grotesques and panels, in which were intermingled flowers, fruits, animals, and small figures, were then executed by the above process. small neures, were trem executed by the above process, M. Reveillou, of Paris, is considered to have introduced many improvements in this manufacture, and was cele-brated for the beauty of his productions in the latter end of the last century. The pillage of the workshops of this manufacturer in the Faubourg St. Astoine was one of the first incidents of the Revolution in 1789. In England this manufacture continued from the time

of Lanyer, and obtained a high reputation. In 1712, a

duty of 14d. per square yard was imposed; and a Mr. Jackson, who established a factory at Battersen, for paper-hangings of classic design in chiaro-occuro, writes, in a work published in 1754, in praise of his own produc-tions, and condemns the function paper-hangings at that time so much used, comparing them with the Chinese,

In the year 1786, there was established at Chelson a manofactory for paper-hangings of a very superior de-scription, by George and Frederick Echardts. Works excelling even those of the present day were produced at this place; some of the blocks used are at present in pos-session of the writer of this Report: they have great merit in the designs, and are some of them 8 feet in length. These manufacturers carried the art to its highest point in England: they printed not only ou paper, but also on silk and linen, and employed a number of artists in addition to workmen and children. M. Sheringham,

of London, also excelled at that time in decorative paperbangings. During the present century the French have not only restored this branch of manufacture to a high state of perfection, but have also introduced many important improvements, such as the embossed flocks and the shading of flocks, the perfect imitation of chintz, improvements in the satin-grounds, and the introduction of work printed from engraved cylinders.

In England, the trade was protected by a daty of 12d per square yard up to the year 1846, when the late Sir Robert Peel reduced it to 2d. This high duty acted almost as an exclusion to foreign makers, and there was therefore no competition with them, nor any inducement to improve. Since that time, however, the English manufactorers have made great progress in their art, both in style and workmanship, the trade has greatly increased, and the improved productions are sold at a greatly reduced price. They have, besides, applied themselves to the improved application of machinery, by which very beautiful papers are made at an extremely cheap rate.

The process of manufacturing ordinary paper-hang-ings, as now carried on, may be thus briefly described:— The pattern being first carefully drawn, is then pricked, and the outlines of the various tints are pounced each on a separate wood-block made of poar-tree, mounted on These blocks are pressed on the sieves of colour, and then applied to the paper, each block following the other on the guide-marks left by the previous impression. An idea may be formed of the enterprise and labour required to produce some of the decorative paper-hangings for this Exhibition, by stating that more than 12,000

blocks have been employed on a single one of them. In making flock-paper, the pattern is first printed in size, and then with a preparation of varnish or Japan gold-size. When this is partly dry, coloured flock, preof whose products I am coordined it understates,

pared from wools, is sifted on the varnish pattern, to which it adheres. Great improvements have been made of late years in this manipulation, more especially by French manufacturers.

Paper-hangings, where gilding is introduced, are prepared much in the same way as for flock : the leaf metal is laid on the varnish pattern, or, if worked in hronze powder, it is brushed over with n hare's foot,

The English manufacturers have attained great perfec-tion in the preparation of metal papers. The gilding, having to encounter the damp and variable climate, is severely tested; but by menns of good material, careful manipulation, and a preparation washed over it, it remains unchanged for a considerable period.

Paper-hangings have been printed in England by means of hand machines for many years, the papers being made in lengths of 12 yards, or single pieces, in one or two colours, and these colours falling separately on the ground, It was not notil about ten years since what is now understood as machine printing was fully introduced, and this was done by Messrs. POTTER, of Darwen (74, p. 734), who, by means of steam-power, artificial drying, and an eodless roll of paper, were enabled to produce patterns with good effect by surface-roller printing in several colours, on the principle of calico-printing: specimens showing 14 colours were exhibited by this honse. Messrs. Heywood, Higginbotton, and Co., of Manchester (71, p. 734), have also effected great improvemeuts in the manufacture, and exhibit patterns showing 20 colours made by 14 rollers; and Messix, J. Woollams and Co., of London (322, p. 758), likewise exhibit excellent specimens made by machinery in addition to those they make by block-printing.

These machines are now each espable of printing from 1,000 to 1,500 pieces per day; and although the work is

not equal to block-printing in the solidity or permanence of the colours, yet the small price at which it is pro-duced commands an extensive sale, superseding to a great extent the chesper kinds made by hand

The above remarks apply only to paper-hangings of the cheaper qualities, for machine-printing has not yet been successfully applied to those with glazed or satin grounds. There is also another evil which it is most desirable to remedy-the colours are liable to run, without

great care, in the hanging. It is perhaps impossible to give the correct statistics of It is persays impossing to give the correct standards of the manufacture of paper-hangings. A statement has, however, been prepared with some pains by M. Zuber, of Rixheim, which approximates to the actual condition of this hranch of industry in the principal countries of Europe and in the United States; but is founded on rather loose data in reference to this country, the result

STATISTICS OF PAPER-HANDINGS, 1851.

Co	P) TA	т.		1	Number of Tables.	Number of Machines.	Workmen.	Number of Pieces produced.	Value in Pounds Sterling.	Mean per Perce
Great Britai					600		1,500	2,300,000	£. 300,000	2 :
Ditto	58	-	-	-	600	20	1,710	3,200,000	100,000	0 1
France -	-	-	-	-	1.200	20	4,500	6,000,000	330,000	ĭ
Ditto-	-	-	-	-1	1,200	12	4,500	200,000	8,000	0 :
Zollyerein	-	-	-	-:	300	6	1,200	1,600,000	80,000	i i
Belgium =	-	-	-	-	150	6	600	600,000	40,000	
Hollsod -	-	-	-	-1	90		200	250,000	12,000	0 1
Switserland	-	-	-	-		- 1				0
Austria -	-		-	-	30	- 1	100	100,000	4,000	i ı
Piedmont	-	-	-	-	60	-	250	250,000	24,000	
	-	-	-	-	40		150	200,000	8,000	0
Russia -	-	-	-	-1	100	- 1	400	500,000	60,000	2
Denmark	-	-	-	-	30		100	100,000	8,000	ī
Spain -	-	-	-	-1	100	- 1	400	400,000	28,000	1 :
United State	s of	Λm	erica	-	400		1,250	4,000,000	160,000	0
Ditto-	-	-	-	-1		40	50		-	-
	Tota.	1-	_	-[3,060	84	11,250	19,700,000	1,162,000	

There are very beautiful specimens of paper-hangings | considerable artistic excellence, but also show great proin the Great Exhibition; works which not only possess | gress in the manufacture.

Fines has just's required a high renorm for her works in this branch of idensity. M. Decouver, or Post, (1713, p. 123s), exhibits a supestry-like picture entirely printed by blocks, representing a chase in a forest, are printed by the proposed printed by the pr

productions, of Rixbeins, France (1556, p. 1250), exhibits one of his beautifully-accusted landscape paperaone of a series of works for which this house is no celebrated; it represents the threat vegetation of the four orthogonal properties of the properties of the four of the colouring and the perfect worksmoothip are allow the colouring and the perfect worksmoothip are allowed properties of the various kinds of paper-hangings, &c. 1

Mears, Manea, of Paris (327, p. 1192), chibits a picture representing a garden scoue—a very elever example of paper-printing, left, perhaps purposely, in a state where a few touches by the hand of a clever artist would complete a beautiful effect. A well-executed figure in a panel, and other decorations of flowers and ornaments, heides some perliamens of the more ordinary of this house.

The English manufacturers of paper-hangings have produced many beautiful specimens also, both as decorative, damask, chintz, and tlock-papers; those made by

machinery have been previously alliaded to.
Messers Townstein and Pankars, of London (Silks,
p. 78%), exhibit paper-banqings of various kinds, of
control of the property of t

Messrs. Swalls and AIMERWANN, of vienna (63), p. 1041), exhibit paper-hanging decorations for ceilings, &e., in good taste. They have also adapted the process of block-printing in distemper colours, as a sheep form of illustrating works of science and art: the specimens they exhibit give illustrations of machinery in isometrical perspective, very beautifully executed.

M. Davis, of Brussels (Belgium, 401, p. 1163), exhibits

M. Dzvis, of Brussels (Edgium, 401, p. 1163), exhibits a large collection of paper-hangings, more particularly in flock, of excellent execution.
MM. Ratw and Virtren, of Warsaw (Russia, 262, p. 1373), have forwarded a collection of paper-hangings, which possess considerable merit, both as regards design,

colouring, and execution,

Japan Ware. The articles under this head form an interesting series, and include the products of India, China, France, Ger-

many, and England.

Japon ware may be divided into two elasses; works lacquered upon wood or metal grounds, and those formed of papier mache; these last are superior to the former, being lighter, sounder, and admitting of a more beautiful

Japan ware derives its name from the lacquered ware manufactured in Japan, and introduced into Europe towards the end of the screnteenth century. The inquered work of that country is of a superior description some of it higher in quality even than the Chinese, which is also very beautiful, and is very extensively manufac-

It is called lacquered ware because the articles are Paris, one of our Ju coated with varnish prepared from lac. This lac is a mode of japanning.

resinous gum, the sap of a shruh Tsei-shoo (Rhus vernix) in Japan, and of the Asyia Sisensis in China; the julce thence extracted is of a poisonous nature, and great caution is required in collecting it.

The method of applying the lacquer in China is pur-sued as follows: "—" The article to be ornamented, if formed of wood, is always very dry, light, and smooth: it is first costed with a preparation of ox-gall and rottenstone; this is rubbed to a smooth face and then varnished. This varnish is thus composed: 605 grains of fine gum lac are put in 1,200 graius of water, to this is ac 38 grains of oil of Camellia sasanqua, a pig's gall, and 19 grains of rice vinegar. The whole is well mixed in 19 grains of rice vinegar. And whole is wen minted in full daylight, the lac gets deeper and deeper, and the varnish shortly becomes a brilliant black; a very thin coat of this is laid on with a fist hair-brush. The article is left in a steamy beat, and at length comes into the hands of a workman who rubs it down in water with very fine pumice. The work then receives a second coar of the lac varnish, and after that a second polish, and these two operations are successively continued till the surface is perfectly even and brilliant. As the operation advances, a still finer quality of lac is used: there are never less than three coats laid on, nor more than eighteen, The decoration of the object is confided to an artist workman, who first draws in the design with white-lead; if he is satisfied with the sketch, he engraves it, and fills in the thousand little details of the subject. There then remains only to paint with the campborated he of Kouang-si, which serves as a mordant on which to gild either with leaf-gold or powder. The reliefs are obtained with one or two coats of hos-kinn-tsi, and these gilt designs are then enriched with the lac of Fo-kienn Little is known of the fine lacs of Sou-tchou and of Lattle is known or the one less of concentration and the Nama-king; the price is very high; this is explained by the cost of the work, which requires the application, the hardening, and the polishing alternately of eighteen or twenty coats. In their lacquered objects the purity and betalties of the versity the infinite reporters of the versity the infinite reporters of the brightness of the varnish, the infinite minuteness of the decoration, and the finished workmanship of the furniture, are must admirable. In the work from Japan, pieces of mother-of-pearl cut to form are inlaid in the lacquered grounds, and the last coats of the varnish are polished with a reed.

Several interesting specimens of Japan ware are exhibited from China, particularly a very elaborate folding screen by Mr. BRAINE (19, p. 1424).

Engined has obtained some eelebrity for her Japan ware executed in papier massle. Aloud a century ago, Mr. Baskerville, or disrimispham, manifestured extensively japaness into metersys, ée, and a pupil of his, which is pricelar manifestured in this pricelar manifesture in 1760, and obtained a patent for the same to this invention is owing the importance which this hranch of trade has sequired, not only from the greater perfection of form and appearance this material is susceptible of, that also from the larger this material is susceptible of, that also from the larger Meerur. Justices and Berratice, of pliminghams only

London (187, pp. 186, 200), are the largest mounther mount of this material in Exploit; they have been established about thy years, and have introlved many improvement, speciation of each to Japan ware, and that first have, from their enterprise and man, greatly developed that the enterprise and man, greatly developed the enteror a plane, are among the entiles writery of objects to Talkes, chairs, rearen, work batter, inclusion, portfolion, even a plane, are smong the entiles writery of objects to elicetic or, Japaneau Ware, exceed that in paper made and other materials; the most conspersions among made in other materials; the most conspersion among made in paper model, Japaneau black, and infinit with mather-d-point; the oriminates of this piane are in pool made and the materials; the oriminates of this piane are in pool made and the materials; the oriminates of this piane are in pool made and the materials exployed, which, being executing in small the materials exployed, which, being executing in small

* I am indehted to an article by M. Natalia Rondot, of Paris, one of our Jury, for this description of the Chinese mode of ispanning. pieces, would have probably told with better effect if arranged in the form of monics. A white-tray, and many others of the specimens where the principles of the design that the specimens where the principles of the design that the surf-boxes, too, the introduction of the jevelide work under glass is appropriately designed and well exceeded, and forms a presty addition to the spatie where the specimens of the specimens of the specimens such as a reclining chair, a cot, tables, &c, however well designed and ingeniously executed, did not appear suitable to the sutterful. The Jarry, severtheless, recognise and the specimens of the specimens of the specimens of the available of the sutterful. The Jarry, severtheless, recognise available to the sutterful.

In 1832, Mr. Brindley, of Birmingham, obtained a patent for producing papler maché articles by pressure between dies, either in wet sheets or in the form of pulp; this is employed for a cheaper kind of objects.

In France this manufacture has also obtained considerable success, though there are no objects exhibited. In Holland, Belgium, the Zollverein, Austria, the art of japanning is carried on, but not so extensively as in England.

Associated with the papier-maché ware is the intraduction of initation levels on colonred grounds nuder plaus; these are cemented to the nuder surface of the glass, which is also dispered over with gold, and the ground is then painted the required colour, a foil being fixed behind the glass levels.

Another variety has also been lately introduced; that, where lamine of mother-of-pearl are fixed behind glass, and so associated with the pictures or ornaments as to produce very beantiful effects. Mr. LANK, of Birmigham (128, p. 742), exhibits some excellent examples of this work.

Messra. CLAV and Co., of King Street, London (189, p. 749), are the representatives of the descendants of those who invented this mann feature; they exhibits large selection of articles of papier maché, among which many of the ten-trnys are of very good design and execution.

Messrs, Halbrant and Willings, of Birmingham (131, p. 342), exhibit a handsome toilet table in the Elizabethan style inlaid with mother-of-pearl, in addition to many other specimens. Mr. Walton, of Wolverhampton (Class XXII., 70),

Mr. Watron, of Wolverhampton (Class XXII, 701, p. 668) exhibits some teartrays of good design, where the principle of the ornamentation is founded upon geometric forms, depending on ontline and contrast of colorn, not on imitation of relief. The large table in papier maché, well painted in flowers, is also a fine specimen of the manufacture.

Mesers, Spirrs, of Oxford (70, p. 734), exhibit numerous examples of papier maché, many of them beautifully ornamented.

Messrs, Bernen and Kronick, of Vienna (643, p. 1040), exhibit japanned screens well executed, besides other objects. Mesers. Zezorus, of Amsterdam (96, p. 1148), exhibit a folding sercen, in which the execution of the various details in excellent, and the peculiarities in the Chinese work admirably sustained.

This Jury feel called upon to remark on the redundancy and inappropriateness of much of the ornament applied to the European specimens of Japan ware; and to direct attention to the better examples of this work from Japan and China, where i will be found that in the subordinate parts the ornament is kept subdued and simple, thereby giving more effect to the principal features.

Ornaments in Relief Mechanically Produced.

Defer this head are included overaments in Carinpierre, in paper mands, and in stranged leather; and private paper in the control of the control of the congolithm, although employed for early forty yours in page 100 per section of the control of the control of the decoration from its lightness, arrespith, heitility of papiesadecoration from its lightness, arrespith, heitility of papiesation of the control of the control of the control of the interest of the control of the control of the control is proceed into plants pieces meanly, heated with paper in paper said with which gas and piece in the paper and provided the control of the part at each and the control of t

М. Сатсикт, of Paris (810, р. 1219), exhibits an enriched frontispiece, ornamented with groups of dead game, and various other specimens of great merit.
М. Непеж, of Paris (879, р. 1221), exhibits a frieze

nf foliage ornament and children, of brantifal design, and also various specimens of pilasters, ornaments, &c. M. Gaorius, of Berlin (226, p. 1060), exhibits several statuettes executed in this material, and also various orna-

ments.
Mearr. Jacobox and Soost, of London (5, p. 750), are the first who have extensively manufactored this consideration of the control of

Medal.

Papier manch, as used for architectural works in Eng.

Papier manch, as used for architectural works in Eng.

Rose was the second of the second of the second of the being friend forces purpose once with either a cent of gabe being given between each. These silects of paper thus gland forces are second of the period of paper and the period of paper an

Messrs. Biklyeld, of London (157, p. 744), exhibit many specimens of this manufacture, as do also Messrs, Jackson and Sons, before mentioned.

Stamped Leather.

The mannfacture of this material was revived about fourteen years since at Paris, with many improvements apon the old leather hangings of the seventeenth and eighteenth centuries, as regards the perfection of embossing the ornament.

The old leather hangings were made by a comparatively simple process, without the aid of machinery. The skins being properly moistened, were laid on a mondo of the embossed ornament: into the various parts of this mould the leather was pressed by small wooden tools, till it a captired the emboased pattern; when dry, the leather was coated with silver-lenf, and varnished with lacquer to produce the colesn of gold. After this the proper colouring was laid on by hand, and certain parts of the leather stamped by a hand-punch to produce the small

figure peculiar to some kinds.

In the French revival of this manufacture the ornament is stamped by hydraulie pressure, producing very perfect and very high relief; to prover the relief subsiding as the leather dries, the reverse of the leather is covered in the embossed parts with some composition. Mesers, Deuzo, of Paris (1202, p. 1253), at present prepresent the hones which first unamfactured by this im-

represent the house which first manufactured by this improved process: they exhibit many specimens of good design, and showing the excellence of the emboss. Mr. Leake, of London (Class XXX., 63a, p. 823), also

Mr. Leake, of London (Class AAA., 63a, p. 823), also exhibits a collection of specimens of leather embossed by the same process, many of them of good design.

Carving by Machinery.

Mesors. Jorday and Co., of London (80), exhibit various specimens of carred work executed by machine to favor a large Gothe cols serven, deal game, foliage, &c. The operation of this machine is by a series of drills, pointed from a mydel; where there is a considerable repetition

Coalogue

NATION.

of the same ornament, this machinery can be employed with very great economy, but the work requires finishing by hand.

Conclusion.

The Jury have earefully examined the various works in this Class, numbering probably more than five thousand objects; there were many works of very considerable cost and labour, which they would have been able to the state of
The Jury onanimously regretted the withdrawal of the Third Medal; if this had been retained they would have been able to discharge their duties more satisfactorily to themselves, and they think also to the exhibitors. They are bound to add, that they were only empowered to recommend certain names for the distinction of the First or Council Medal, and that the Council made a selection from that list.

OBJECTS REWARDED.

AWARDS IN CLASS XXVI.

contrivance.

THE COUNCIL MEDAL.

NAME OF EXHIBITOR.

France France France Austria France	11111	=		1709 1715 1231 633 1326	Delicourt, E, Fourdinols, A. G Leistler, C., and Son	Ebony bookerse, mounted with bronze. Paper-hangings. Carreel sideboard of walnut-wood. Carreel furniture in four rooms. Clock-case, and other articles.
***************************************			-		THE PRIZE M	EDAL.
	_		7	-		Carved roffer.
Tuecany	-	-	-)	74 67		Carved coner. La.lv's work-table.
Bayarla		-	-1			Onk enhinet.
Belgium		-	-	439		Inlaid buld furniture.
France	-	-	-	1077		Carved hilliard-table.
France	-	-	-	1106	Boulardet, C. P	
Franca	-	-	-1	778	Bourgery, Madame	Models (Carton-pierre), Japanned screen.
China -		-	-	-		Japannea serven, Billiard-table.
United b			-	.4		Inlaid table, chair, and pedestal.
Sardinia			-	64		Carved sideboard.
United h	Ung	tom		110	Cooke and Sons, of War- wick (Class XXX.)	Carved stateboard,
					Convert and Lucas	Mossic floor and table,
Belgium	-	-	-	404 1573	Cremer, J	
France		-	-	810		Carton-plerre and carving.
France		-	-	1579	Daubet and Daumaret	Cabinets with mechanical action.
France		-	-	406	De Keyn Brothers	
Belglum		-	-	406	Dent, L	Bedstead.
China -	-	-	- 1	-		Bedstrad.
India -			- 5	122		Cabinet and chair.
United !	Sing	dom	3	404	Dowbiggin and Co	inlaid cabinet, ornamented with porcelain,
United I		dont	1	1907		Cabinets, &c.
France Bayerin		-	- 21	60	Fortuer, F. X	Iplaid cabinet.
	-		- 31	237	Gambs	Cabinet, ornamented with porcelain.
United			- 1	196	Gillow and Co	Writing-table.
United	Ling		- 3	117	Giusti, P	
Tuscany			- 21	631	Gröger, F	
Austria	-	-	- 71	001	Grogery t.	mented with carved figures.
Penesia				226	Gropius, P	
Prussia.	-	-	- 2	770	llagen, A, von	Cablnet.
United		James	-	314	Hayball, Arthur (Govern-	Cabinet.
Cuitea.	reinf	NOTES.		000	ment School of Design, Sheffield).	
United !	Kins	clom	-	407	Holland, W., of Warwick -	Table-tops, in imitation of markle.
United	King	dom		161	Holland and Sons, of London	Carved bookcase,
United !			-	345	Hoyles, Henry, (Govern- ment School of Design, Sheffield).	Sideboard.
France		-		879	Huber, J	Carton-plerre,

THE PRIZE MEDAL-continued.

NATION,	Number in Catalogue	NAME OF EXHIBITOR.	OBJECTS REWARDED.
United Kingdom	- 26t	Jackson and Graham	
France	- 889	Jeanselme, J. P. F	Cabinet and sofas.
United Kiugdom	- 187	Jenness and Bettridge	
nited Kingdom	- 10	Jobustone and Jeanes	Expanding table.
France	- 890	Jolly-Leclerc,	Cabinet work,
United Kingdom	- 80	Jerdnn, T. B. (Main Avenue, West),	
United Kingdom	- 1	Kershaw, T. (Cl. XXVII.) -	Imitation of marbles and woods, for house decoration
France	- 282	Knecht, Emile	
Austria	- 632	Knill, J	Billiard-tables and cues.
rance	- 1283	Krieger and Co	Card-tables and mechanical furniture.
Eidted Kingdem	- 128	Lane, T	Paintings on pearl class.
France	- 573	Lecliesne, A	Carved frame.
France	- 327	Mader Brothers	
rance	- 606	Marcelin,	Inlaid mosale table.
l'uscany	- 79	Marchetti, L	
rance	- 927	Mercier, P. E	
Russin	- 239	Miller, G., jun	
Austria	- 738	Montanari, A	Painted ceiling.
	- 164	Morant, G. J	
inited Kingdom	- 252	Moxon, C	
Spain	- 271A	Perez" and Co	
Hamburg	- 69	Plambeck, C. F. H	
France	- 1410	Pretot, L. H. E	
ludia	-1	Reade, C. W	
Russia	- 262	Rahn and Vetter	Paper-hangings.
United Kingdom	- 207 1437	Richardson, C. J	
rance		Ringuet-Leprince, E	Carved cabinet for medals.
rance	- 1439	Rivart and Andricux	Furniture iniaid with porcelain.
nited Kingdom	- 353 - 264	Rogers, W. G.* (Cl. XXX.) - Rogers and Dear	Carved cradle. Bedstead.
nited Kingdom		Rogers and Dear	Bedstend,
Austria – –		Taban, A	Application of block printing, to Illustrate works.
France	- 1556 1499	Takan, A	Ornamental cabinet work.
			Inlaid cabinet.
Austria			
nited Kingdom		Thurston and Co	
United Kingdom	- 318	Townsend, Parker, and Townsend,	
Inited Kingdom	- 162	Trollepe and Sons	Ornamental furniture.
'nlted Kingdem	- 160	Wills and Bartlett	Bookcase and candelahra.
Netherlands -	- 96	Zuber, J., and Co	Japanned screen.
France	- 1536	Zuber, J., and Co	Paper-hangings.

HONOURABLE MENTION.

United Kingdom -	303	Arthur, T Deceration.
France	1061	Bach Perès Transparent patent blinds.
France	1066	Balny, lun., J. P Chairs by mechanical process
United Klandom -	166	Banting, W. and T Collection of furniture.
Austria	643	Becker and Kronick Japanned sereen.
I'nited Kingdom -	206	Caldecott, Messrs Sideboard.
Sardinia	68	Ciaudo, J Inlaid table.
United Kingdom -	- 189	Clay and Cn Articles in papier mache.
France	1159	Cerdonnier and Co Bookcase.
Brigium	421	Deruelle-Deleveye, F Circular mechanical buffet.
France	815	Descartes, J Mechanical sofa.
Belgium	401	Devis E Parer-bardines
France	1202	Dulud, J. M Embossed leather hangings.
United Kingdom -	57	English, E. F Cabinet work.
Tuscany	1284	Falcini Brothers Chair
France	1219	Faure, Jean Marie Chnire.
France	23	Flerange, jun Bedstead, &c.
Sultzeriand	224	Fluckk, John (Brinne) - Carved tubie,
United Kingdom -	24	Galli and Cotti (Bay M.) - Ceiling decorations.
France	1714	Genoux, F Paper-hangings.
France		Gradé, L Inlaid table.
United Kingdom -	131	Halbeard and Wellings - Papier-mache toilet-table, &c.
United Kingdom -	197	llanson, S., and Sons Carved mirror frame.
Cape of Good Hope	57	Hart, J Chair,
Bayaria	73	Hartmann, J. J Parquet floor.
China	-	Hewett and Co Collection of Chinese furniture.
United Kingdom -	71	Heywood, Higginbottom, Paper-hangings produced by machinery.
t mited stingarin		Smith and Co.
United Kingdom -	310	Hinchild and Cn Paper-bangings.
Prussia	773	Hoffmelster, T., and Co Sideboard.

^{*} These Exhibitors have been awarded a Prize Medal, Class XXX., in whose list their names appear.

HONOURABLE MENTION-costinued.

NATION.		Number in Catalogue.	NAME OF EXHIBITOR.	OBJECTS REWARDED.
uited Kingdom	-	202		Chairs,
rance	-	1276	Jeanschne, A., jun	Chairs.
nited Kingdom	-1	321	Ingram, J. W. (Ci. XXX.) -	
min	-	285	Jimenez, M	
nited Kingdom	-	70	Jones, A. J. (Cl. XXX.) -	
rance	-	354	Kissel, J	
ustria	-	615A	Kelbel, B	
rance	-	1277		Parquet floor, and frames.
nited Kingdom	-	63A		Embossed teather bangings (Fine Arts Court).
nited Kingdom	-	2013		Sideboard.
uscany	-	87		Iniaid table-teps,
rance	-	600	Marguerie	Paper-hangings.
kelgium	-	409		Gothle canopy.
nited Kingdom	-1	211	Minter, G	
nited Kingdom	-	69 54	Micoi and Allen (Cl. XXVII.)	Wood mosaic table.
nited Kingdom	-1	637		Work-table,
nited Kingdom	-	74		Machine-made paper-hangings.
nited Kingdom	-	-74	Pugh, D	Indian carved furniture.
inited States -		193	Ragan, W	Mechanical recining chair.
ambune		70	Rampendahi, H. F. C	Cabinet.
chium		419	Rouic, A. F	Gothic sideboard.
nited Kingdem	- 21	476	Simpson, W. B.	
ardinia	=:	71		Carved chony table.
ustria	= 1	6394		Buhl table.
nited Kingdom	-	70		Articles of papler macise,
nited Kingdom		108 *	Steion J ((1 xxx.)	Inkstand.
nited Kingdem		9	Taylor and Sons	Cabin furniture in cork.
nited Kingdom		178	Toms and Luscombe	Huhi pedestala,
unis	-	-	Tunis, The Bey of	
nited Kingdom	-	520	Turner, II, N., and Co	Paper-hangings.
rance	-	734	Vivet, E. T	Wax-painted cloths,
nited Kingdom	-	69	Walton, F., and Co. (Cl.	Japanned ware.
nited Kingdom	-	179	Watson, G	
witzerland -	-	237	Wettii, M. L	
urtemburg -	-1	70	Wirth, T. F	
nited Kingdom	-	322	Wooliams, John, and Co	
nited Kingdom	-	300	Woollams, W., and Co	
nited Kingdom	-	19	Wynne and Lumsden	Carved oak chimney-piece.

PROFESSOR ROESNER, J. G. CRACE,

London, January 1852.

CLASS XXVII.

REPORT ON MANUFACTURES IN MINERAL SUBSTANCES, USED FOR BUILDING OR DECORATIONS, AS-IN MARBLE, SLATE, PORPHYRIES, CEMENTS, ARTIFICIAL STONES, CLAY, &c.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATEO CATALOGUE.]

Benefitto Perference, Chairman, Italy; Royal Mint; Her Majesty's Chief Mednillist. Lord Science, Deputy Chairman, 35 Dover Street. D. T. Avstra, P.R.S., Reporte, 17 Manchester Street, Manchester Square; Professor of Geology, King's College

College.

REMARDO DE BERNARDITA, Anstria; 43 Clarges Street; Architect.

GENEON GOOWEN, F.R.S., 24 Alexander Square, Brompton; Architect.

SF, Charles Lebons, Bart, F.R.S., M.P., 46 Clardes street, Berckelov Square,

ENMARTE. PSYCHA, Greece; Civil Engineer, and late Professor of Physical Sciences,

Viscount Hermacher De Timer, France; Member of Institute.

Associates.

F. BARKER, 71 Lower Grosvenor S'rest.
T. H. HENRY, F.R.S., 18 Lincoin's-inn-Fields; Analytical Chemist,
Gronout Low, C.E., F.R.S., 39 Finsbury Circus; Englacer to Chartered Gas Continuous.

The objects taken into consideration by the Jury of Class XXVII., and defined by the general term Mineral Manafactures, have been understood to embrace a very great variety of articles manufactured in stone, marble and clay. These may be, conveniently enough, grouped into two principal divisions: the one including all dressed, carved, sculptured, and polished work in solid material; whether stone, marble, granite, or other mineral sub-stance; and whether solid, wrought, or inlaid in stone; while the other includes modelled and moulded work in clay, ecement, certain kinds of glass and pottery, and arti-ficial stone. The difference is essential between these two kinds of work, which are rarely undertaken by the same artist. Each of these divisions is capable of arrange ment into groups, as follows:-

Division L.- Works in Solid Material.

Group 1. Unpolished stone,
,, 2. Polished and inlaid work in stone, marble, granite, and pietra dura,

Division II .- Works in Plastic Material. Group 3. Coments and artificial stone. , 4. Clay.

To these there may also be added a group of mis-eclianea, which will not be found very numerous. It will be convenient still further to subdivide these comps in speaking of the exhibitors, scriatiss, and the ists may be arranged in the following order :-

Division I.

Group I.-MANUFACTURES IN UNPOLISHED STONE. A. Flagstones, pavements, &c., roughly dressed.

B. Carved and sculptured works in freestone,

granite, &c. a. Large monumental works. Smaller works in granite,
 Works in Caen stone,

d. Works in liath stone. c. Sundry works in freestone. Slate

D. Sundry materials.

Group II. - MANUFACTURES IN POLIBRED STONE, MARRIE, AND OTHER SIMILAR NATERIALS.

E. Manufactures in marble and alabaster. a. Collections of marble.

b. Chimney pieces. e. Columus, pedestals, &c. d. Slabs, tables, &c.

e, Sundry objects,

F. Works in ornamental stone, granite, and spar,

a. Serpentine, granite, and sprange, and sprange, and sprange, and sprange, and sprange, and sprange, b. Jasper, jade, agate, crystal, and spar.

G. Moaies, or inlaid work in stone.

a. Iulaid work in pietra dura.

b. Inlaid work in marble.

c. Iulaid work in malachite. II. Polished and cuamelled slate.

Division II.

Group III .- MANUFACTURES IN CEMENTS, SCAGLIGLA, AND ARTIFICIAL STONE,

I. Massive and enerusted cements, scagliola, and plasters. a. Hydranlie coments.
b. Plasters and scagliola

c. Artificial stone with silica base,

d. Bituminous cements. e. Metallic cements. K. Glass and porcelain mosaics (including Roman

mosaie). a. Roman and Venetian mosaic, b. Porcelain mosaic.

Group IV .- MANUFACTURES IN CLAY.

L. Bricks and tiles.
M. Term cottas.
N. Fire-clay goods, unglazed.
O. Glazed fire-clay goods.

It will at once be seen from this arrangement how considerable a variety of subjects must be treated of in this Report, and the important relation they bear to almost all unestions of construction and decoration. With the exception of those building stones which are included in

reward.

metallic mineral substances used for construction and decoration, may be considered as referred to Class XXVII., and it will be found that many manufactures of great interest require to be described and discussed.

The Reporter-not having the requisite technical and statistical knowledge of all these manufactures, himself -has endeavoured in various cases to obtain it from anthentic sources; and where any new method has been introduced by exhibitors, he has attempted to make him-self acquainted with it. He has also tried to obtain and communicate information, wherever there appeared anything remarkable in the manufacture, even where this was not, in any sense, new. The Report will thus contain the result of various inquiries, as well as the observations of the Jury, on the different objects considered worthy of special notice.

In order to assist them in coming to a right decision on some subjects as to which they required technical information, the Jury have called in, as Associate Jurors, the following gentlemen, to whom they beg, here, to offer their best thanks for the valuable assistance rendered :-

F. BARKER, Esq., for polished marble and inlaid work

T. II. HENRY, Esq., F.R.S., for chemical utensils. GEO. LOWE, Esq., C.E., for fire-clay goods.

It is difficult, amid such a multitude of objects, of natures so widely differing, to offer any useful general remarks on the whole Class. Apart from the works forwarded by English exhibitors, whose number more than equals that from all other countries together:-(and who have sent much that is interesting in carved stone, slate, granite and porphyry, serpentine, moraic work, coment and scagliola, bricks, fire-clay goods, and salt-glazed ware ;)-it may, however, be well to allude particularly to the malachites and jaspers of Russia; the mosnics of Italy and India; the bricks of Austria; the carved stone of Malta; and the term cottas of France, as among the most important of the objects exhibited from abroad. The selection of material, and the method and perfection of the workmanship, have generally entered into the consideration of the Jury, as well as the adaptability of the material, and the economical production of a useful manufacture; and thus it will occur that here, as in other cases, similar prizes have been awarded to ob-jects of very different degrees, as well as different kinds of merit. In their recommendation of objects for the Conneil

Medal, the Jury have thought it their duty to limit themselves to such as exhibited decided novelty, in addition to erreat merit of design and execution. The claims of the Society for the Improvement of the DWELLINGS OF THE LABOURING CLASSES (124, pp. 774, 775) are so considerable in both respects, as well as in an economic point of view, that they have been at once admitted. They involve a vast improvement in style, safety, and cheapness in the construction of dwellinghouses, and this in the very cases where improvement was most needed, and most likely to conduce to decided sanitary improvement among the great masses of town

populations.
To Mr. Minton (86, p. 770) we are indebted for introducing very many and important improvements in eneaustic tiles, thus restoring a mannfacture which had long been extinct, by the application of a method more generally available than that originally adopted; and to generally available than that originally adopted; and to his enlightened appreciation of merit many modern improvements in pottery are due:—these claims were fully recognised by the Jary and Group of Juries, who recom-mended the award of a Council Medal, which was conceded by the Council of Chairmen jointly with that recommended by another Class (Class XXV.) for articles directly connected with the manufacture of poreclain With regard to the manufacture of Roman mosaic it

need not be inquired whether the finished work of art by the Cavalier Barseau (Rome, 15, p. 1286), selected as also worthy of the Council Medal, is really the most perfect in its kind, or more excellent, both in design and exceution, thus any that exists in this country; since we may safely say that it is of the rey highest order of merit, referable to Class L, and are reported on by the Jury

while the manufacture itself, though not modern, nor involving any peculiar novelty, has in this case the advantage of originality of design and great ingenuity in treatment and execution.

The remaining group of objects to which a similar reward has been voted, namely, the collection of Russian malachites exhibited by the Messrs. DENIDOF (Russia, 323, pp. 1377—1381), offers examples of a manufacture remarkable not only for the rich magnificence of the articles, but also for a great improvement in style and execution which will be afterwards explained; so that little doubt could exist as to the propriety of rewarding the exhibitors with a peculiar mark of distinction.

If it had been possible to do so, the Jury would also have been glad to mark in the same way the great im-portance they attach to the extensive and admirable manufacture of bricks, belonging to Mr. Mikanacu, of Vienna (610, p. 1038); to the remarkable works in jasper and hard porphyry, exhibited from Russia and Scandi-navia; and to some of those beautiful and admirable works in pietra dura, sent by the Florentine artists; but the regulations not admitting of this, they can only here allude to these objects as among the most remarkable in their class, and proceed at once to discuss the various groups of objects in regular order, stating the reasons which have guided them in recommending some for

Before concluding these preliminary remarks, the Jury wish to record their admiration of the rare works of was to record their admiration of the rare works of manufacture belonging to this Class, exhibited by the Honourable East India Company (p. 921). Among the various examples of inlaid work in pietra dura, not one is more perfect in its kind, or exhibits more delicate and artistic taste, or greater mechanical excellence, than a small chess-table in their collection. Next to this, they may mention as remarkable for delicacy of workmanship, the manufactures in a peculiar white murble of considerable beauty, cut into garden-seats, &c., and also many smaller objects, and ntensils hardly less striking. The enps and other vessels, and various ornaments, manucapa and other vessels, and various ornaments, manufactured of jade and crystal, and for the most part inlaid with rubics and emeralis, are examples of great labour and ingenuity applied to a manufacture rare in this country, and in Europe generally, but long known and excresised in the East. For those, and many other manufactures, the Exhibition is indebted to the exercison made by the officers of the East India Company, acting on the instructions received from the Court of Directors in England. The Jury regret, however, that their igno-rance of the names of the manufacturers has prevented them, in many cases, from rewarding them with Medals and Honourable Mention.

DIVISION 1 .- WORKS IN SOLID MATERIAL. Group 1.-MANUFACTURES IN UNPOLISHED STONE.

The total number of exhibitors in this group is u wards of eighty, of whom about sixty are British, five Maltese, and a few from India. The remainder are Maltese, and a few from India. The remainder are distributed as follows:—five French, two Belgian, two Italian, and one from Austria, Sweden, Spain, China, and the United States. The objects being for the most part heavy, and of rather large dimensions, the cost of trans-port has no doubt checked the transmission from a distance of many that might otherwise have been sent, But it must also be stated, that several of the raw materials properly referred to Class I, might have come under consideration here if they had not been so manifestly connected with that Class; while, on the other hand, some, though but few, of those now regarded as sculpture, &c., might almost be claimed fur the present Class and

Many of the most interesting objects are of very great -almost national-importance, and some are certain to have attracted much notice; others again are small, und offer little at first that is likely to command attention

A. FLAG-STONES, PAVING-STONES, &c.

for that Class, so far as the name and value of the rew material is concerned. All present it is rather in reference to the named of the control of the considered; and the reader is referred to the amotations in the Illustrated Catalogue for some information regarding the nature and geological position of several of the more interesting among them.

intérestiga among them.
The British prime des cabilitéed may be grouped.
The British prime; series fage, (2), Chithense, (2), Anderse, (2), Chithense, (2), Chithense, and Arberoth prevenent. (3), Manx flags. (4), Irish flags. (5), Webb flags. (6), Webb brods material from Peumen-mawer; and (7). Sootch granite paving. Some conductiful sial oscibilitish in rough state from several conductification of exhibited in a rough state from several more and the series of
The Vuckshire flags—paring-stones of great importance in England—are obtained chiefly from a part of the carboniferous system of rocks developed in various part of the county. They are remarkable for size, hardness, and toughness. The only chilibror of such stones on a large scale are Mesers, Baows, Rosaw, and Boorn, of Sheffield (Outside, 29, p. 115), "we for floorantly of Sheffield (Outside, 29, p. 115)," one of material and its adoptability to the required next.

The Chifmen fage and Arbond payments are obtained from the did of an antione reak, desired in the colored in the colored from the did of antione reak, desired in the colored and bituminous white, slightly miscooms and colored and bituminous white, slightly miscooms and colored from the colored for the

worthy of being allisted to in this piles. The following are the properties of the piles piles of the piles o

ming (Vice-Principal of King William's College, mass Conclusives, the of Man, who has transcessly versical Conclusives, the of Man, who has transcessly versical products of the tilstad, and who writes as follows:— "The black fightests of Poterbard" (Good on the south of the Conclusive Conclusives of the Conclusive Conclusives and carboulfrows limitstony 1"ds had base this time, where pottin, and is precently finished with hamp-lakes and oil, in the conclusive consistency of the conclusive construction of the Conclusive Conclusives of the Conclusive Conclusives of St. Paul's Charberla [precented about the communications of St. Paul's Charberla [precented about the communication of

information has been obtained from the Rev. J. G. Curre-

some pattern as the national tile is 2a, 5d, per square foct. Besidest the bituminous linestone, there is a flag-stone worked at Spanish Head, not far from Castleman
stoses and paving.

The Irish finge exhibited are few, and hardly sufficient to justify any extended description. The principal are those sent by Mr. Franxtan, of Galway, and appear to be of good quality (Outside, 17, p. 114).

The Welsh paving-stone from Penmacen-mawr is re-

The Welds paving-stone from Pennaconaavs is remarkable as being both the hardests and toughest material for road-stuff that has yet been discovered. It is indeed so hard as to assume a gipasy surface after long-continued exposure, and actually become diagerous from this cause. It is a traperok, and appears to be abundant. Bixed with sea hard material, it might in many London.

Dendon, and the distribution of present resources in London.

The specimen of Scotch granite paving exhibited by R. SEY (Chas. I, 137, pp. 138, 169) is of excellent quality of the Large part of the La

or such outpers.

Some beautiful specimens of slate flags from the quarries at Festining, North Wales (12, p. 114), are worthy of
Honourable Mention (awarded a Prize Medal by Class 1),
and careful attestion, as presenting a cheap and admirable
parement of great beauty, and in slabs to large as to
prevent much chance of an irregular surface being produced when much used.

The flags are of fine quality, and have had a severe trial at the Transept entrance of the Building, where some millions of footsteps have hitherto failed in producing any mark of unequal wear.

It is not astonishing that naterial of the kind we are now considering, hardly appears except from the various parts of our own country. From Belgium, Mesare Zanan (136, p. 1185) have forwardle Models of paving-stones and other manufactured atone of this kind, and of them the Jury make Honourable Mention.

A pavenue it scabileted by M. Desauoes (France, 1184, p. 1234), manufactured of a stoue called Pierre de Tonnerre. It is in compartments, tolerably large, and well exceuted, the material being well adapted to the purpose. The same exhibitor sends also a chianney-piece and other works, which will be described desewhere.

B. CHISELLED, CARVED, AND SCULPTURED STONE-WORK,

NOT POLISHED. a. Large Monumental Works, chiefly constructed of Granite.

These noble monuments, of excellent material and good workmanship, and remarkable for the public spirit which induced their respective owners to incur very great expense in preparing and transmitting them, may be considered as permanent records of the good feeling that has been perhaps the most characteristic feature throughout the preparation of the Great Exhibition. Three of these objects, of large size, are from Corawall, and are fine specimens of the granites of that conaty. Another is a highly-interesting and more finished specimes of Swedish granite, by no means so large as the former, but hardly less remarkable. There is also one exhibited in the Nave, constructed of Caen stone.

The granite column sent by the CHEESEWRING GRA-NITE COMPANY (Outside, 54, p. 117) is a very beautiful specimen of a stone obtained from quarries hitherto little worked, on property beloaging to the Prince of Wales, near Liskeard, Corawall, The shaft, cut from a single block, and worked at the quarry, is highly creditable; and the pedestal and base, worked in London, are in good and the potential and onse, worked in London, are in good proportion and well executed. The capital is rather heavy. The total height of the column, ped-sentl, and base is about 30 feet. For the material, style, and workman-ship of this column the Jury Bave awarded a Price Medal, The obelish sent by Mesers. W. and J. PREEMIN (Out-

The obelisk sent by Messes, W. and J. FREENEN (Crus-side, 14, p. 114) is from Lamorna granite quarries, Corn-wall, well known for their excellent material. Its height is npwards of 22 feet, and its weight 21 tons. It is placed on a block of Carnsew granite, weighing 31 tons. The difficulties and expease incurred in quarrying, removing, and placing objects of these enormous dimensions can hardly be judged of by those who merely see the finished The preparation and erection of an obelisk formerly the work of years, and still involving enormous labour and trouble, was, in this case, completed within a few months, merely as a sample of the nature of the nu terial and the resources of the exhibitor. A Prize Medal has been awarded for this work."

Mr. Hosken's obelisk (Outside, 75, p. 118) is from No. 2 granite quarry in Carnsew, near Pearyn, the pro-perty of the exhibitor. It is 18 feet high, about 3 ft. 5 ia. square at the base, and 1 ft. 6 in, square at the top. The weight is about 8 tons, and it stands on a granite block from No. 14 quarry in Killieven, in the parish of Con-stantine, also weighing about 8 tons. Both granites are stantine, also weighing about 8 tons. Both granites are of excellent quality, that of the obelisk more especially, e grain being fine, and the colour very good. A Prize Medal has been awarded.

The cross exhibited by Mr. KULLGREN (Outside, E. The cross exhibited by Mr. KULLERKN (UBLISSE, T., 100, and Sweden, 118, p. 119), and worked from a sin-gle block of granite, is remarkable for the extreme forceres and closeness of grain of the stane, and the deli-cacy of finish which its texture permits. The stone is obtained from extensive quarries on the island of Malmon, on the west coast of Sweden, whence the transport to this country is easy and cheap. It bears a high polish, and the cost of wages in the district whence it comes being very low, there is good reason to believe that it might be exported with advantage. The actual cost of a similar object has not, however, been ascertained. The Jury have awarded a Prize Medal to the exhibitor of this monument

b. Smaller Miscellaneous Works in Granite, Porphyry, &c. Concerning these objects, the Jury have but few remarks to offer. The cenotaph exhibited by Messrs, Port-

* It was probably owing to some needental misapprehension of the state of the casa that the Medal awarded to Mosers. Freeman for their noble collection of building stores in Class 1, was withdrawn in favour of the obelisk in Class XXVII. The Jory of Class XXVII. awarded the Medal for the obelisk as a manufactured block of grantia. remarkable for its dimensions; but according to the general rule adopted in other similar cases, the award of Class I. should have been retained, the Exhibitors being merchants and not manufacturers. LEU BROTHERS (France, 962, p. 1225), to which the Jury have awarded a Prize Medal, is a small object constructed of a kind of greenstone trap, whose chief merit arises from the difficulty of working a material so hard and tough. The style selected is impure Gothic, with several figures, and some open work. The execution is more elaborate than successful, and the work is left with a smooth face, without any attempt at further detail. smooth face, without any nttempt at torone of the small figures are fairly sculptured. The colonr and general effect are not very pleasing, establishment of these exhibitors is in the west of France. whence the material is obtained. A head-stone of Aberdeen granite, manufactured by

Mr. I. Wajoht (43, p. 766), is a beantiful specimen of material, admirably worked, and is worthy of special materian, admirably worker, and is worthy of special notice, as designed in good taste, well executed, and well adapted for its object. The Jury make Honourable Men-tion of this object, considering it as highly creditable to

the manofacturer.

The hist and pedestal of hise Peterhead granite, worked and exhibited by Mr. John Hurchison, of Monyray, near Peterhend (Class L, 161, p. 137), is also a creditable and interesting specimen of its kind. Its ob-ject is chiefly to show the adaptability of a stone of excellent quality and great hardness to purposes of art exposed in the open air in cities, and the Jury consider it worthy of Honourable Meution, especially as they learn that it has been very rapidly executed, under cir cumstances of some difficulty, by a young man who had not before atteropted anything of the kind. The cost of not refere attempted anything of the kind. The cost of granite statues has been stated by Mr. C. H. Smith an nearly the same as that of bronze, and their durability, when exposed to the smoke and acid vapours of a town, is very much greater.

The slah of granite from Craignair, near Dalbeattle, exhibited by the proprietor, Well-wood Maxwell, Esq. (Class I., 134, p. 135), is from a well-known quarry of excellent material, adapted for ornamental architecture. The composition is a grey quartz, with white or flesh-coloured felsper, and greenish hornblende, often in bands: it is therefore a Syenite. Another manufactured object is of a kind of trap rock found near Edinburgh, which may here be referred to as useful for various purwhich may here be referred to as useful for various pari-poses, and extremely durable, if not very ornamental. The stone alluded to is not unlike that worked by Mesura. The stone alluded to is not unlike that worked by Mesura. Grantia. "It is, exhibited by Mr. G. Joinstrows, of Craigleith (Class L., 178, p. 138). The carting-stones, make of greenstone trap, and seat by Mr. A. Cassras (Class L., 26, p. 123), and Mr. J. Kar (Class I., 37, p. 120), are also interesting from the great tongishess of the valof which they are made-a quality greatly required for the use to which they are pot in the national game from which the name of cerling-stone is derived. The material is felspathic, with small grains of quartz and minute particles of hornblende. Lastly, we may mention the orunmental works in Scotch granite, chiefly of jewellery, exhibited by Mr. Jamieson (Class 1., 25, p. 123), and Mesers. Ellis and Son (Class XXIII., 12, p. 674), and remarkable for the delicacy and beauty with which they remarkable for the demany and beauty with which and are finished. These will doubtless he noticed elsewhere, so far as they claim admiration for taste and excention. We only refer to them here as showing good samples of manufacture of the fine-grained granitic rocks found in some parts of Scotland.

e. Works in Caen Stone.

The stone obtained from the quarries of Allemagne and others near Cace, in Normandy, has been used in ecclesiastical architecture for so many centuries, that it would be useless to trace back its history for the parposes of this Report. The rock is an oolite belonging to about the same geological period as our own oolites worked near Bath; but the colour is better and more uniform, the texture far closer, and the material superior in almost every respect. It is at first absorbent, but improves on exposure. It cuts with perfect facility, and is

* Institute of British Architects, Report of Meeting of 24th March, 1851.

thus admirably adapted for ornamental work in architecture, especially when sheltered from the weather. It may be had in blocks of any reasonable size and proportions, and is the finest and most valuable stone of its kind obtained from the secondary rocks. For certoin kinds of exposure it is inferior to some of the English colitic stones, but none excels it for internal work.

So readily worked and beautiful a material has naturally been selected by several persons to execute objects in sculptured stone worthy of the Great Exhibition; but it is, perhaps, somewhat remarkable that none of these come from France, where the material is so abundant. Of the exhibitors in this stone, the Jury have selected three as worthy of the Prize Medal, and one they Men-

tion Honourably. We may proceed to describe these more minutely. Mr. Myans (Class XXVI., 533, p. 761) exhibits a nnmber of objects sculptured in Caen stone, most of which are placed in what is called the Mediaval Court. These

imitative of English mediaval architectural decoration, and are chiefly, though not cotirely, ecclesias-tical in their uses. The execution of the stone-work is in all of them extremely good; the different objects are perfectly correct in execution, and the distribution of the details is effectually and well combined with unity of design, showing clearly the artist's knowledge of his subject and of art. A Prize Medal has been awarded to

The canopied niche, containing a figure of St. Peter, designed and executed by Mesars. Lang and Lgwis, of Bristol (53, p. 767), is good both in style and execution, and so creditable in every respect, that the Jury felt no difficulty in awarding a Prize Medal to these exhibitors. The stone is of fine quality, and the treatment well adapted to the The statue of St. Peter especially is delicately and skilfully worked, and the smaller figures of our Saviour and the Evongelists are well executed. At the same time it should be observed, that the drapery and pose of the figures are not strictly Gothic, although in good keeping with the architecture, which is distinctly defined and well finished, especially in the ornamental parts. The work is not cut out of a single block, which could have been done, although with difficulty, and in this respect it cannot rank so highly as a work in one piece of

stone would do.

The foat by Messrs. Manuerrs and Evers (91, p. 771), also rewarded with a Prize Medal, is a very fine specimen of sculptured stone, although there is a want of fa and fluish observable in some parts. The general style and execution is, however, excellent, and some of the de-

and execution is, however, excellent, and some of the de-tails of the figures are very beautiful.

A sepulchral monument of the decorative period, by Mr. II. Basway (32, p. 767), has been considered worthy of Honourable Mention. It is well conceived and well executed, and is creditable both in design and workmanship.

A cross of large size, sculptured in Caen stone by the Hon. Mrs, Ross, and exhibited in the West Nave (79, p. 852), is worthy of notice as being the work not only of an amateur, but of a lady.

In addition to these objects, there is a chimney-piece by Mr. FREWER, of Ipswich (5, p. 764), showing much skill, and having a number of minute but imperfectly finished details. The design is allegorical, but not earnnined defails. The design is antiported, who have con-ried out completely. A sigular mountment of new form (that of a three-sided prism) has been sent by Mr. Baken, of Southamptou (54, p. 767); and some small but creditable models, by Mr. Lacars, complete the list of sculptured works in Caeu stone. The quality of the stone is shown in some specimens in Class f. (No. 176, p. 772), exhibited by Messrs. LUARD, BEEDHAM, and Co. (p. 138), importers; and these are of considerable interest and value, as, in addition to recently cut surfaces, they include fragments which have been exposed for several centuries to the weather both in England and France. d, Works in Bath Stone,

The works in Bath colite are neither numerous p important. The material itself, although much used, is not capable of resisting the action of an English, and

especially o London atmosphere; so that few artists have thought it worth while to exert their talents on o stone of so little durability. The substance is some-times of good colour, works freely, and is obtained in considerable blocks; but it falls far short of Caen considerable blocks; but it falls far short of Case stone in every respect. A vase and pedestal, elihotrately carved and exhibited by Mr. VALUBAN (20, p. 755), show the extent to which the chief moy be used in it; and a bust of Milton, by Mr. Narman (40, p. 767), is o good sample of the whiter kinds, until adapted for internal architectural decoration. Mr. Plows (34, p. 767) has seet a number of small article manufactured of the same sobstance

e. Sundry Works in Freestone.

Purbeck stone and Porbeck marble, materials susce tible of polish, and formerly much used in ecclesiastical orchitecture, are exhibited in a sculptured form by only one person, Mr. Wxnnan (Class XXX., 149, p. 830), who has sout a design for a tomb made of this stone, placed on a slah of the marble. The material is well adapted to church purposes when new, and retaining its polish; but that being soon lost, the surface becomes discolonred, and loses nearly all its former beauty. It is not much used at present, except for restoration

The magnesian limestone, till lately seldom used in the vicinity of London, is a stone of great beauty and value, and remarkable for its durability, at least in those parts of the country in which it is found. The best quarries appear to be those near Bolsover, in Derhyshire; and the stone has been selected from that neighbourhood for the construction of the external work of the flouses of Parliament. A specimen showing its qualities has been forwarded by the contractor, Mr. Gausser, and is exhibited in Class I. (185, p. 139). Honourable Mention is made of this work, as good of its kind, and well illustrating the use of the stone,

A specimen of freestone is exhibited by Mr. T. KING, of Morpeth (Class I., 136, p. 135), to show the quality of this material from Hartford Bridge, Northomberland, and the noture of the work of which it is capable. This has also been considered worthy of Honourable Mention, as a well-executed illustration of the use of o valuable material

A very interesting exemplification of the quality and decorative use of Craigleith stone is exhibited by the proprietor, Mr. James Gowans, of Edinburgh (Class I., 132, p. 135). The stone is much used for building purposes in Edinburgh, and the Redhall Quarry, from which the larger blocks were taken, is of excellent quality. It belougs to the carboniferous system, and is generally of lightish grey colour, fine grained, and almost wholly composed of pure siles. It is rather costly at first, but very durable, and may be worked perfectly for every architectural purpose. It contains a small per centage of The objects exhibited are two: one is a group of two

children (the Orphans), on a plinth of Binny stone, which is remarkable for the large quantity of bitumen tains; the other is a beroie statue of Sir William Wallace. Both are works of merit, and are especially valuable as demonstrating the capability of a stone hitherto not used in England for the execution of such works; and the Jury bave awarded a Prize Medal as a mark of their appreciation of the exhibitor's efforts to introduce a moterial nearly indestructible, and for so admirably illustrating its use.

In Class XXVII, there is a chimney-niece constructed

tu class AXVII. there is a chimney-prece constructed of a stone obtained from Cornwall, and known as the polyphant freestone. The material is hard, and is said to admit of a good polish, although this and another specimen exhibited are both varnished. The style of the chimney-piece is peculiar. The exhibitor is Mr. Barxi-DON (3, p. 764).

A Prize Medal has been adjudged to M. Desarrors (France, 1184, p. 1234), for two objects constructed in

. This bitumen is obtained in quantities so considerable that it has been used in the manufacture of caudies, of which specimens are exhibited to Class I.

Tomorre some, of which there appear to be distinct extension, and of this the seventies of our of fair appearance of the contract of the contract of the property of the contract of the Contr

orr., JOUNTESS, OF PERRIM (197, p. 1199), BIS EXHIBITED a pinnacle made of Ordain stone, which the Jury consider worthy of Hooqumble Mention, as well for the nature of the material, which is hard, even-grained, and well selected, as for the execution, which is tent and well faithful the design is tood and pure.

Several artists have sent vases and other objects sculptured in the soft stone of Malta, a material offering great facilities for working, but unt remarkable for beauty of appearance, having a peculiar dead-white colour resembling plaster of Paris. The delicacy of workmanship in these sculptures is very surprising, and, in some cases, also, there is much ingenuity shown, and much talent in also, there is natural injectively and the significant of the designing. The Jury have awarded Prize Medals to Mr. Decasane (27, p. 945) and Mr. F. Tiota (33, p. 946); and consider that the works of Messrs. Directs (28, p. 945), S. Tisera (30, p. 946), and Solera (29, p. 945), are worthy of Honourable Meution. There are also some similar objects sent by Mr. Foster, an English exhibitur (Class XXX., 303, p. 840). The stone, of which these vases, &c., are carred, is a yellowish-white calca-reous freestone, from forty to fifty feet thick, belonging to the tertiary period, and immediately overlying a semi-crystalline limestone, forming the base of the depo-sits in Malta and the neighbouring Island. Very large quantities of the softer freestone are used in the island for building and other purposes, and are exported to all parts of the Mediterranean. From Tuscany (97, p. 1293) a few articles are sent, sculptured in a kind of lithographic stone, found near

Flowers, and exhibited by Mr. S. Grovanstus, the preprietor of the quarry. The material is fine-grained. Several models of temples and other odifices are sent from India, constructed of a peculiarly sough but not considered to the property of the property of the varieties. A few of these are extremely well carved, and show great neutrons and finish in execution. Some of them have been colored artificially. There are also two small intrieved viluous of deletical upon stane-work, above and the property of the property of the property of the efergance of design. The material is of plensing color and appearance, and it, in these reports, supports o the

Gya those, which is of my one corposed appropriate to the Gya those, which is of my one corposed appropriate to the Gya and the Gya and the Gya and the Gya and the Gya make Hoosenahle Meetine of a somewhat remarkable pair of vases, cut with a peakalfe and the work of an Intendile Inking in that city. These wases, executed by Mr. SCHRYTERS, and exhibited by Sir Mooza B. AUGETTON (Class XXX, 161), p. 803), about much ingenity and publish about. The material is believed to the Gya and
C. MANUFACTURES IN SLATS.

The collection of split, sawn, and other mannfactured states exhibited by Mr. Throws Strukture, jun, of the Belvidere Road, Lamberli (Class L, 200, p. 141), exhibits such care in collection and arrangement, and much browthy for splitted so, colline a Prize Medal, Almost all the really important uses to which slate is applied may here be seen; and many new arrangements are shows, some of which at I text will be generally

adopted. Mr. Stirling cabibits a construction, consisting of an open cabinet of the sides, mode scutively of large sine sides from different quarries and districts, and remains of the sides of the sides of the sides of the parties of the sides of the sides of the sides of the non-time sides of the sides of the sides of the parties by a metalic discovered by the exhibitor, and adnosis by a metalic discovered by the exhibitor, and adlars selected reofung-sisten and also for the best quality, from the pinicipal quarries in the United Kingdom, as illustrations of the material and of the qualities of slate that the sides of the sectibility of the reaching the sides of the relaiset, or are exhibited within or now it.³

Besides the application of slates and slate slate in the ordinary way, and as already mentioned. Mr. Stirling exhibits illustrations or speciments, showing its use for exhibits illustrations or speciments, showing its use for exhibits illustrations are speciments, disries, slirings, and pis-feeding troughs, urisals, bend and foot-stores for graves, tundes, and measurement, clocks and usu-dials, sinks (cut out of a solid block), floors of conservatories, werehouse-floors, rulmy-astion paring, stables, and

To these various miscellaneous articles there is added a set of models of roofs, covered with different descriptions of roofsing-slate, in ten different colours. One of these roofs is covered with abla-slates, with a solid state roll to cover the joint, as arranged and proposed by the exhibitor. The slate recommended for make purposes is that from Coruwall, as it costs less for repairs than the Weish, and the colour more nearly resembles that of

In addition to these interesting and useful specimens of manufactured slate, there are exhibited several objects in enamelted and varnished slate, sow coming into use for various decourtie purposes, which will be noticed therebers. Some of these which will be noticed therebers. Some of the properties of the contract
In Districts Backenian, Eq. (21, p. 765), of the inland of Visientia, County Kerry, Ireinad, the Jury have also awarded a Prize Medal, for his monnfeatures in exhibited. The state from the south-west of Ireland, and especially from the Island of Videntia, in rot separable in being spit into fine roofing material as that and the evenues of its texture, render it extremely neful for vision purpose, both in building and for

Slabs of Valentia slate are early phrainable 50 feet long, four or five feet wide, and from six to twelve inches thick; and the quality, as seen by the specimens sent by the exhibitor, is, in every respect, excellent. The slabs, sand-bars, and roof-ridges are all good examples of the quality of the material, and the garden-sent sed table are quality of the material, and the garden-sent sed table are they are intended. The quarries of Valentia have emlorived as many as 200 persons at a time.

The OLD DELABOLE SLATE CONFAST (Outside, 8, p. 114) have exhibited, beddes some numnamiferared slates, a very large and well-cunstructed eistern of Delabole slate, canable of containing 2,000 gallons, and provided with a filter. The Jury consider that this deserves theoremshe Mention, as a fit and useful application of a material of good quality at a moderate cost. Several exhibitors have sent state cisterns, furnished

with filters, the mechanical arrangements of which belung to another Class. As far as relates to the material, and its application, the Jury consider that slate is ad-

• The states are from the following localities:—Penryn quarries, near Bangor; Lhanberis quarries; quarries of the Drootles State Company, near Cerentron; various quarries of Yesiniog and Machynilch, all these being in North Waies; and from the Betabol quarries in Cornwall, and various quarries at Coniston, in Lancashire; and Langdale, to Vestmoreland.

mirably adapted for such purposes. The exhibitors of such filters are, besides those already mentioned, Mr. T. STIRLINO, sen. (120, p. 773), Mr. STRUTHERS (Outside, 16, p. 114), and Mr. C. HON (109, p. 772).

A peculiar application of slate in the manufacture of coffins for vanits is illustrated by a model exhibited by Mr. J. Exasts (13, p. 744). The material is, perhaps, better adapted for such purposes than lead, and the cost may be less; but such means of preserving the human body in a state of partial decomposition are of question-

An inkrand, of very beautiful Pearlyu state (Class XXVII, 6.3, p. 67), mannfeured by I flowarane, of Llandegal, near Banper, is an ingenious and very carrellly worked illustration of what can be done with this material. The fury make Honocrable Mentium of it, as an encouragement to this kind of industry, and the esdeavour to make an useful and ornamental object of the only material which the exhibitor has defore in

The school slates of Messes, Dawaan and Co. (Class I, 208, p. 141) are of large size and good quality; and the same may be said of the slate ridges and rolls exhibited by Mr. D. Williams (Class I, 215, p. 142). The population in both cases is correct, and the manufacture

The model exhibited by Mr. J. Gronor. (Class I., 213, p. 142) is intended to show the applicability of slate in conjunction with iron to constructive purposes.

Three Companies exhibit collections of French slates,

Some slates of good quality are exhibited by Mr. S. Solzesi, of Chiavari, Sardinia (2, p. 1392). These include not only roofing-slates, but a table and polished writing-slate. They are fairly worked.

D. Manufacturas in Vanious rinks of Stoke and

OTHER MINERALS. Under this head are several miscellaneous articles,

such as steasie, or reag-stone, coal and jet, tuffs, &c., not very easily included under other headings. Though unimportant, they possess some interest, The steatite excelly, although as a pre-sed little used in this country, perties, and capable of being supplied from America and elevator in the steat of the stead of the steat
This Maximan Sear-Stream Cornear (Thiled States, III, 14), 14(1)) has recived likesomized better for articles, 14(1)) has recived likesomized better for the district likesomized better likesomized better likesomized propose, and exhibited by the Company. This state, the district likesomized li

The wholesale prices of blocks of steatite, delivered or board at Baltimore, are as follows:— Sawn or chiselled blocks, per cube foot, 1 dollar (4s, 3d.)
Slabs, per square foot super, 1 inch thick, 25 cents,

Is, 1d.)
Slabs, per square foot super, 11 inch thick, 28 cents.,

and more in proportian to thickness.

The manufactured articles would be supplied at corresponding prices, but it is considered that if the blocks cannot be admitted duty free, as raw material, it would be necessary to charge doubte the price quoted for selected

blocks tested for special purposes.

This steatile in a silicate of magnesia, and the form of it here exhibited is compact, of greyish colour, soft to the noneh, of specific gravity 2:65 to 2:8, hardly affected by sulphurie or muriatic acids, and little altered by exposure to intense hear. Other objects of steatite are exhibited from India, where the material appears to be abundant, and where it has long been need for household attendif.

A couple of vases manufactured of the tufn, obtained from the hot-water springs of Carlskad, are considered by the Jury worthy of mention, for the nature of the material. The vases themselves offer nothing remarkable. They are exhibited by Mr. Gorrt (Austria, 724, p. 1043). Several persons have exhibited articles manufactured or

oeveras persons have exhibited articles manificationed of cannel cool and jet, materials derived originally from the vegetable kingdom, but now existing in a mineral condition. These, although not sufficiently important to require any lengthened description, are interesting, especially the small objects in jet, from their manufacture giving employment to many persons in various parts of Europe.

Cained coal is chiefly used in the manufacture of gas, but some of the harder and more compact banks are considerably cut into various ornamental objects, several interesting of these as a finished work, well designed, and well exceeded, is a garden-seat, exhibited by Illis Royal Highesser Pairox Alaster (140), p. 177, manufactured the property of the control of the control of the property of Admiral Wemyss. The Jary consider that both for Martine and Control of the property of the canada well of the property of the canada when the property of the canada when the property of the canada when the control of the property of the cana

A will-constructed mobil of the Durham measurest Color angle of persons are exhibited by \$M_{\odot}\$ Ci. II. BLANK. This coal is chained from a pair of the New Table of the Color angle of

Jet is a material chiefly used for ornamental purposes, It is hard, hritite, opaque, searcely heavier than water, and takes a very high and beautiful polish. It is found in various parts of Europe, America, and axis Minor. In Roman Catholic countries, a large quantity of small ornaments (as crosses, beads, rosaries, &c.) is made of this material, and it is extensively used with us for mourning decorations.

decorations.

The principal exhibitors of jet are Messrs. SLAYER and Watorr, of Whithy (Classes I., 2, and VIII., 313, p. 121), where the raw material is obtained in abundance and in very good condition. Their articles belong to the class of jewellery. Another exhibitor of

* From an analysis forwarded to the Reporter by the exhibitor of these articles it appears that this variety of cannel yields as much as 15,000 cubic feet of gas per ton, English jet is Mr, GREENBURY (Class XXIII., 8, p. 673). The jet of the Asturias, which has long been known in Spain, is represented by some specimens forwarded by the town authorities of Oriedo (Spain, 33, p. 1331). These articles are sold at an extremely low price out.

The Jury might here refer to amber, as being a mineral production; but the articles exhibited paralle so closely of the nature of jewellery, that it is consolered better to unit uoticing the sobstance and its exhibitors in this Class.

Group 2.—POLISHER AND INLAIM WORK IN SYNEM, & Under this hand are included likeladed enterly mineral substances, as stone, marifice, althouster, granite, peoplew, puper, quarta, piles, rater, and present used in a positional decoration and use. The working, polishing, and intaging of several of these are generally in the same limite, go of several of these are generally in the same limite, in the property of the property of the property of granite property of the property of the property of quarter, jule, &c., on a peculiar summafracture, when perquirite, jule, &c., on a peculiar summafracture, when per-

formed on a large scale The total number of exhibitors in this group is about 120, of which those from the United Kingdom amount to something less than one-half. Tuscany and France take the next place in point of number and variety, but the most attractive objects are from the former country, consisting of mosaics or inlaid work, those from the latter being principally chimuey-pieces. Austria has four exhibitors, three of them Italian, and the objects exhibited are chimney-pieces, strictly Italian in character. Rome has three exhibitors, one of them extremely remarkable for the beanty of the workmanship shown, Italy is thus strongly represented, a fact which might have been antieipated from the habits and history of the people. Russia has long been celebrated for work in mitteral manufactures, and the exhibitors from that country have not failed to take this opportunity of showing the progress that has been made of late years in the processes of polishing and inluying, especially with regard to Fiorentine mosaic and vencering in malachite. From Germany there are several exhibitors, but the progress there made in the art of decorative work in marhie and mosaic does not appear to be well represented in the Exhibition, although there is one very creditable exception, showing that the polishing of granite is thoroughly anderstood in Berlin. Belgiam exhibits a few, hat very few, objects of The countries of the Peninsula are contented with sending their marbies rather as specimens of material than workmanship. It remains only to speak of Sweden and Norway among European countries, but these are extremely remarkable, and present good proof of a thorough knowledge of the art of granite-working in its best appli-

From the couth coast of the Nediterramean we have a few fine slabe schilderd from Egypt, though chiefly as few fine slabe schilderd from Egypt, though chiefly as fur the marklers, and also illustrating a manufacturer. India and China, especially the former, are much more remarkable, and also we degree of Mill and tasks in the principle of the state of the state of the state of the state of priester dure that yut to slahme all that is done in Europe, and shows how much yet remains to be learnt from a crivillation. In as long born the sent of a certain kind of crivillation.

America presents a few objects, which will be found noticed in the proper place.

E. MANUTACUEUR IN MARINE AND MARIMETER.
Manufactures of this hind particle of that higher art
which is recognised as sculpture, but there is so much of its
partyl mechanical nature, and so much more is made to it
in certain degree of taste in execution redeems the eharster
of questionables models, that in every country there
has been from time to thus a characteristic style, and in
would be valuable and interesting, the history of would be

Italy is pre-emineutly the country where this manufacture has been found most congenial to the artistic feel-

ling of the most of the poults, such there, we in the vicinity, at the prevent disp, a large port of the best markine used at the prevent disp, a large port of the best markine used years, however, France, Spins, Pertand, and patte of commy and beliepins, have employed for these own as, with which they always and the large dispersion of the second of

There are some matthles from Greece, and also from they and the costs of Ania Nisore, which were greatly admired and need by the ancients, but of which the produced of the state of the state of the state of the state amongst them are the true Partian of Greyn decuptors, and some other fine white matthles; the sero natice, now a very rare black matthle, considered power and better than the with reins and spots; the cered native, a green and very beautiful people point in beautiful produced to the with reins and spots; the cered native, a green and very beautiful people point benevity; the pulled nation, not utilist the modern Somm matthle, of very rich yellow that, if we speciation, but many, if not all the colours, are cloudy a

approximated by recent markles.

Markle is cent with a thin plate of soft iron used as a saw, and supplied continually with water and sharp sand. Both the hard and markine power are used, and the fact the soft and markles power are used, and the property of the soft of

 The Reporter is indebted to Messes. Hall, of Derhy, for the following account of the mode of turning and polishing marble, spar, and alabaster, as practised by them:—

The vigo rhomes a piece of market shout the rise required to relative the contract of the cont

very high polish.

This is the method, with a few trifling variations, by which all kinds of marble are turned and polished.

Fluor spar undergoes nearly the same process, but requires much practer care and skill on the part of the work-

man, as the spar, being exampored of a mass of crystals whose cleavage is in various directions, requires a more delieste manipulation than almost any other stone. Alahaster is a soft atone, and can be sawn with a crimor tootbaw, and is traved and polished in a very similar

and the Longill

The chief marble manufacture of England is in a part of Derbyshire, remarkable for its picturesque beauty, exteeding along the valley of the Derwent and its prin-cipal tributary the Wye, from below Buxton to Derby. cipal tributary the Wye, from below Buxnon to account The machinery for aswing and polishing was first established in Derbyshire, at the village of Ashford, near Bakewell, in the year 1748, water being the motive power. About the year 1810, similar machinery was erected at Rakewell. Both these works are situated near the quarries. Within a few years other works have been established at Buckland Hollow, near the line of the Midland Railway. These works give employment to upwards of seventy persons: about one-fifth work in the quarries: the rest are persons: anout one-time were not are marked marshed masons, polishers, &c., employed in part upon foreign marbles. Besides these three works, others have been established in Derby for many years.

The most important marbles of Derbyshire are the black,

the rosewood, the encrinital, the russet, or hird-eye, and a mottled dark and light-gray kind, occasionally containing namerous small corals. Of some of these there are several numerous small corals. Of some of these there are several varieties. Others might be added to the list of those found in the northern part of the country, one of which is a beautiful red, resembling the rosso antico, but it is obtained only in small blocks or lamps.

At Wetton, in Staffordshire, near the borders of Derby-shire, are marbles differing much from the above, but they have not been brought into any considerable use, and

are generally subject to flaws.

The black marble is of very fine colour and texture, hot

large slabs free from small veins of calcareous snar are The best quality occurs in beds of from 3 to 8 inches in thickness; some beds are thicker. This marble is, perlangs, superior to the similar kinds found in other parts of Europe, and is greatly valued for inlaying. It is tough, and contains a good deal of carbon, which imparts the colour. Within a very recent period the finer slabs have been inquired for, for exportation to Florence, Malta, and St. Petersburg, besides being used in Devonshire and

Derbyshire. Black marble is extensively used for ornamental objects such as vases, pedestals, chimney-pieces, &c., for which it is admirably edapted. It is occasionelly ornamented in various ways, as by etching, engraving, and inlaying. In the two former processes the polished surface is removed, and the brown colour of the rough marble exposed, and the brown colour of the rough marble exposed. Powdered white-lead is sometimes rubbed into the eached surface to increase the effect. By a peculiar process used at Derby, the brown colour is sometimes exposed without the polish of the marble being destroyed. The ornament produced by this process is more durable than the ordinary

etching. The reservood marble is extremely hard, and of close texture. The beds are of considerable thickness; but the most beautiful part of the marble is only about 6 inches thick. The name is derived from the marking of the

marble being somewhat similar to that of rosewood. The encrisital marble is the one in most extensive use. and contains very numerous fossils, consisting almost exclusively of the broken fragments of enerinital stems often entangled in coral. It may be obtained in blocks of

large superficies, and of a thickness of 2 to 21 feet. The resset, or bird-eye, takes its name from its colour and appearance, the shades varying from light gray to brown. It contains numerous minute fossils, also eneri-nital, and is found in beds of from 6 to 18 inches in

The dark and light mottled gray markle (called New-burgh marble), and the overlying bed, which is coralline, can be obtained from 1 to 2 feet thick.

The manufacture of Devonshire marble is much more

modern, and the material is generally less managenble. Almost all the beautiful marbles of this county, especially those near Plymonth, are fossiliferous, brittle, and very apt to contain veins and eracks. They are illustrated by some beautiful and interesting specimens, which will be

The columns formed of pieces of black marble and alabaster (exhibited in Class I., No. 146, by J. and G. Hall) show the various processes, beginning with the rough stems at the bottom, and endleg with the final polish at the top.

alluded to as the works of individual exhibitors. The marbles of Devonshire belong to an older geological period than those of Derbyshire, the latter being exclusively ut the carboniferous limestone series, underlying the coul measures and the millstone grit, while the former are of the Devonian, or middle Palaronoic epoch. The other kinds of marble, obtained from various localities, do not appear to involve any peculiar method.

of manufacture, nor is it necessary to give further details on this subject. It may well be supposed that the cutting and polishing of alabaster, a material much softer than marble, is in a corresponding degree easier. It is said that soap is used in polishing alabaster, and some of the objects construeted of this material are rendered trans-luceut by being soaked in some kind of oil. The chie The chief locality of this manufacture has long been in the north of Italy, near Leghorn, where the material is very abundant. A considerable number of alabater ornanents are now made in Derbyshire, chiefly from Italian models: those originated on the spot are not yet remarkeble for excel-lence of design. The material is obtained in that county in considerable quantities.

In proceeding to mention the different exhibitors in these materials, we may begin with an account of the series of manufactured murbles sent from various places.

a. General Collections of Marbles. There are several collections of marbles exhibited from

foreign countries, in which the specimens are at least partly manufactured, and some even finished, although the general intention in such cases seems to have been to exhibit them rather as raw materials than as specimens of manufacture. Many of them thus belong to Class I. (Raw Materials of the Mineral Kingdom); but others Class XXVII., and so clearly involve processes of manuartake so distinctly of the character of the objects in facture, that the Jury of this latter Class have thought it necessary to allude, however briefly, to them. To some of these they have voted Medals. The collection of Italian marbles forwarded by the

ROYAL TECHNOLOGICAL INSTITUTE OF TURCANY (TURCANY, Nos. 1 and 98, p. 1290) is of very considerable interest, and includes many varieties little known in this country. some of them remarkable for their beauty and excellen The Jury mark their sense of the value of this series by awarding a Prize Medal to the Institution by which it

To M. DEFEART (Portugal, 232 to 247, 250, 251, 259 to 274, p. 1310) a Prize Medal has been awarded, for a most interesting series of Portuguese marbles, of great variety and including many of considerable beauty. A fine col-lection of Pyrenena marbles is sent by Messrs, DEAVILLS, and Co. (France, 162, p. 1881), to whom also a Prize Medal is awarded (Prize Medal given by Class I, also); and an almost equally interesting series of specineaus from Languedoe is contributed by M. Carrost (France, 444, p. 1199), of whom Honourable Montion is made. M. Cotta (France, 1564, p. 1251), who has exhibited a series of polished marbles, granites, and serpentines from the Vosges mountains, is also Honourably Mentioned.

The GREEK GOVERNMENT (Greece, 26-49, pp. 1404-05) The GREEK GOVERNEST (Greece, 20-49, pp. 1404-16) has sent samples from some of those quarries whose reputation dates as far back as history can record, but they are not in a condition of manufacture to justify extended notice here. The marbles are decidedly inferior in quality to some of those obtained more recently in greater abundance from nearer localities, but if the quarries were properly and extensively worked, far better material might probably be obtained.

The EGYPTIAN GOVERNMENT (Egypt, 1-4, p. 1408) has been induced to open, of late years, the rich stores of oriental alabaster, a material celebrated in antiquity, and of which is made one of the most interesting works in mineral manufactures in the Great Exhibition.* The condition of this marble is very peculiar, but it would seem that considerable quantities of excellent quality might readily be obtained. It is a peculiar condition of lime-

* The object aligded to is the Tazza, by Mr. Dallamoda (Rome, 19).

stone (a true carbonate of lime), apparently formed in the manner of stalagmite, and on account of its peculiar tint and translucency was called by the anciests alabaster. From India are sent many specimens partly mann-

factured, indicating the existence, in that country, of valuable material more or less resembling our market, and suitable for similar purposes. A few of these are coloured, and the quality of the white marble is very peculiar. One of the coloured kind may be mentioned as it is from Bellays (Molrea, p. 86%), and is a magnenian rock, probably a variety of serpentine. Many of the harder materials inglist has be mentioned.

A small series of partly manufactured judes recently forwarded from China, by Dr. Bowatsus, is interesting on account of the material, which is, however, too difficult and costly in working to be much used for economic purposes, unless indeed mortars and peetles and some other objects for chemists could be manufactured of it if larger size than can now be made of agate, and at moderate

Many collections of marbles and other substances referred to this Class are not noticed here, because they are less decidedly manufactured. Takes as a whole, it cannot be said that these collections are in any sense complete; but they may, if afterwards brought together, form a nucleus of much value, which will suggest many manufactured to the control of the contr

b. Chimney-pieces.

The chimney-pieces sent for exhibition involves many differences in siyle and material, and are of so many degrees of merit that it were unreasonable to judge them all by one standard, or regard them from one point of view. Architectural decentation and subjust, beauty and all the contractions are supported by the consideration, and any other considerations, must all be taken into account; and they have endeavoured to select for reveal from the whole number those most

remetablish for each of these qualities.

The works of this idea of the greater presents are all the control of
is and or the fined quality.

16 Merchai (Austria, 128, p. 1044), also of Millia, is marked by the same excitinctes, and some of the same faints, as those of Bostinetis.

17 Description of the fair of the fined fairs, as those of Bostinetis.

18 Coupling the same properties of the fair of th

Next to the works of these Milanese sculptors, the Jury place the chimney-piece exhibited by A. LECLERCA. of Brussels (Belgium, 425, p. 1164), which is constructed of very beautiful Carrara marble. The architectural

design is of considerable merit, and the details very admirally executed. The general work of the figures and principal features of the design are also commendable; but the parely commencing part is inferior in the property of the control of the property of deficiency of expression. It is also finished too much with the file and posmic-stone. Novivithstanding these faults, the work, as a while, has very great merit, and has been reconsomeded as worthy of a Prizz Medal.

and A very Issuation and entrolly worked his efficient.

Make hardle of Helgium, excented in that country, and
fitted to an English store, is exhibited in Clasa XXIII,
(401, p. 500.) by I. Nottanata. It consists of a claimser-piece and large mirror-frame above, without ornament, but of noble proportions. The effect is rither
heavy, but the work is no proof that the Jarry ward a releast the control of the country of the country of the country of the
cellent.

There are no less than five exhibitors of marble chimney-pieces from France, one of whom exhibits several works of good general character, said in good taste; and another, a group chiefly remarkable far combining a certain degree of excellence with moderate cost. The rest all offer some points of interest, but they are confined to the simpler kinds for home decuration.

The Jury award as Princ Medal to Mr. Skozits (France, 924), p. 1213); for a carefully finished work in vicine Carram anable, of very ingenious design, and some morti in swokmanship. They also give a Princ Medal to Mr. J. A. Lasaucx, jun. (France, 572, p. 1205), for three similare chiper in white and vicined methic, which are stated to be of moderate price, and are well adapted, by pose of elimine-prices. The cort of a moderately ornamented chimucy-price by this maker is said not to careful 1216. Briss.

Three chimacy-pieces by Mr. Matoa, of Paris (Prance, 60%, p. 1237). deserte unite, and one of them, of veined Currary models, is in good buffer of the Current models, is in good buffer on the Mr. Current models, is in good buffer on the Mr. Current models, and the control of the Current models of Paris (Prance, 184, p. 1183), sends three similar objects, one of which, with a simple good three similar objects, one of which, with a simple properties of the Current Mr. Cu

We come lastly to the English chimney-pieces, which are not very remarkable either for design or cascanion. Excluding those which do not over their chief corelience to the control of the control of the control of the text New, West (29, 275), there is not by Mr. Thousa's, of white matthe, with a host of Sabaxpere and various figures, the scalepare of which is intende, but the whole givens, the scalepare of which is intended, but the whole pieces, by Mesen, Benzella source and T. Sabaz. The design is not remarkable, but the wide of T. Sabaz. The design is not remarkable, but the wide is post. The glit July have recommended the exhibitor for Honourally July have recommended the exhibitor for Honourally

Seconda XXVII. (17, p. 764) the LOTSOM Manuse. Weature Colors of Latine Weature Colors are children on down kine market chimney, piece, for which, and several other objects in markle, at Prize Medal is avarded. Mr. TEXASYAT and Mr. LL (37 and 38, p. 769), exhibiting together several Derlyshire and other murbles, of which Heosornish Mendon in suite and other murbles, of which Heosornish Mendon in suite and other markets, which were the control of the co

There are several chimmely-pieces in Class XXII., which rather illustratesimprovements in stores than offer anything new or remarkable in marble working. One of them, bowever, by Messex, Tuoo, and JAREN XKEMO (1002, p. 603), in well executed and handsome, in a stone somewhat difficult to work, and the Jury consider it deserving of Hosourable Mentico. An abbaster chimnery-piece is rabilisted by Mr. W. Plaracci (107, pp. 604, 605), but the

material is manifestly unsuited for the purpose.

Lastly, there is a veised Carrara marble chimney-piece,

by Messrs. PORZELT and HARPERATH, of Cologne (Pruswork of the kind from North Germany. It should be remembered that this kind of house decoration is little needed in countries where close and urnamental stoves take the place of our open fire-place.

On the whole the Jury cannot highly praise the group of objects now under consideration: those of greatest pretension lack simplicity, and the rest are destitute of any originality or elegance which can entitle them to rank above ordinary furniture and house decoration.

c. Columns, Pedestals, &c.

It is unnecessary to enumerate here all the exhibitors of columns, pedestals, &c., and only a few will be men-tioned, which appear to require notice on account of material. Many of the others may have the same kind of merit of execution, which is, however, too simple to

of ment of execution, watch is, nowerer, too simple to meed description. From Tuscany are several fasts of columns, one of which, sent by C. Nouzz (91, p. 1292), is remarkable for the extreme beauty of the material. It is a breceiated markle, of a remarkable soft hrow scolour, fine texture, and good polish, and is well adapted for house deco-nition. It has been selected for Houserable Mension. Other columns from Tuscany, by GUIDOTTI (94, p. 1293,) and Marres (95, p. 1293), are not without consi beauty, but they are not so new. They are for the most part of hrecciated marbles.

part of affectioned marines.

The Belgian columns exhibited by the Viscount Des-MANT DE BISEME (Belgium, 16, p. 1151), and Honourahly Mentioned by the Jury, are chiefly interesting as examples of the hisek marble of the country. The French have

contributed few objects of this kied. Of English columns there are some of considerable interest. Two of large size and great beauty, adapted for church or palatial decoration, are sent by Mr. Champen-Nownz (Main Avenue West, 158, p. 848), from a quarry in Devonshire, capable of yielding much excellent material, in slabs of large size. The marble is of the kind called "madrepore," being almost entirely made up of coral-"madrepore," being alsoost entirely made np of coral-limestone, greatly attered, but retaining its organic tex-ture. The colour is good and richly varied, but it has the demerit of being cut the wrong way of the grain, and the demerit of being cut the wrong way of the grana, and is hailt up as stone-work although polished as markle. The Jury make Honomable Mention of these columns. The Royal. Derails Society (71, p. 788) has sent bast-pedestals, one of a white marble, and the other of a well-known green colour, both from Comensana. The latter is remarkable for its rich green has and great beauty; and the electric of material keing important in ornamental marble-work. The Jury have made Honour-able Mention of the Society for the success attained in the present collection. There are two marked varieties ine present contection. Inere are two marked varieties of colour of green Connemars marshe, one being much darker than the rest. Mr. Franklin, of Galway (73, p. 768, and Class I., 144), has sent two black marble pedestals, one prepared for polishing and another finished. These show the quality of the material, which is insquestioned to the content of the material, which is unquestioned to the content of the material. tionably good, and both are from his neighbourhood

tionany good, and not are from his neighbourhood, mesers. OldpristD and Co. (p. 969), Mesers. Lozas and Soxs (81, p. 969), and some other exhibitors from Derbyshire, have supplied specimens of Derbyshire markles of various kinds, which well illustrate the character of the stone and its uses. The localled rosewood marble, which is one of them, has been already described. It is very beautiful, but so much harder than the others, that the saw will cut the encrinital marble of the same district three times as quickly. Various pedestals of granite and porphyry are exhibited from Cornwall, but these will be elsewhere described.

d, Slabs, Table-tops, and Tables,

These objects are chiefly interesting in reference to the material of which they are constructed. Some of the marbles are beautiful, and a few are remarkable for

rar

The Connemara marble tables exhibited by Mr. Laxi-

and placed on pedestals of black Galway marble. There are flaws in the slabs, but they are Hononrably Mentioned hy the Jury as good samples of the material, which is wurthy of more extensive use than it has hitherto ob-tained. The Galway marble is also exhibited by Mr. HUNTER (Class XXVI., 202, p. 751). Mr. Champer-nowne (6, p. 764) exhibits a table of Devonshire marble, not very remarkable for beauty of material, but massive, well preportioned, and adapted for certain uses. An interesting and rather beautiful slah of the Plymouth limestone, used in the construction of the breakwater, has been formed into a table, and is sent by Mr. STUART (55, p. 767). A magnificent slah of foreign marble is amongst the goods exhibited by the London Madrie Working Company (17, p. 764), and is worthy of notice

for its excellent finish, It is pleasing to observe amongst the goods sent from Canada a table of polished limestone or marble, the material the same as serves for ordinary building purposes in that colony. It is remarkably fine-grained, but the colour is not particularly ornamental. It is exhibited by Mr. Hammond (118, p. 965), and is Houserably Men-

A table is exhibited amongst the East Indian productions, the top of which consists of a slice of a column from Nineveh. It deserves attention from the condition of the limestone, though the material takes only an imperfect polish. It is the property of Culonel Sykra (p. 921).

The slabs of marble exhibited by M. Guislain, of Belgium (423, p. 1164), are good specimens of the ordinary pregram (42.5). I (3.4) are good aperaneas or the ordinary material used extensively in that country, not only for ornamental, but for general domestic purposes. It is no doubt owing, partly, to the low cost of the labour required for preparing these slashs, and partly to the great ahundance and warriety of the material, that matebe is so much more used on the Continent than with us; hat it is wortby uf consideration whether we might not introduce the cheiper kinds for many purposes of furniture, and in so doing, follow the example of our neighbours in France, Belgium, and elsewhere. M. Guislain has been deemed worthy of Honourable Mention.

The Italian marbles used for tables and slabs are sent by several exhibitors. Of these the Count de Guido (Tuscany, 93, p. 1293) exhibits two of red colour and excellent quality. The material is little known. The Marquis Panciariccut (Tuscany, 96, p. 1293) shows a good specimen of "Immschella," or fire-marble, which is a dark-brown shell marble, having brilliant fire-reflections from within. He also has two smaller tables. M. NANNI (Tuscany, 29, p. 1293) has sent a circular table, of the marble called *verde di proto*, and M. Gunotti (Tuscany, 94, p. 1293) three tables, two round and one oblong, tho r of good colour, but not very close texture,

The ROYAL TECHNOLOGICAL INSTITUTE (p. 1290) has also forwarded a number of tables of various kinds of marble, sufficiently described in the Catalogue. some reference has already been unde in speaking of the Tuscan marhles generally.

There are but few proprietors of those numerous qu ries in Germany which furnish the various marbles in common use, who have thought it wurth while to forward for exhibition fair samples of their produce. Amongst these is, however, one, the RUEBELAND DICAL ESTABLISH-MENT OF BRUNSWICK (Prussia, 780, pp. 1093, 1094), which deserves notice for the beauty of the slabs and the good condition in which they are seut. M. CANTAN, of Berliu (Prussia, 235, p. 1061), has sent a heautiful slab of Prussian marble, very admirably executed. Of the former exhibitors, Honourable Mention is made for the group of objects they exhibit. The latter is rewarded with a Prize Medal, having sent several articles of considerable interest.

The collection of marbles cut into slabs and table-tops, and sent by M. J. J. FIGURIARDO (Portugal, 248, 249, 252 to 257, p. 1310), has been Honourably Mentioned by the Jnry. This series is exceedingly remarkable for the beauty and great variety of many of the specimens, and illustrates the riches of Portugal in this respect. Some mear (70, p. 768) consist of two picked slabs from the illustrates the reduce of Potugal in this respect, Sonte Ballinahinch quarry, considered to be remarkably fine, of the slahs, especially, must be very valuable if not too

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hrittle for working, which cannot be positively ascertained in their present state. The specimens of M. Dejeant, of Portugal, have been referred to before, in treating of the collections of marbles from various countries.

The ECTYPTAN GOVERNING P. J. 1600; has seed a number of samples of that extreasely begunified marsh is how as "Oriental alabaster," This material is not really alshaster (suplaste of lime join the modern sense of the word, but transparency, and peculiar texture, it resembles that mineral, which has indeed been named from it. The table-tops of this stone are very beautiful, and admirably worked and polished. They have obtained Hosourable

From the United States hut few specimens of marble have been sent, hut we observe a very beautiful and wellexcented table-top of yellow marble, resembling Senna, sent by Messrs. Doe, Hazlarton, and Co., of Boston (418, p. 1462).

e. Miscellaneous objects in Marble, &c.

Miscellaneous objects in marble, alaboater, &c., are arranged to the fine of the first production of the first production of the table and drawing-room, from England and Ireland. Namerous small toys and other objects are set from India, with garden-seats; some vaces and other things from Italy, and a few trifles from other countries. We proceed to cummerate them.

The foat are several in number; some of white stary martle, one of martie from Devoushire, and others of less pretence. Two of the former, exhibited by the LOSSOM Manner. Womanton Conseave (17, p. 744), are third is by Mr. Pixwas (Nave, 9.7, p. 850). The Devoushire marble forth by Mr. Boxxrq. (7-64), in a fine specimen of the stone, which is one of the richly varingsted adapted to the object, nor is the style good, though the

excequion as markle work is praiseworthy.

A bast of Fernata, well exceeded in Irah markle, is
have of Fernata, well exceeded in Irah markle, is
highly crystalline, yellowish markle, adapted for the
me of the scalptor, and more approaching the ancient
Parian than anything known elewhere in Europe
Terran than anything known elewhere in Europe
and the quality may be expected to improve; if the query
should be further worked. It is exhibited by the protractional by the Jury. (72, 9-76), and it floourably
Mentioned by the Jury. (72, 9-76), and it floourably

Mr. Poavia (66, p. 769) has a collection of small objects in Commerna marke, all of Irish manufacture, and very neatly executed. Some small table ornaments by Mr. Richard, (62, p. 767), and Mr. Synavos (Class XXX., 176, p. 892), and all objects of the Synavos (Class XXX., 176, p. 892), and all objects of the Synavos (Class XXX., 176, p. 892), and all objects of the Synavos (Class XXX., 176, p. 892), and all objects of the Synavos (Class XXX., 176, p. 892), and all objects of the Synavos (Class XXX., 176, p. 892), and all objects of the Synavos (Class XXX., 176, p. 892), and are well similared.

There still remain to be considered the ornaments of black and other marbles, chiefly from Derbyshire, exhibited by Messer, Haak and Texxaare (37 and 38, p. 75). Itel my Messer, Haak and Texxaare (37 and 38, p. 76). The first (Texxaxer and Haak, 37 and 38 s) have a fair variety, which have been considered worthy of Honourable Menton, as exemplifying the present state. England where the greatest pains have been taken, and where the improvement in of longers dates. Mr. Bright's

where the improvement is of rongest assections where the improvement has decided. It The series of Derhyaline goods, by these eghilitors, is The series of Derhyaline goods, by these eghilitors of models from the antique, epecially the obligations or models from the antique, epecially the obligations of models and Ninerch, are very pleasing. The process of etching and Ninerch, are very pleasing. The process of etching and Ninerch, are very pleasing. The process of etching and Ninerch, are the process of the proc

Hatourt, and the jugs by Mr. Texaxia, all of black marble, are of elepant shape and perfectly well flashed. Mr. Vallance, of Madlock, whose most important objects will be spoken of amongst inflaid work, has son teveral articles of marble, among which may be mentioned five vance, some of good formst their from the antique, an and a Roman bath of the same material. These are good specimens both of material and manufactors.

A tomb in alabaster, by Mr. Cundy (Nave, 60, p. 848), being a elever illustration of what can be done in this material, is considered by the Jury as worthy of a Prize Medal.

If from the British goods of this band, we turn to those of other countries over which England bolds rule, we shall find a number of striking and boundful manafactures that the strike of the striking and boundful manafactures which may be specifically mentioner, the handsome while markle gardes-sens, understood to be a present from the markle gardes-sens, understood to be a present from the condition of objects of the same, or rarry the same material, challenged by the Razaror Jornanovou (p. 2011). These latter, manufacting in number to Sc, are perhaps expalailities of the saterial. The former challenge are presented to the same of the striken of the saterial. The former challenge has been considered vorthy of Honozanth's Revision. Beindes manufactured markle from Van Deursch Land, set of the same of the same of the striken of the same of the sam

ably Mentioned by the Jury.

From France the miscellaneous objects in marble are
hnt few, except those where marble is applied to furniture, and general purposes of decoration, combined with
wood-work. Mr. Sinon, however (1016, p. 1227), has
some marble ornaments.

solide martice transactions, occurring the whyce in martie of a miscellaneous character. There are, however, a found in a feet and the second of a miscellaneous character. There are, however, a foundate by M. Toccut, of Frankfort (5 Zelle, 21, p. 1122), and some small ornaments from the mannfactory of Diez, in the Dueby of Nassan (6 Zelle, 8, p. 1132). The model by M. Noc has been deemed worthy of Honourable Mention.

The vertices of matthe has been so long a staple manufacture of Islay, that we might well expect from that country a preponderance of such objects as illustrate the varied applications of this material to the arts, and to decorative purposes generally. To a certain extent, this is the case; int, atthough most of the productions of Italy are ornamental, they are not pre-eminent for novelty or variety. Among them, however, are some of extreme

beauty and one recoffence.
The near remarked combester, streetly belonging the first street and the street in the presence of
so greatly and justly admired. The Jury have awarded a Prize Medal to this exhibitor.

From Rome we also have a number of other works; some of them by the same artist, and in the same mate-

rial; but others by Mr, Van der Staat, exhibited by the proprietor, Signor Dtra (pp. 1287, 1288). Among them are some models of architectural constructions and antiquities in fine Sienus marble, and a bollow altar of Oriental alabaster provided with a lamp, and intended to show the remarkable translucency of this material. All these are

of excellent workmanship.

From Tuscany are exhibited several objects, constructed of the true alabaster, so shundant near Vulterra. Among these a very beautiful and large vase by Messrs. G. Chr. aici and Soxs (116, p. 1299) is Honourably Mectioned by the Jury, as well for the material as for the treatment of the subject and the mechanical execution. There is also a pair of large candelabra of brown alabaster exhi-bited by Solaini, of Leghorn.

Among the objects properly belonging to this group, may be mentioned, in conclusion, a baguivola of lapis lazuli, extremely remarkable for its large size, and for the extreme parity and richness of the colour. For these reasons it is of great value, but has little beauty of form or excellence of workmanship. It is exhibited by Mr. Jones (Rome, 48, p. 1287), and is considered worthy of Honourable Mention

F. WORKS IN ORNAMENTAL STONE, GRANITE, AND SPAR.

a. Serpentine, Granite, and Porphyry.

We bring together these materials more for convenience than for any marked similarity in the modes of working. The serpentines of England are not harder than the commoner marbles, and are worked in the same way; whereas the granites are extremely hard, and require peculiar treatment. There are not many exhibitors in these materials. To Mr. J. ORGAN, of Penzance, in Cornwall (85, p. 769),

a Prize Medal is awarded for bis fine and well-selected group of objects, manufactured in the serpentine of the Lizard. The material, employed only by Mr. Organ and one other exhibitor, is an extremely beautiful marble of moderate hardness, differing essentially in this respect from the serpentine of Italy and Greece. The colour is extremely varied, but that which is commonest and most admired is a rich dark olive green, spotted with red, and traversed with veins, often of the purest white, but some-times of dark crimson. The articles exhibited by Mr. Organ are remarkable for their large size, and the good taste they manifest, as well in the style of mannfacture as in the selection of the specimen for the kind of work. They include a pair of obelisks, a font, and a chimneye, besides vases, and other smaller ornaments

The exhibitor has the right of quarrying over an extensive district, chiefly occupied by the serpentine: the work is generally pursued in summer. About one ton in four of the rock is of fine quality; the blocks are generally small, though they have been obtained 7 feet long, and from three to five tons weight. A very long, and from three to five tons weight. A very beautiful and large specimen, partly polished, is exhi-hited outside the western end of the Building (l, p.). It may be well to state that the cost per ton is from 5l. to 10f., according to weight, and the price of slabs 1½ inch thick, and not exceeding 5 feet leng, is 6a per superficial foot from the saw, and 12a per foot moulded and polished. Mr. W. Peance, of Truro (75, p. 768), is an exhibitor of various objects mannfactured from the serpentine of

the Lizard, from steatite, also from the Lizard, and from the fine granite from Lamorna, Withiel, Luxulian, and other places in Cornwall. The whole group is of remark-able excellence, and the Jury have awarded a Prize Medal to the exhibitor.

The steatites of the Lizard differ little from the serptines in their essential components, both being silicates of magnesia; although the former contain a larger proportion of silica, and the latter much more water of consolidation. Both minerals vary, however, much in composition, when in a massive sinte, and probably pass into each other in the Lizard rock. The serpentine is much harder than steatite, and is generally more richly coloured, so that the latter, although often beautiful, is better adapted for smaller objects than the former, which,

when in large blocks, has a rich and noble effect. Many of the small articles by this exhibitor, manufactured of steatite, are well worthy of notice." Mr. Pearce also exhibits several pedestals, a large slab,

and a chimney-piece of granite, and pedestals of porphyry. The style of the chimney-piece is heavy and massive, but not unsuited to the material; and its workmanship is decidedly good. The difficulties in bringing granite and porphyry to a perfectly plane surface without the lathe, have been very successfully overcome in the case of the or table-top, which is of large dimensions, and exhibits no flaws, and no imperfections of work.

Mr. J. H. MERERITH, of Fowey (Class I., 141, p. 134),

MI. J. H. MERGERTH, OI FOWEY (CHRS I., 141, P. 104); exhibits three noble slabs of Cornish porphyry, one black, another red, and the third green; all of fine quality, and polished on both sides. The largest, which is of a fine red colour, took nearly four months to complete, the eutting being done by machinery, and the work going on night and day. It is absolutely without flaw or defect, and weight about 8 cwt. The material is so benutiful, and the work so excellent, that the Jury have no hesitation in awarding a Prize Medal to this exhibitor.

The quarries from which these fine specimens of Cornish porphyry are obtained were first worked by Mr. J. T. Treffry, of Place, who commenced the erection of a hall, in which the various specimens are exhibited, and who greatly exerted himself to introduce the use of this material for decorative internal work, and for the Fine Arts

The only exhibitors of Scotch granite in articles of an magnitude are Messrs, Macnonath and Lastate of magnitude are Messrs. Macronald and Leslie, of Aberdeen (74, p. 768), who have sent two vases, a pedestal, and a noble slab for a table-tap. The Aberdeen granite differs from the Cornish, in being for the most part finer grained, and of a peculiar flesh tint. The spe-cimens here exhibited are of the finest kind, and their wurkmanship is unrivalled. They are also in good taste, and although the material is not without flaw, this may be excused, when the large dimensions of the different objects and the rarity of perfect blocks are taken into consideration. To these exhibitors a Prize Medal is awarded.

There are one or two exhibitors of grasite mannfactured into articles of small size, and almost partaking interine into articles of small sale, and author partaking of the nature of jewellery. Soeh are Mr. G. JAHISON, of Aberdeen (Class I., 25, p. 123), Messrs. hirtira so, of Aberdeen (Class All, 25, p. 123), Messrs. hirtira sand Sons, of Aberdeen (Class X.HII., 24, p. 423), and Messrs. Ellis and Son, of Exeter (Class X.HII., 12, p. 1674), the former of whom show some elegant forms exclutured in Aberdeen granite, and the latter, knife-handles in similar material from Deronolative.

Of foreign porphyries there are few examples in the Exhibition, but amongst these we may mention a table, small column, and tazza, exhibited by Mr. Cantian, of Berfin (Prussin, 235, p. 1061), with some marbles also worthy of notice. The table is a round slab of red colour, and fine texture, and the tazza-vase and pedestal are of the same material. They are all well-finished and creditable specimens, whether as regards material or execution. They are accompanied by a small column of polished garnet rock of very singular appearance. The Jury have awarded a Prize Medal to this exhibitor,

In the Scandinavian compartment there are several objects constructed of a very hard syenitio porpbyry, found in detached boulders (erratic blocks) in various parts of Sweden, and also in situ in Norway. Of these, uan numered 43 (p. 1352) is from the Hjula quarry, in Norway, and is of a graylsh-red material, probably rare, The Jury have awarded Hosomeble Mention to the Swedish popphyry work georally, including not only this vase, but another exhibited by Mr. Wallis (47, a. 1353). that numbered 43 (p. 1352) is from the Hjula quarry, in p. 1353).†

* The articles here described are constructed of the more oranmental specimens of steatite, and are highly polished. Those previously alluded to (p. 559) are for economic purposes and are left rough. The material slightly differs also to composition.

† In the early part of the month of September, and after the awards of the Jury had been finally determined up, a

M. Colin, of Epinal, in the department of the Vosges (France, 1564, p. 1251), exhibits a collection of the marbles, granites, and serpentiaes of that part of France. Some are of considerable beauty.

A vace and group of figures in Italian scrpentine, exhibited by Mr. Noactti (Class XXX., 309, p. 840), are meutioned here simply as illustrations of the material. Two large vases of a peculiar material called agate marble, harder than alabasete, and nearly as transparent, may also be seen among the objects seut by this exhibitor.

b. Jasper, Jade, Agate, Crystal, and Spar.

The jasper and quartz rocks of Siberia, well known as materials of eatreme hardness, worked only in the Russian empire, and rarely met with except as Imperial presents to princes and distinguished foreigners, furnish a group of very remarkable objects exhibited among the Russian goods, and deserving of notice on all accounts.

The natival of some of these were in quart rook, but of prevaled close and extreme toughest and hardrook, or greated close and extreme toughest and hardrook, reclaims all contract companies to be set exist in filters, by pound the Ourta, and are in great shandanes and sprint; The was exhibited from Roman portal munificatives of Dastrichtung and Kelyana, whose of the work in performed by manual labour, the only machine such being, in fact, a very maps beind of worked by jume touch and many. No tool will touch the seconds which closed and file of the hardest empertage of the contract of the contract of the contract of the contract back closed and file of the hardest empersary for fluiding views of considerable magnitude in our properties. The contract contract was a superparent contract to the contract of the contract work of the contract back excellent and the other than the surplementary of the contract of the contract work of the contract back excellent and the contract work of the contract back excellent and the contract work of the contract back excellent and the contract work of the contract back excellent and the contract was a surplementary of the contract back excellent and the contract work of the contract back excellent and the contract work of the contract back excellent and the contract work of the contract back excellent and the contract work of the contract back excellent and the contract work of the contract and the contract and the contract work of the contract and the contract was a superposed to the contract and the contract and the contract work of the contract work of the contract and the contract was a superposed to the contract and the contract and the contract was a superposed to the contract and the contract and the contract and the contract was a superposed to the contract and the

for the sole purpose of preparing them.

Of the works of this fault in the Exhibition, there is offered to the property of the

Although the rases exhibited from Rossis are not, and the rase exhibited from Rossis are not, are desirons of recording the expressions of their Chairman, in a memori submitted by him to the Jury, "Such are the dimensions and weight of these masses of pietra are the dimensions and weight of these masses of pietra dare, that I must say I know of no similar works; nor do I believe that nay so difficult and well finished have been executed since the times of the Greeks and Rossis.

ammber of very besulful objects were olded to Dis Scandinavan exhibiting, among which was one van of pollushed grants of gignatic propertions, sent by His Majarly the Works of Dischergia, laustimeted to supply work for the people and the people of the people of the people of the people and the people of the people of the people of the people and the people of the people of the people of the strength of the people of the people of the people of the strength of the people of the people of the people of the tild was no large to be suffer conveyed. The was is of a bit of the people of the people of the people of the people of the strength of the people of the people of the people of the people of the the people of the peop

examples of the same kind, and of those times, I would cite the statue of Rome in the Capitot, and a very beautiful fragment of drapery most exquisitely worked, both which are of porphyry. There are also, in Rome, some beantiful hists, of the size of nature, and of the most perfect finish, in basalt."

perfect finals, in bands."

A large number of works in jules are estillisted, from a large number of works in jules are estillisted, from a large number of travelling and the large number of the large

The transition from gene-cuting, on this gigantic scale, to the true work in pietra dura, known as Florentine mosaic, is easy and natural. The material used in this latter kind of work is nearly the same in many cases, and the work differs only in its smaller size and greater delicacy of finish. Still the subject of mosaic or inhid work is essentially distinct, and is more convenically

treated of under a separate localization, adapted, by increasing only of the Derbyshum numeritaries of fluor space (locally called Blas John), often worked for fluor space (locally called Blas John), often worked for the property of the p

The exhibitors of this mineral are, Mr. Vallance (40, p. 766) (who has a gignantic rase 39 inches high, eight other vases, weeker bazzas, and several other specimens), Mr. Hall and Mr. Tennant (37, 38, p. 766), Mr. Hall and Mr. Tennant (37, 769), and Mr. Jerson (132, p. 776). The objects are vases, tazzas, and sundry mineclaneous ornaments, shelfy small sundry mineclaneous ornaments, shelfy small sundry mineclaneous ornaments, shelfy small small sundry mineclaneous ornaments, shelfy small smal

G. MOSAICS OR INLAID WORK IN STONE.

The art of mosaic (eyes musicum of the Romans), originally applied only to the combination of small diceshaped stones (tessers) in patterns, has very long been an important source of labor to the inhabitants of several parts of Italy, and under various modifications is own carried on in the principal cities of Karope. The tions of revery, and he now understood to include all kinds of linkid and vancered work, in whatever material, CLASS XXVII.1

We have here to consider those specimens in which marble and gems are the materials principally made use of; the Roman mosaics manufactured in glass being

referred to a different group." With this limitation there are still several kinds which we may conveniently treat of separately. They are,-Florentine mosaie, or work in gems (pietre dure).
 Derbyshire mosaic, imitative of Florentine, but in

3. Russian mosaic, or inlaid work in malachite.

a. Islaid work in Pietra Dura

This manufacture consists of certain kinds of hard stone inlaid in a slab of marble. They are, for the most stone inlaid in a stab of marble. They are, nor the most part, those pseudo-gems, generally varieties of quartz, known under the names of agate, jasper, chaleedony, cornelian, &e.: but stones such as lapis lazuli, remarkable for their brilliancy and depth of colour, are also included, and come under the general denomination of pietre dure, In this kind of work, a slab of marble (generally black) of the required dimensions, and about an eighth, or threesixteenths, of an inch thick, is prepared, and the patterns to be iniaid are carefully ent ont with the saw and file. The hard stones, worked into the required pattern by the ordinary methods of gem-entting, are accurately fitted into the spaces thus prepared, in a polished and finished

state; for, if the whole were to be polished at once, some of the substances, being softer than others, would be worn away too rapidly, and the picture, instead of presenting a smooth surface, would be unequally polished, and the outlines would be granulated or chipped. The work, also, is liable to be spoiled by the accidental placing of one stone lower than another, and mistakes of this kind will often lead to the ruin of the whole, surface is thus prepared it is veneered on a thicker slab, and is then fit for use. In point of difficulty of execution, durability, and taste, this process of inlaying in hard stones, or gems, may rank as the most important purely decorative work within the whole range of mineral manu-

In order to illustrate the peculiar mode of inserting the different pieces of agate, jasper, &c., in these beau-tiful works of art, and to show also to those not familiar with them the elegant and simple forms produced, it has been thought desirable to prepare a diagram showing a fac-simile of a portion of the inlaid work in one of the tables exhibited. In this diagram the hard line re-presents the outline of the flowers, leaves, &c., and the dotted part the lines where the different pieces forming a dotted part the lines where the different pieces forming a single object are joined together. The extreme delicacy and accuracy of the joints can only be fully appreciated by the examination of the original specimens.



Pac-simile of inlaid week in Florentine messic.

The principal exhibitors of true Florentine mosaic in pietra dura are the Brothers BUONINSEGNI (Tuscany, 118, peers durk are the invineers rECONENCENT (INCADY, 115, 1299), 60 HANCHIMI (TUSCARY, 119, D. 1299), and the IMPERIAL MANUACTORY of PETERROPY (Russia, 298, p. 1376). The two former exhibit good examples of the best manufactures of this kind. Most of the designs are in good taste, and all are admirably executed, but they do not present any great amount of originality. The Russian table is from a manufactory established for some time at St. Petersburg, originally worked by Italians, but now solely hy Russians. The workmanship is in the highest degree ereditable; but there is nothing original, either in execution, or in the arrangement of the different ornaments. Many of the jaspers and other stones are of great beanty, and are obtained from Siberia. Most of the stones used in the Italian tables are pehhles from the Arno. Prize Medals have been awarded to all these exhibitors, but the latter establishment is especially rewarded for the relief work about to be described, A very remarkable, and extremely beautiful variety of

* See p. 577.

pietra dura work is exhibited in Resisia (298, p. 137). I consists of a jewe-lease, materized to be the preperty of the Empress of Russia, constructed of word, and having the Four sides and top covered with groups of fruit est in pietra dura, in a style which may be called comes-seed; a reader high relief. The stores are so elected as to arrive the relief. The stores are so elected as to make the relief. The stores are so for elected as to make the relief. The stores are so for elected as in internal structure, of the fruit they represent (currants. pears, plass, &c.), and the whole work is exquisitely finished. To the exhibitor of this, the Jury have also awarded a Prize Medal. They think it right, however, to add that, whilst fully admitting the extreme beauty of the general effect, and of the particular stones selected, they do not regard this style of mosnic as ranking so high as the inlaying of tables, inasmuch as the separate pieces are here cut and shaped independently of each other, and comented on the surface they are to decorate, without having to be fitted to adjacent pieces before imbedding. There is, also, little danger of failure, even the dimensions do not strictly correspond. The goods recently added from the Royal Porphyry

Works of Dalecarlia, and already referred to, include

an inlaid oblong table of granite, porphyry, and jasper, which descrees notice in this place, as well for beauty of workmanship as for design. The pattern is geometric, but very regular and elegant, and in very good taste. The materials are hard stones of the country, mul the mechanical execution admirable; but being paparently of equal hardness, they admit of being polished after the whole is completed. It is exhibited by the Kixu or

Swams (31, p. 1355).

Checky allied to the Fineration work, but of even Checky allied to the Fineration work, but of even Checky allied to the Fineration work, but of even call of management, is at holian chess-table (p. 21) with a middle looker; and a masker of main looker than from the control of the co

b. Islaid Work in Marble.

The great expense of inlaying hard publics, which can only be cut a goan, and the excellent effect that may be only be cut as goan, and the excellent effect that may shall, cement, and glass, replace the jusper and agate of Plorentine mouse, have caused the introduction to Daghad and clue-bere of a manufacture which may in the contract of the contract of the contract of the great variety from Derhyshire, where this manufacture has become very important; from Devonabine, where conceiling of the kind has been for some time known conceiling of the kind has been for some time known.

something of the kind has been for some time known. There are two principal methods of profusing matched modal; that followed in Dettyshire, where a recess is ground; and that parmed in Devotadire, where a various column and forms being merely constited on a various column and forms being metry constited on a the whole surface being afterwards polished together. The Malteres prefusions appear to before to the forms kind; within the work of the profusion appear to before to the forms kind; within the history. At first we confine control to the Parke history and the state? At first we confine control to the Parke history.

shire work, which is truly infaid.

To a very limited extent, and by a very rude method, the art of inlaying in marble was practised in Derly-shire many years ago; but within the last quater of a century it has made great and rapid advance, and shout on years since, the introduction of Florentine patterns, imitated in various ecoloured marbles, has exerted a very important infance on the trade.

The first manufacture of mousic in Derhyshire consisted of coloured spars and unables, of irregular shapes, inhedded jin cenuent, and afterwards rubbed down and polibed; these were called "serap tables," and were polibed; these were called "serap tables," and were call into definite forms arranged in patterns; but these also were rudely finished, as the workmen were not skilled in the arr of making scenaris joints, and the forms that the process was tiltle move than scenering, and the results were rather institute of brecisted unables than intended to prohine priorial effect. See that the pro-

The present Duke of Devenships, by permitting his almost left of the Collection of Piceratiae work to sever as a goids of considerable merit; an Mr. Loussa (10, p. 76), who model to the Derbyshire mannetetures, and even lending sent as a chimny-piece of hisk marths, inhald in mosaic results of the contract of the con

an imitation of a higher kind. The true art of inhying was thus brought into successful operation, and materials foreign to the vicinity, as malachites from Russis, continental marbles, aventurine, and other glasses from Venice, with some eements, have been introduced. The use of these substances greatly diminishes the cost of

the work. The condition of the trade at present may be jodged of from the articles in the Exhibition, which show much tastes and skill, though but little originality. The manntastes and skill, though the sittle originality. The mannth of the state of the skill of the state of the Baxton, Castleton, and Derby, and the number of perrons employed as monaic workers exceeds fifty. There appears to be a fair demand, and the prices, although sometimes high in London, are by no means extravagnat

as the place of manufacture.

Of the exhibits room Derhyshire, Mr. Vallance (si, p. 77) may be mentioned in faving sout two congression, p. 770 may be mentioned in faving sout two congressions are supported by the property of shell, glass, and modified mention. The property of shell, glass, and modified mention, the property of shell, glass, and modified mention. If no Mr. Vallance, are the property of the prop

in a very high degree interesting and instructive. A large round inside table, four fort in diameter, partly composed of the productions of Derbyshire, in exhibited recommend of the production of Derbyshire, in exhibited production of the product

Mr. Woodburr, of Bakewell (Class XXX., 350, p. 842), exhibits two oblong inlaid tables, in cinque-cento style, designed by L. Gruner, Esq., and very well executed. The designs are particularly good and praiseworthy, and the Jury have noticed with much satisfaction that in this case effective aid has been afforded by an artist in clevating the mosaic manufacture of the district beyond the mere repetition of Italian patterns. It may be well to suggest here to the Derbyshire manufacturers, how much more ereditable and ultimately successful it would be to place their work on a higher footing than it can be said to occupy at present, which might be done if the designa for their soft marble work were made with some referenee to their material, which differs so much in hardness from the true pietra dara of Italy, and certainly admits of original treatment. In this view, and to mark their full appreciation of the originality of the design, as well as of the excellence of the workmanship, the Jury have awarded a Prize Medal to this exhibitor. In addition to these two tables, Mr. Woodstry also exhibits (77 769) a black marble chess-table with a pretty inlaid border, equally ereditable for taste and executi two vases, one of black marble, and one of changed fluor, already alluded to.

The other exhibitors of Derbyshire inhid-owek are Mr. J. Tonta-rosson (7, p., 76), who has several specimens, chiefly lables; Mr. S. Battont (80, p. 76), already mens, chiefly lables; Mr. S. Battont (80, p. 76), already lables; Mr. S. Battont (80, p. 76), already lables; Mr. S. Battont (80, p. 76), who exhibit together a number of articles of Derbyshire work, and songing her east various inhidi takes, and smaller objects among the rest various inhidi takes, and smaller objects sends a chimmey-piece of black martle, inhaid in mossie, in a pattent to a certain extant original, though adopted in a pattern to a certain extant original, though adopted

introduce good designs in Derbysbire mosaic into house decoration, is referred to with satisfaction by the Jury; and they consider not only the idea, but, in a great measure, the design and execution of the work as worthy of the Prize Medal. The inlaid work is well done, though the introduction of Sienna marble in the capital of the columns supporting the mantel-shelf is injurious to

the general effect. We pass on to the marble mosaics of other parts of England. Of these, by far the best, in every respect, are sent from Devonshire, where the manufacture seems to be greatly advancing. To Mr. Woodler, of Torquay (39, p. 766), a Prize Medal has been adjudged for one ablong, and two round tables, the latter of very great merit, and also of considerable interest as illustrating the marbles of the district. The Devonshire work is, as has been already said, rather a veneering than inlaving process; but the result is so similar in appearance to that cess that the result is so similar in appearance to that obtained in Derbyshire that they can hardly be dis-connected. Mr. Woodley's large round table is of the kind called specimen tables, and the forms are geometric, but the execution is excellent, and the selection of marbles admirable. There is not in any of the tables by

marbles admirable. There is not in any of the tables by this exhibitor any stempt at originality of esign. The chlong table contains a fine specimen of red marble. Mesers. Hotzan m and Sosw (Class XXVI, 161, p. 743) exhibit a cabinet made for Her Majesty. This includes a certain amount of inlaid work in British marbles, well designed and well executed. The Jury marbles, well designed and well executed. The Jury consider the mosaic work in this cabinet deserving of Honourable Meution, (Prize Medal awarded by Class

Mr. Bover, of Plymouth, is also Honourably Men-tioned as an exhibitor of inlaid Devonshire marble, in a chimney-piece exhibited by bim (4, p. 764). The design of the work and the general effect are not particularly good, but the inlaving is well done, and the selection of

material praiseworthy.

Mr. Hunner (9, p. 764) exhibits an octagon inlaid

table, containing a mixture of British and foreign marbles. The design is geometric, and the execution tolerable. Mr. Moon, of Godalming, in Surrey (56, p. 767), has an octagonal table, inlaid with several kinds of marble, and tolerably well executed; and another is sent by Mr. W. Peanson, of Harrowgate (65, p. 768), interesting as W. Pranson, of Harrowgate (63, p. 768), interesting as being chiefly composed of specimens from the neighbour-hood of Knaresborough. Something of the same kind is shown by Mr, Patov (80, p. 767). It is satisfactory to find this branch of industry, which involves a consider-alen amount of skill, and admints of the display and enti-vation of much taste, extending itself throughout the British Islands, wherever material exists for its execution. In Ireland, also, the taste for such decoration is tion. In Freiand, also, the taste for such decoration is cultivated, and the Jury have pleasure in mentioning the tables sent by Mr. M. Honan, of Dublin (58, p. 767), which show much skill in manufacture, although they admit of improvement in design. Lastly, a mosaic chess-table is exhibited by Messra. QUILIJAM and CREEN (p.136), manufactured in the Isle of Man, of Manx material. Inlaid work has been executed for some time in Malta,

on a considerable scale, and on a plan imitative of that pursued in Tascany. Several tables have been sent for exhibition, and the Jury bave awarded a Prize Medal to Messrs, J. Darmanin and Soss, of Valetta (Malta, 28, p. 945), as an acknowledgment due to them for the design and execution of the specimens they exhibit. In these a black marble back-ground is introduced for the inlaying, which generally shows much accuracy of work with n very skilful use of material to produce the desired effect.

The designs introduced into the Maltese tables are, to a certain extent, original. The variety is also considerable, but there is generally a largeness in the details, which rather injures the effect, in other respects very

The polished inlaid work in stone sent from France is connected so closely with articles of furniture, and offers so little specially belonging to the present Class, that the Jury have not thought it necessary to report specially npon each specimen. They notice, bowever, a table,

by Mr. J. P. Bosst, of Paris (France, 773, p. 1217), having an elegant seroll pattern of inlaid amongst which are some stones of harder material. design and execution of this table are good; and the selection of material is worthy of notice. A Prize Medal is awarded to the exhibitor. There is also another Medal nwarded to Mr. Theret (France, 1493, p. 1248), for sundry articles of farniture, decoration, &c., showing

some originality and much excellence of workmanship.

Few inlaid works of any kind, in which marble introduced, are exhibited from the States of the Zoll-One set of tables and slabs, &c., are, bowever, sent by Mr. DEVISSE (1 Zollv., 837, p. 1095) in which an artificial breccia is introduced with various kinds of marble, The style is that which we have already referred to as belonging to the earlier period of manufacture.

In addition to the exhibitors already mentioned, the name of Mr. Gröger, of Vienna (Austria, 631, p. 1039), may be added, as having sent a eloset of ebony with mosaic ornaments, and some other inlaid work, tolerably

From Lisbon a somewhat interesting specimen of mosnic is sent by Mr. C. BONNET (Portugal, 25s, p. 1310), composed of sixty specimens, and various ornamental stones, all of the province of Alentejo. This table was produced in the manufactory of M. Dejcant, a large exhibitor of Portuguese marbles.

From the Cape of Good Hope a peculiar kind of inlaid work in marble is sent, which, though hardly very ornamental, is not the less interesting, as illustrating the industry of that colony (58, p. 952). Another specimen of somewhat different kind, in a geometric pattern, exhibited from Tunis (p. 1413), illustrates a similar manufacture carried on in the northern extremity of the same continent,

c. Islaid work in Malachite.

Malachite is a peculiar mamillated or stalagmitie form of the green carbonate of copper, chiefly found in an of the green carbonate of copper, chiefly found in an available state for inlaid work in a very few localities in Siberia, and lately in Sonth Australia. It has been long employed in Russia in this manufacture. The mineral is remarkable for its fine emerald green colour (often presenting several distinct shades in the same specimen) brilliant and silky lustre, und compact texture. It is softer than marble, very much heavier, and by no means so easily worked, owing to its brittleness and the conseentrie arrangement it generally presents. It can rarely be found in masses weighing more than ten to twenty pounds, and good specimens have a very high value, as the finer kinds are used exclusively for decorative pur-

The most important locality at present known for the finer kinds of Siberian malnehite is in the copper ground of Nilny Tagilsk, in the government of Eksterinburg, situated on the River Tura, a tributary of the Irtish, on the Siberian side of the Ural Mountains, in Intitude 57½° N., longitude 56° E. In a mine at this place, belonging to MM. Demidoff, Sir Roderick Marchison has described an enormous mass of malachite, which, at the time of his visit, now several years since, bad been recently discovered at the depth of 280 feet, strings of green copper conducting to it; and these strings, increasing in width and value, were found to terminate in a vast irregular botryoidal mass, estimated to contain not less than balf a million of poands of this valuable mineral.*

. "The geological interest attached to this mass lies in the indication it affords, that the substance called malachite has been formed by a cupriferous solution which has successively deposited lis residue in the stalagamite form.

'Mutatis mutandis,' this mess has only to be viewed as formed of calcarcous spar, and it presents every one of the features so well known to those who have examined stalagaming. features so well known to those who have examined state-titing grotos with their statagaintic floors in the elefts and eaverss of limestone, nr still more those large masses of taff which have proceeded from enlargeous wells. Wher-ever a portion of the malachite has been broken off, the interior is seen to coulst of a number of fine laminar (a fasticialia, af radio-concentric globales), which invariably arrange themselves equably around the centre on which



Fac-simile of a portion of venered malachite. The joints are marked by fine dotted lines, and the darker portions represent the artificial malachite invocts or convent. The dark lines represent the natural concentric markings of the mineral.

effect of the whole.

mere than from me to about four possits.

It is by no mess modern application of this susterial tries proposed to the susterial tries proposed to the proposed tries proposed and for palence on large public monomous in the principal equipment of large, we show the specimens, and powerfully regarded, from their great profit; time, and governily regarded, from their great profit; coin, and beauty, as wordy of being under imperial and DANISON, the owners of the mine in which the mineral beautiful tries and the surface of the surf

the air, break up into smaller fragments, rarely weighing

tale and importance of the objects exhibited, their extraordinary beauty and richness, the excellence of the production, and the application of various new methods of manufacture. These are chiefly seen in the construction of the control of the c

they have been formed, and are adapted to every atmostity of the pre-entiting layer; here presenting a dark line, there of the pre-entiting layer; here presenting a dark line, there are not of the control of the cont

mixed with broken fragments of the malachite itself, does not interfere with the plan, or in any way injure the

The working of malachite on a large scale it extremely rection and labelines, and it understood is to these one-time of the control of the co

removed, the machine reset to cut another plate, and the work recommence.

The portions intended for energed surfaces are cut by been tawn fitted to the required slapes, an operation while requires a large number of sars, and great care in enting, up appear, and one of the joint require to be very pract. The next process in the manufacture is the fitting together the different plates, and enemoting them. For that the first thing to be done, it to determine the pattern when the pattern of the patt

rate fragments of the misteral are to be united are prepared, by the find of wheels of copper, in such manner that for each joint was wheels are required, the peojection in the other. Joints thut made are not easily noticed, being firmed with great accuracy, and not preventing the present the present factory by MM. Demisting the listance of their present factory by MM. Demisting the Joint were straight, having no reference to the natural placed together in which these lines were not continuous, and had no relation with each other or with any regular pattern. The annexed diagram will show in some degree how this disagreeable result is now noided. It is a facsinalle of a small part of the superbly executed pair of doors, which formed so prominent an object in the Russian

Exhibition.

The substance on which malachite is venered is generally iron or copper, but may be stone or marshe. When this is covered, the surfaces require to be levelled, which may are left during the work, are then filled with a cement mixed with fragmount of malachite, and coloured with powder of the sume material; but in this part of the irreduced which do not adapt themselves to the pattern, and which would therefore injury the harmony of the

work. The surface is finally polithed.
In the above diagram any one sequalisted with the
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The quantity of malachite obtained from the mine, and becought into the market annuality, is very small; and the price of the raw material is considerable, averaging about 16, see proud avoirtiques, 18. The loss in the massive about 16, see proud avoirtiques, 18. The loss in the massive considerable, which was the same and the last of the size of the considerable, and the last of the size of the siz

The dispets exhibited by MM Destroors consist of a point of fidulish doors, several wars, a chaim-priest, these the door and vases are at ones the most important, these the door and vases are at ones the most important for the control of the cont

It would not perhaps, be fare to institute a comparison between the anisother good from Basen and shootbetween the anisother good from Basen and shootbided of this kind from Paris and Dertyshire smart be intended to an immega in the answered. We remotive the surprise in the considerable personance of the period of the period of the period of 767 has exhibited a large oblong subtle of considerable perturbance, inshirt with machile, party Basen and party Parts (Pares, 278, p. 1283). The foremer a remarkable of Parts (Pares, 278, p. 1283). The foremer a remarkable of copper; is consistent with the mathelite, but the madeanced constructed or fall points as seconding to the construction of the plant is according to the plant of the plant of the plant of the plant is according to the construction of the plant of the plant is according to the Name of the plant of the plant of the plant is according to the Name of the plant of the plant of the plant of the plant of the Name of the plant of th

but none of these require special notice.

H. ENAMELLED SLATE AND OTHER INITATIONS

H. ENAMELLED SLATE AND OTHER INITIATION OF MARRIE,

The present seems the fittest place for describing various modifications of stone, shee, and marble, which exhibit permanent and meful imitations of other more expensive materials. It is manifest that good and lasting imitations of the finer marbles, executed in stone, slate, &c., are calculated to add to the advantages that arise from the employment of ornamental work in furniture and decoration.

and necessition.

and the control of the kind, whose work can be described as extremely remarkable and works of the described as extremely remarkable and worthy of detailed notice, is Mr. Maovus, of Punifice (46, p. 767), who y means af a new, very simple, and inexpectate process, has necessed in producing works of great magnitude and importance, calculated to effect the introduction of ablat for household purposes on a very extensive scale. The advantage of the material as that part of the scale of the scale of the scale of the part of the

With regard to the strength of alite, it is compact to the whost flow times that of collarys streng, and able to wholl flow times that of collarys streng, and able to exceed the strength of
moutlaings, see, are run wing great uses years as a second by steam power, on, both mechanical und oritisis, In point of executively the due to this exhibitor. He has produced a vast variety of articles, many of which are now in common use; and, in all, the price is so very much less than that of the substance imitated, and even of any other imitation that can at all compete with it, as to imare a large and permassent demand from the public.

or any other imitation that can at an ecompete with it, to to insure a large and permanent denium from the public. The most remarkable object exhibited by Mr. Magnus is a bath-room of large dimensions, good design, and great bentty, wholly manufactured of decorated slate. The pepuliar effect of the shate, as enamelled for use, is perfectly well shown in this specimen, which has received the careful attention of the Jury.

The following is a list of some of the principal objects manufactured by this exhibitor:—Chimney-pieces, table-tops, pilasters, skritings, sideboards, bilindradable, ornamental dairies, monuments, mural tablets, altar tablets, sun-dials, clock-thees, pedestals, baths, vasos, chiffonnieres, candlelabra, lamy-tubes, &c. Of all these, the hilliard

[•] By Information received since this Report was in print, it appears that the priese vary from 12s, to 17s, per 1b, according to colour, rather than veining, the darker colours reported by the print, and the print was reported by the print, and park, but these are also subdivided, the two first into roader and dospers, the colour into roaders hope to and dospers that the print of the print

tables are, perhaps, the most important as being decidedly superior to tables constructed of any other material. Superior to tables constructed of any other material, the period of the superior tables of the period of the period for the period of the period of the period of the period to become rickety, slate legs and frames have also now been introduced by the exhibitor, which being dovetabled together, the use of iron is avoided, and the tables are steady and durable.

To this exhibitor the Jury have had no hesitation in awarding a Prize Medal, in acknowledgment of his admirable and useful contrivances and applications.

Mr. T. Svernanse, Jon. (Club 1, 276, 3, 181), who exhibits a large offsetion of unphelled a latest already fully described (see page 55%), and who has been adjudged a Prize Medal for these objects, has included within his group several specimens of enamelled slate highly descrively, but not perpared in the method adjudyed by Mr. Magnas. Mr. J. Childred inside strikes, consisting of tallets, linkstands, &c. These are handones, and some of them show arisist merit, but they cannot be compored with the results obtained by Mr. Magnas.

with the results obtained by Mr. Magnus.
There are several exhibitors of imitation marhles on slate and stone. Mr. Baadlar (35, p. 766) has a small state sable, carefully painted in imitation of Devenshire marble. Mr. Hall (42, p. 766) illustrates the method of writing on slate. Mr. Tuoasntill (48, p. 767) shows a rair of tables also imitative of marble.

DIVISION II.—MINERAL MANUFACTURES IN PLASTIC MATERIAL AND ARTIFICIAL COMPOUNDS.

Under this head it is meant to include manufactures in centrent and artificial stone, engilola work, and glass nossie; manufactures in all varieties of elay, including bricks and tiles, fire-clay goods, stoneware, and term cotta; and manufactures which have been referred to this close but are of a miscellaneous character, failing more naturally under this than any of the other divisions.

It may be necessary to state, as a more complete definition of the groups seggeted, that all materisks in which distinct chemical action takes place before they assume the form in which they become marketish, zer regarded as remore, while those, are regarded as copy. The common eccuents and placters, ond various articles of manufactored glass, &c., considered to belong to this class, as floram mosaics, thus belong to the former group, while term corts, salt-glased wave, fire-they goods, &c., are forted class, seed of the contraction of the conference of the contraction of the conference of the contraction o

Groop 3.—MANUFACTURES IN CEHENT AND ARTIFICIAL STONE, &c.

The number of exhibitors in these moterials is not very large, nor ore the objects exhibited numerous or from many emittries, but they are by no means unimportant, more than the contract of
of oll kinds, and many other like objects.

Of twenty-one English exhibition in this group almost all have lifestrated the decerative as well as the more than the control of the former kind. In flay, which comes next is order, is much more remarkable for the heast y of the numelicates, the list including no low thas serve a childitors in parts of Germany, including Austria, there are about eight exhibitors, whilely of the less decentarity kinds, and from France there are also itself of the less decentable. Belgium on the control of the cont

I, MASSIVE AND INCAUSTED CEMENTS

Under this head will be included common mortar and other simple lime eveneuts, Parker's, Portland, Medina, and other bydramlic cements, various artificial stones (nother terra cotta), and seggliols work of the usfeak skind, as well-disan new modifications of this manufacture. It may be expedient to explain very briefly the basis of the various cements here enumerated, and the chemical principles involved.

When common limestone of any kind, unmixed with other mineral substances, is exposed to considerable heat, it changes its appearances and character, swelling out, and passing into a white powdery material, greedily absorhing water with the evolution of much heat, and known under the name of quick-time. If a paste is made with this lime and water, and the mass be exposed to the air, the result is a loose and friable hydrate of lime; hot if a thin bed of such paste is interposed between two porous stones or bricks, the water is absorbed into these substances, and the thin bed of hydrate of lime that remains takes the consistence of stone, and adheres strongly to the two surfaces with which it is in contact. This is assisted by mixing the paste with sand and gravel, to the extent of two or three times its own weight, since the adhesion is greater to the foreign substances than to the particles of the hydrate of lime itself. Such a mixture is the common morter, used by masons and bricklayers, and as it only hardens after exposure for some time in dry air, it is not surprising that in damp places it sets with great difficulty, and in water has no tembercy to conso-lidate at all. When it is required to fasten stones and bricks together in most places or under water, another substance is needed, and this is called kydraulic line, or kydraulic cement,

There are, however, many kieds of hydraulic lime. The simplest is obtained when about 10 or 19 per cent, of clay (silicate of alomina) is combined with the original lime-tione, and when the calcination is not carried too for 10 this case the resulting lime solidifies under water, the hydrate of lime combining with the silicates of solitonian and lime, and producing a new substance, unstanted and lime, and producing a new substance, unstanted to the combination of t

Note that the second section of the second section settled in nature, having each properties as fell to this result. When the proportion of eithy noisy about 10 or 12 per algorithms of the properties of eithy and pattern in most places. When, however, the properties had pattern in most places. When, however, the properties had pattern in the second that the properties in two or three days; and when it exceeds this, and as much as from 10 of the present, the time of daying and the second that the properties of the properties of the present in the second this, and as much as from 10 of the present, the time of daying market as the three should be also the present the second that the properties of the present the presen

opplication of caustic postule, given the best results.
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A most important hydraulic cement, called Portload creaset, is male from enthouse of lime, mixed in definite proportions with the argillaceous deposit of some rivers running over clay and chalk, ponoded together under water, and afterwards dried and burnt. The strength of this combination is very remarkoble, being nearly four

marble

times as great as that of any natural kind, Portland cement makes an admirable and most powerful concrete, the proportion of cement required being only a tenth or

twelfth part." It is not difficult to procure artificially mixtures of limestone and clay, which are less costly than the natural

kinds, though not equal in value, On the Continent similar material is obtained in various localities, of which we may mention Boulogne, Vassy, Poully in Bargundy, and some parts of Russia. In some cases these eemeuts appear to owe their hydraulic qua-lities to the presence of silicate of lime and silica rather

than clay. Certain substances also exist in natore, and can be imitated by art which, on being mixed with common

imitated by art which, on being mixed with common qoick-lime, form hydraulic mortar. These are called puzzwolana, and consist generally of volcause ash, of which a vast quantity is found in the modern volcanic districts of South Italy, Greece, &c., and in the extinct volcanic districts of the Rhine, Anvergue, &c., hat similar salestances are found in our own country. Mortar made with puzzuolana has extraordinary hardness and dura bility, this substance having a great uffinity for lime and hydrate of lime, and forming a perfectly insoluble com-The cements hitherto described are composed essen-

tially of carbonate of lime, from which both the carbonic acid and water are driven off hy hurning in a kiln. An-other group, however, exists which we may call *plasters*, of which the base is sulphate of lime, or gypsum, usually found in combination with nearly 24 per cent, of water, and often containing carbonate of lime and clay in small proportions. On being burnt at a low temperature this proportions. On being owint at a row temperature manneral simply parts with its water, which it absorbs again readily, and with great rapidity, on subsequent exposure; but if a greater heat is applied it melts, and when cooled assumes a new and permanent form, oot altered by

The property possessed by gypsum, of parting readily with its water of solidification, and re-absorbing it as readily, is the basis of a vast variety of uses to which this mineral is applied. When mixed with water mecha-nically, after being caleined, a part of the water enters into combination with the powder, and forms a true hydrons sulphate of lime, which collects into minute crystals, fitting into each other, and the mass becomes rapidly solid, although not very hard. If the solidification takes place in a mould, the most minute cavities are found to have been filled, and the result is a perfect cast, found to have been filled, and the result is a perfect cast, owing to the expansion that thicks place while solidifica-tion goes on. Thus the calcined gypsom, mixed with water, becomes so andmirable material for casting, and is greatly used for this purpose. Vast quantities of gypsom, of various degrees of purity, are found in the immediate vieinity of Paris, and thus the powder obtained after humaning to generally designated Plaster of Poris. It is employed very extensively in constructions for various kinds of internal work. Stacco is a combination of the same substance, with a solution of gelatine or strong glue. This mixture dries more slowly than that made with water, hot is more durable,

Sulphate of lime is the basis of all the cements known as Keese's, Martin's, Parian, and some others, but in these the plaster in the state of fine powder is thrown into a vessel containing a saturated solution of alom, sulphate of potash, or borax. After soaking for some hours it is removed and air-dried, and subsequently rebaked at a brownish red heat. When taken out of the oven it is once more reduced to a fine powder, and carefully sifted, after which it is fit for use, but when slacked a solution of alum is employed instead of pure water. When borax is used, the plaster is called Parian, but in the other case it forms Keene's cement. The kind called Martio's cement is made with pearlash as well as alum, and is baked at a much higher heat than the rest.

The raw material for these various cements, of which the consumption is now extremely great, is obtained from

* See an account of experiments on the strength of Portland cement, p. 587.

Derbyshire, Nottinghamshire, and Cumberland, besides the neighbourhood of Paris. The quality differs much, but for the finer kinds of cement the most crystalline is

considered the best. Vast quantities of gypsum exist in Tuscany, much of it in the crystallice form called alu-baster. The English gypsum is sometimes in beds of very varante thickoess, isometimes in leuticular masses, and occasionally in veins. It occurs extensively in the new red sandstone, but also in the clay deposits of the new red sandstone, but also in the clay deposits of the platter, containing generally a little lime, but the pure platter, containing generally a little lime, but the pure thirds are much whiter when burnt. In France the grpoum is hurst in oppen kilns, and is thos discoloured, but in England this is avoided the final and Line 18. very variable thickoess, sometimes in leuticular nusses,

ot in England this is avoided, the fuel not being allowed to come in contact with the plaster. A highly ornamental material, consisting of a coating of plaster mixed with aluot and colour into n paste, and afterwards beaten on a prepared surface with fragments of marble, &c., has long been known under the name of scagliola, and is greatly used as an excellent and economical means of ionitating the finer kinds of marble, the material being as hard as marble, very durable, cold to the touch, and taking a perfect polish. The name scarthe touch, and taking a perfect polish. field is derived from the Italian, where the process is said to have been invented more than two centuries ago, but it is now very extensively used for decorative purposes in England. The cement is prepared from the finest gypsum, broken up before calcining, and afterwards redoced to n fine powder and passed through a sieve. It is then mixed with aluminous matter, and isingless, and also with colouring matter, and is afterwards made up with alum; and as it is generally made use of only where the more beautiful and veined marbles are to be imitated, as many different colours and shades of colour must be mixed up separately as there are in the kind of marble to be represented. Thus prepared, it is ready to be laid on to the surface intended to receive it, which has a rough coating

of lime and hair already prepared.

The different colours having to be laid on and mixed by the hand, the work somewhat resembles that of the fresco painter, everything depending on the skill of the operator in imitating the style, beauty, and veining of the original. When the rement is laid on and has hardened. original. Were the cement is laid on and has hardened, the surface is prepared for polishing hy rubbing it with pumice-stone, and eleansing with a wet sponge. It is then polished by rubbing, first with tripol and charconi, then with felt dipped in tripol and old, and lastly with oil asone. A durable laster is thus obtained, equal to that of

With this general outline of the nature and use of the various cements and plasters in which carbonate and solphate of lime are the essential ingredients, we pass on now to the different exhibitors in these materials. There are several in each, chiefly from our own conotry and Italy, so far as larger and more ornamental specimens are con eerned. They show some novelty and much excellent work, and form a very interesting and important group of objects. We commence with those who chiefly exhibit the cements properly so called, and the larger groups of objects, as applied rather to construction than decoration, and shall afterwards proceed to the plasters and scagliolas.

a. Hydraulic Cements. Messrs. Roning, Asppin, and Co. (Ontside, West, 5,

and Class XXVII., 103, p. 772) are exhibitors of a gigantic slab of Portland cement, measuring 20 feet by 12, and 10 inches thick, weighing 15 tons; numerous blocks of cement and concrete, proved to various pressures, up to 154 tons, showing the strength to be greater than that of Portland stone; of brieks cemented together and placed so as to give a pressure of 3 toos on the first brick; and of several other similar illustrations.

to severa other similar ministrations. It has already been said that Portland cement is a hydraulic mortar, made of a mixture of chalk and a peculiar river silt. In working it is sometimes mixed with said and even with broken brick, forming a kind of concrete of extraordinary strength. It receives its name from its peculiar colonr, which approaches that of Portland stone, and not from being made from that stone,

or in any way obtained from the Isle of Portland. Its hardness is very great, and it may be used with advantage, navances is very great, and it may be used with abstration, not only as a centent, but in many cases where ordinary stone is generally employed, and is even available for tanks and cisterns, being, when carefully manufactured, absolutely non-absorbent of water. The Jury have warded a Prize Medal to these Exhibitors, as showing specimens on a very large scale, admirably illustrating the use, the strength, and other capabilities of the material they manufacture. In addition to the illustrations afforded by specimens sent for exhibition, Messrs. Romas and Asppin, as well as other Exhibitors (Messrs, J. WHITE and Co.), have tested the strength of their cements of different kinds, in the presence of some members of the Jury, and the results of these experiments will be included in an Appendix to this part of the Report.* They will be found to contain facts and results of great scientific interest and practical importance. These Exhibitors illustrate the use and comparative strength of several ad-mixtures, consisting of different proportions of Portland cement with sand, broken brick, and other fragmentary substances, and the experiments sufficiently demonstrated the great strength of these valuable cements, and the

different modifications of them. Mr. J. Segley (Nave, West, 88, p. 852, and Outside, West, 1t, p. 114) is the exhibitor of a large fountain, iutended for a market-place, occupying a prominent position in the West Nave, and also of a figure of Mercury in the West Enclosure outside the Building. Both of these are of artificial stone, and although the former does not exhihit the material under very favourable elecumstances, the Jury are satisfied that the general reputation of Mr. Seeley, and the uniform excellence of the material he manufactures, deserve to be rewarded with a Prize Medal. It may be well to refer here to a grent want manifest in this fountain, and in many other objects manufactured of artificial stone both by the present and other Exhibitors: we mean the necessity of some adaptation, not merely to the purpose required, but also to the material to be employed, a necessity too often lost sight of by

those who provide and execute designs.

Mesens, R. and W. Teaole (Outside, West, 3, p. 113) have sent a figure in Portland coment, exhibiting some merit in execution, and modelled from a figure of Lazarus in wood. It must be remarked, however, that there is n want of taste and consideration in thus copying in an imitation of stone, what was carved in and adapted for wood. The treatment and feeling of true works of

nrt must and ought to take their tone from the material

Mr. J. Boann, Bridgewater (by his agent Mr. Donohue), is the exhibitor of four figures in Portland cement, two of them outside the Building in the Western Enclosure (2, p. 113), and the others in Class XXVII. (94, p. 771). se figures belong to a numerous class intended for garden decoration, and are not unpleasing in themselves, aithough the colour and appearance of the material are not very satisfactory. We also have Mr. F. Greaves (Class I., 99, p. 131) exhibiting several figures and other objects in cement which offer little for observation.

cimens of an artificial stone invented by him, and mannfactured since 1838, adapted for flooring damp places and other purposes. This material is of rather dark colour and considerable hardness; it may be cast in slabs of considerable size (up to 8 feet by 5), and is applicable for sucrision and drains, both pipe-drains and inverts for sewers of large dimensions. It has also been used for fortification-works, as a cement for bricks, for lining prisons, casements, &c., and for many minor uses. It is non-absorbent, and is said to stand exposure well. The price of this material in slabs is 6d, per square foot, up to 2 feet square, and for other works it is cheap in proportion. It was first invented in Hamburg, and is said by the manufacturer to be used on the Continent in many extensive works for drainage and fortification. The Jury have adjudged this manufacture to be worthy of Honourable Mention.

Other exhibitors of cements, more or less completely manufactured, but not strictly decorative, and not includ-ing coloured or acagliola work, are Mr. T. SMITH (Class 1, 177, p. 139), who shows two blocks of concrete manu-factured of the Mountfield lime, Sussex, a manerial very well factured of the MORIBHER LIBERT COMPANY, CONTROL AND ASSESSED OF THE PROPERTY AND ASSESSED OF THE PROPERTY AND ASSESSED OF THE CONTROL OF THE PROPERTY AND ASSESSED OF THE PROPERTY ASSESSED. cation to building purposes for agricultural cottages. We may mention here, also, some blocks of Medina cement exhibited by Messrs. Francis and Son, who, having ob-tained a Medal for their Parian, will be more fully referred to when the scagliolas are described.

referred to when the sengitolas are described, M. Acountary (France, 2, p. 1169) has received Hononr-able Mention from the Jury for the hydraulic essents which he exhibits, and of which he is the manufacturer. The hydraulic ansture of the cement exhibited by M. Agombart is derived from the kind of puzzoolasa which he uses, rather than from any natural qualities the stone possesses; but the Jury having the opportunity of seeing and comparing the various cements exhibited, find that this is somewhat light and porous. They understand that it is made of a limestone containing a certain propor-

tion of silica.

Messrs. REONT and Co. (France, 1427, p. 1244) have obtained Honourable Mention for an hydraulic lime by a mixture of burnt and unhurnt stone, so that the result is another modification of puzzuolana. The method is ingenious, and the result is said to be satisfactory, but the Jury regret that in this and several other eases before them, it is quite impossible to come to any definite con-clusion, as the test of experience is the only one that is of any value, and they have no means of judging beyond the more examination of a material exposed to no test, and exhibited on a very small scale. This remark applies to the objects exhibited by M. DR ROOLZ (France, 1466, p. 1246), which consist of a number of bottles filled with cement, and M. HKILIGENTHAL (France, 259, p. 1189), who shows some very neatly fluished objects in a hard mastic, beautifully and delicately constructed and adapted for architectural decoration. M. Evaor is another French Exhibitor (190, p. 1183), concerning whose performance the Jury have no remark to offer. Both these Exhibitors are Honourshly Mentioned.

From Belgium there are two Exhibitors in cement.

Mr. C. SOLTENS (424, p. 1164), and Mr. N. FOLLET (426, p. 1164). Neither of them admit of any detailed notice. p. 1164). Neither of them admit of any detailed notice. From Central and Southern Europe there are a few eements, the most interesting of which is sent by A. CRISTOPLE (Austria, 38, p. 1008), who is Honourably Mentioned for a collection of paving blocks and columns of some interest. Measur. J. Stanka and Co. (Sardian). 88, p. 1305) also exhibit paving blocks of artificial marble, so, p. 1.305 lates extinct paving necked ratificial markle, and have received the same notice. Both these Exhibitors appear to be manufacturers of a material well daspeted for the purposes for while it is intended, and no doubt of sufficiently moderate price when laid down in the country. The prices quoted to the Jury are not sufficiently directed from those charged for similar results in England to require special regarks on this score. Mr. Fusse (Outside, West, 19, pp. 114, 115) has sent spe-The GREEK GOVERNMENT are exhibitors of a very fine

of Ulm (Wurtemburg, 5, p. 1114), which is described as a quickly-setting, hard, and valuable material, the price being 1s. 8d. English per cwt.

From Austria we have two Exhibitors of artificial mice-stone, Messrs. B. Hardmutt and Co. (35, p.1008), and Mr. J. Schanas (36, p. 1008), and one who sends nrtificial stone and marble, Mr. R. ROHLIK (37, p. 1008). The artificial pumice is not without importance in the absence of an ahundant and cheap supply of the natural

stone, and is understood to be extensively used. b. Plasters and Scaoliola.

The general composition of the plasters has been already explained, but as the subject is one of importance and very general interest, we may here briefly recapitu-late the more essential features of distinction between them and cements. The latter (cements), whether hy-draulic or otherwise, easily part with the carbonic acid and water which the cement-stone contains by the mere application of heat, and become reduced to lime, whence, by certain treatment and some admixture, either natural or artificial, but generally by a mixture of silicate of alpmina, a material results which more or less rapidly takes up the water required for effecting solidification, and immediately hardens without being affected by external eircumstances. The basis of such cement is earbonate of lime. On the other hand, the plasters are carrocate of mo. On the other hand, the phasers are composed of a basis of sulphate of line or gypsum, which being hurnt, parts only with its water of solidification without being in any way decomposed. The re-admix-ture of water reproduces solidification, though in a somewhat nitered form, but hy adding some of the salts of alumina, borax, and potash in a certain stage of the process, it is found possible to increase the hardness and compactness of the newly-formed stone and modify very greatly its absorbing power. In these admixtures lies the secret and peculiarity of all the various patented plasters known as Parian, Keene's, Martin's, and others. Messrs. J. B. WHITE and Soxs (Class I., 130, and Out-

patient shows in Frinza, Kenter S, Martin's and others, desired, to J, 134 and 134 in secretarity Exhibitions of Portiland centers, but have added to them simples of various in the control of the property of the control of the control of the decentred. They may be considered as more especially the Exhibition of Perland and Kerne's connect, bearing controlled a learn of their, in which the former's used, controlled and the control of the control of the control of particular and the control of the control of some members of the Jury. Bresides these are several passed, chimary-pieces, horizing, and detret decountive experiments above allused to, and some others of the masses into Jw Marses. Robins, Angelan and Cr., will be been that the results were highly favourable to the use the control of the control of the control of Perland centers, thowing if to be of great whise for The decountive work of Mems. While is particularly The decountive work of Mems. While is particularly increasing, and is that to which we here design refer-

The decountive work of Means. White is particularly in Intellector and the particularly in Intellector on Experiment and particular of Newsie concert (grypmin wive hards and mixed and make and the state of the particular of the

A sumber of smaller objects are shown as illustrations of various december uses, but it must not be forgotten that the simple and less noticed subgazions to skrittings and other parts of rooms where a very hard dentile summer of the control of th

Meurs, C. Falexcis and Sox, of Nine Elius (Class XXVII, 4.7), p. 757, have constructed for the purpose of XXVII, 4.70, p. 757, have constructed for the purpose of the control of the cont

receives a spreadin possis, we deed and unpleasant in its tone.

The sengliola work in these specimens, executed by Mr. Vincent Bellman, is throughout excellent, the colours which are introduced by the sengliolist imitating verd an-

tique, Siema and other marbles, jasper, &c.
Bediede Parian, Mesar, Pauscris und Soor exhibit speciBediede Parian, Mesar, Pauscris und Soor exhibit speciup with shingle, and producing a substance of great hardneas and darnshitty well adapted for garden pavement.
The cost of this by the sea-side, where shingle can be
Medial in avarded to these exhibitors for their different
cements, which they manufacture extensively, and for
Mesars, Strystens and Soo, of 186 Drury Lane (24,

p. 750.) the patentees and manufacturers of Moritis converse, cithibit onne acredient and highly-finished decreations of that material on the South Wall. Its peculiar control of the south wall is peculiarly acredited and the advantage is considered to be great compactness and extreme hardness. The sengilois work accreded upon it produces effects that are very purel with the other recapilities, but there can, of course, be titled difference of cost where the composition is so nearly the same, as it has saw this has and the other can be considered to the exception of the control of the

To Mean. C. Line and Co. (88, p. 163) a Pries Media has been given be an ingenious and been printed in another in soft and lead crement, inversed and manufacture in soft and lead crement, inversed and manufacture in the control of
In tree emplois the collising volume introduced as gar to be effected by the most state of the volt and the band, from the sature of the material, consisting of a volt political politica

sideration. The cost of the articles in the Exhibition

would be about 201.

Mesers. Oast and Armant (36, p. 766) are the exhibitors of a material called metallic lava, which is a plaster capable of being worked into a variety of patterns and colours, as illustrated in the Exhibition, and well adapted by its beauty, dorability, and cheapness, for floorings and other decorative purposes, amongst which is a table in the Moorish style, intended for the President of the French Republic.

Two different kinds of the metallic lava are exhibited; one of which is white and ornamental, and admits of the application of mosaic work; and the other brown, and peculiarly adapted for covering roofs and terraces, lining tanks, cisterns, fish-ponds, brick walls, stables, &c., where a durable, cheap, and impervious covering is required. Both kinds have stood the test of experience, and are knowe to be well adapted for the object they are jutended The composition is patented, and the method of layfor. The composition is patented, and the become of any-ing down a flooring or terrace without trace of joints is both new and advantageous, insuring the perfect imper-menbility of the whole to moisture. A Prize Medal is

uwarded to these exhibitors.

To Messrs. Della Valle Brothers, of Leghorn (Tuscany, 120, p. 1300), a Prize Medal has been awarded for a new and peculiar manufactore in scagliols, to a certain extent imitative of works in Floreutine mosale, but applied in cases which would be impossible by that The objects exhibited consist of two tables and a vase, all truly inlaid, and baving a striking and very hrilliant effect. This kind of manufacture differs from ordinary scagliols in the much greater complication of the process, and also in the greater beauty of the result, as the subjects include figures and views which at first appear hardly possible to be executed in such material, but which show great labour and skill, and some artistic knowledge in application. One of the objects, a round knowledge in approximation. One or any other table, contains a central tableau, surrounded by an azure tiself is of seagliola on a base of marble, each colour composing the ground, and each figure of the central tablean has been first inlaid in a single piece and then tablean has been first inside in a single piece and toen shaded. The lights also are all inlaid, and the general effect is extremely beautiful. It will be seen that the general principle involved is that of a mixtore of fine ingeneral principle involved is that of a mixtore of Inte un-laying with shading. It would appear, however, that the result, although beautiful, is almost too costly to be gene-rally adopted, as the price of the round table referred to it stated at 250d. The rectangular table in initiation of pietra dura, and the vace, which is copied from the ansuccessfully overcome. The polish in all the specimens is very good, and entirely natural, no varnish whatever being used

Mr. L. Rowold (Class XXX., 351, p. 842, and Tuscany, 124, p. 1300) exbibits a scagliola candelabrum in imitation of giallo antico, designed by L. Gruner, Esq., modelled by Aut. Trentanove, and the property of His Itoyal Highness Prince Albert; and also a table in inlaid scagliols, shown in Tuscany. This exhibitor is Honourably Mentioned as exhibiting excellent workmanship in the elegant and costly applications of the material he employs. The candelsbrum is not altogether pleasing in its effect, but the workmanship is good. The inlaid table is something in the style of those exhibited by the Messrs. Della Valle, but not at all equal either in design or execution. It ap-pears also to have been manufactured in a somewhat different manner. A cement mossic in imitation of wood and marble was sent from the Cape of Good Hope for exhibition,

c. Artificial Stone with Silica Base.

As constructed in a manner and on principles altogether distinct from those of both lime and gypsum cements, we must next mention an artificial stone recently introduced by Mesars. Rassons and Passons, of Inswich, and some-what extensively exhibited in Class XXVII. (97, p. 771-2). This material is a compound consisting of graius of sand, pebbles, portions of timestone, marble or granite, elay, or adeed any other material, cemented together by a true

glass obtained by dissolving flint in caustie alkali in a boiler at a bigh temperature, mixing up the materials with this solution into a paste of the consistence of putty, moulding this paste into any required form, and after slow air-drying, burning the articles thus manufactured in a kiln at a bright red beat maintained for some time. In the course of this process, the alkali combines with the free silica and forms a kind of glass, so that the materials become comented together by a substance which does not admit of the smallest absorption of moisture, and is consequently absolutely unattackable by the frost. It also resists every other kind of atmospheric action and is extremely bard. It possesses besides the great advantage of not contracting sensibly during the last process of buking.

It may be well to state briefly the details of manufacture in this case. The flints are used in the rough state in which they are found in the chalk, and of large size. They are suspended in wire baskets in a high-pressure boiler, the pressure being from 60 to 100 lbs. on the square inch. For about a ton or ton and a half of flints, about a quarter of a ton of caustic soda is required (about 56 per cent. of alkali). The resulting substance, a fluid silicate of soda, is drawn off every 48 or 56 bours, the quantity being about 200 gallons, and is afterwards eva-

porated down to a specific gravity of 1'165, when it is fit for use. The further process is sufficiently described above. Although this kind of artificial stone appears to offer many advantages, it is right to mention one objection to its use which has not yet been obviated, consisting of an efflorescence of some of the salts of soda, greatly disfiguring

the appearance of the work.

Besides artificial stone adapted for all kinds of garden work, for paving, and for architectural decoration, it has been found easy to manufacture a porous variety for filter stones which may be made of any size, admirably answer the purposes for which they are intended, and are sup-plied at extremely small cost. They are cleaned with perfect case, and may be contrived so as to be applied perfect case, and may be contrived so as to be appared without a reservoir to filter water, delivered to houses by the system of constant apply). The cost of a filter pas-ing 300 galloms per day would be 504, and samal filters are prepared for the use of travellers, the price of which is only 3s. Besides these sales, permanent ascending filters are prepared with the same material, the price of which, complete, varies from 15s. to 4l., sopplying daily from five to sixty gallons: these are especially adapted for ships and domestic purposes. Other very useful arti-cles have been manufactured of the same kind of material, among which seythe-stones and other grindstones may be mentioned. The Jury have awarded a Prize Medal to these exhibitors for the improved material they have introduced, and the applications of it they have already made.

d. Bituminous Cements and Mustica.

Another and quite different kind of cement is made chiefly with bitumen. It is now well known both in England and on the Continent, under the name of asphalte. The pavement laid down at the east entrance of the Exhibition by the SEYSSEL ASPRALTE COMPANY is a good sample of their material, and a Prize Medal has been awarded them for this object. The asphalte is generally obtained from natural sources, where it is combined with a large per ceutage of carbonate of lime, reaching even to 80 per cent, or more, and the combination is so perfect that the rock in this state long resists the action of muriatic soid. Less pure kinds contain sand, which is found to be injurious. The best kinds of asphaltic rock are converted into a plastic workable mastie in a short time, and at very little cost, merely by the addition of 6 or 8 per cent, of mineral or coal-tar and a few pebbles, the union being effected in an iron cauldron at a very moderate heat, and the viscid mass placed on a prepared that sur-face. The advantages of this kind of pavement are its extreme toughness and power of resisting very considerable wear. Such a pavement absorbs no water and makes very little dast.

Mr. J. B. Durous (France, 485, p. 1201) is also the exhibitor of an asphalte adapted for pavement of this kind, as well as of mosaic work of natural stones cemented by asphalte. This use of the material is fully appreciated by the Jarry, and must be extremely valuable. It has, however, been long known, and indeed the application of hitumen dates very far back in the history of civilization, as we find that it was commonly employed by the ancient Egyptians, and formed a sold and durable cement in the walls of Habylon. The Jarry award an Honourable Mention to Mr. Dopfour far his exhibition.

e. Metallic Sponge Cement.

A very corious and ingression, contrinence for a pure men in exhibited by Mr. A. Chromy-(Presse, 118), ment in exhibited by Mr. A. Chromy-(Presse, 118), mind raise, may be of importance under certain circumtances. It is called by the inventor's emission sequenical properties of the control of their exygen gashance apongs state by the removal of their exygen galates a pongy state by the removal of their exygen galates a pongy state by the removal of their exygen gather and their expension of their expension of the kind, which is not very recent, would not have been beingthe that all expensions where the control of the kind, which is not very recent, would not have been been galtered and their expension of the kind. It was also that the control of the kind of the kind. We Chunon, in the helief that a new proteigle has the con-Mr. Chunon, in the helief that a new proteigle has

K. GLASS AND PORCELAIN MORAICS.

The set of inkying, when the material island consists of numbers of numbers of numbers of the process, gain, are provided, instead of of numbers of the control of the cont

a. Roman and Venetian Mosaic.

The manufacture of true Roman mosaic has always, we believe, been confined to the city whence its name is taken, and no country has entered into competition with Roma in exhibiting specimens of it. The Reporter has received the following account of the manufacture from

M. Pistrucci, Chairman of the Jury :-"The mosaics which are made in these times are composed of pieces of glass, sometimes called smalt and sometimes paste. They are made of all kinds of colours, and every different bue, and for large pictures they take the form of small cakes. For small works they are produced in threads, varying in thickness from that of a piece of string to the finest cotton thread. Heaps of these, of all tints and colours, are prepared. A plate or slah of copper, marble, or slate is then provided, of the size and thickness required for the intended work. This slah is hollowed out so as to resemble the bottom of a box or a tray, to a depth proportioned to the work; this may vary from an inch to the eighth, or even the sixteenth of an inch, if the work is to be small. This bollow is then filled with plaster of Paris, well smoothed, on which the outline of the proposed design is very accurately traced, and an inked pen is passed over the outling to preserve Very few tools are required by the workmen; but fur the large works, where comparatively large pieces are to be inserted, small sharp-entting bammers are made use of for splitting the cakes and reducing them to their proper size and form. Pincers also, of different forms, are used for placing them equally. In very small works, instead of hammers, sharp-pointed pincers are made use of, like those with which diamonds are taken up, and sometimes a small tool like a scarpello. The heat of an oil lamp is required to enable the workman to draw out the strips of glass to the fineness be wants, even to that of a bair. When this is all ready, the first operation is to dig or scoop out, with a scarpello of the proper size, a

small piece of plaster of Paris from the bottom of the box or tray, without injuring the outline. This is filled up with a kind of mastic, like that which is used to fix panes of glass in the sashes or frames of a window, the required piece of smalt or glass is then pressed into the mastic or composition. In this way, step by step, and from day to day, repeating the operation of scooping out a small piece of plaster of Paris, and never losing sight of the outlines, they gradually fill up the whole tray. In works of considerable dimensions the workmen place the tray or plate before them as painters place thu canvas on which they are painting, and have the original always close to them. For smaller works they sit at a table, as if writing, and generally keep their work flat ou the table. The designs used in these mosaics are, for tho most part, copied from the pictures of some artist of eminence, the designers themselves being also a separate body, working for the mosaicisti, who mechanically fill np the spaces as above described. It is true, however, that though these last cannot be called artists, nevertheless those who distinguish themselves in the art must be endowed with a good natural taste, a true and correct eye, and great perseverance, to enable them to copy the various times and forms of the original without injuring the outline. I am not aware that any mosaiciste has ever worked from his own original design, or even that he has drawn the outline on which he works. When this opera tion is completed, it is passed over a stone made perfectly smooth and cleaned of every kind of dirt. But as it will always happen that interstices, bowever minute, will be left more or less between the several small pieces of smalt inserted in the mastic, these are to be carefully filled up with heated wax, applied with hot-iron instru-ments from a pallet on which it has been prepared for the purpose; and much of the good effect and finish of the work will depend on the ability and care of the workmen by whom this operation is performed," The Exhibitors of works of Roman mosaic are six in

andher, and the Council of Chimme have accorded to make a country of the Pary of the Class to give a the recommendation of the Pary of the Class to give a the most reportable as the Part and the Class to give a the most reportable as the Part and the Class to give a proposal part of the Part and the Class to give a the most reportable as the part and the Class to give a to be rehabit in a large round table, designed and received by the country of the Part and the Class to give a the results of the Part and the Part and the Class to other estebated means, not exhibited, the Jury have conceasingly are the Class to the Class to give a the material to the nature of the week and the style of deeping, the explained making of the colors, and the style design, the explained making of the colors, and the style design, the explained making of the colors, and the style assumptions and sky of each mingling into the same elsethems are the specimen of the Class to constitute the colors of the part and the style of the colors of the colors of the colors of part and the part and the part and the part and the style assumption and the part and the

O'the other measies, two of very different kind know how and from the Brazz, Anavaraceau a '87, Perzuk' how and from the Brazz, Anavaraceau a '87, Perzuk' how and from the Brazz, Anavaraceau and the Araba house and Araba house

sonare sish, and a picture presenting a view of Pustum, all in Roman mosaic, and all admirably excepted. The other exhibitors of similar objects, viz., RESEDETO BOSCHETT (ROME, IT, p. 1286), artist; DOWNSTON MODILAR (ROME, 21, p. 1286), and ANTONIO ROCCHIGHANKI (ROME, 22, p. 1286), are Honorardly Mentioned, as having show a admirable specimens of the same curtous art; and to the former a Piris Medal has been awarded.

former a Prize Medal has been awarded.

It is right to mention that since the opening of the Exhibition, and indeed since the investigations of the

Jury have been completed, several objects in Roman mosate have been added, which are chiefly of small size, but which deserve high commendation for their beauty. Several members of the Jury having left town, it has been impossible to reward in any formal manner the exhibitors of these, although they well deserve to be mentioned with the others.

A group of objects is exhibited in a new kind of glass mosaic, by Mr. G. H. STEVENS Class XXX., 158, p. 830), executed at about one-third the price of the ancient manufacture of this kind. These objects include a pair of spiral candelabra, made in Keene's coment, in imitation of marble, islaid with various patterns of glass mosaie, and intended for the decoration of a hall or drawingroom. The glass is in large tesserie. There are also glass mosale tables, a slah containing various patterns for gass mosaic usoes, a san containing various patterns patterns of panels, and a specimen of heraldic decoration. The glass is stained or gift, and the method is adapted for many purposes. The Jury have thought the method worthy of Honourable Mention,

b. Clay and Porcelain Mosries.

No Exhibitors can at all compete with Messrs, MINTON (86, p. 770) for the variety, beauty, and excellence of the encanatic and mosaic tiles manufactured by them by a process which involves very great mechanical ingenuity, and which has been carried to a very high pitch of per-fection. Messra, Minton have, indeed, to some extent, followed in the track of similar manufactures among the ancients, both with regard to the uses, forms, and pat-terns of their tiles, for paving and walls; but they have very greatly improved all the mechanical contrivances, ducing one method more especially-enormous compression to consolidate dry elay—which deserves very distinguished notice, and has been the commencement of an entirely new era in mosaic work in plastic material. To Messrs, Minton, accordingly, the Jury recommended a Council Medal, and the award was recognised by the council mean, and the award was recognised by the assembled Group of Juries, and sent to the Council of Chairmen for confirmation. These Exhibitors had also received the same honour for their manufactures in poreo-lain generally, and there is thus a joint Council Medal given from Classes XXV. and XXVII. The tiles exhibited by Messrs. Minton are of three

kinds, vis. :-1. Encaustic, or Inlaid Tites .- These are made by pressing clay in the plastic state into an embossed plaster mould, the pattern or design on the mould being raised. When the tile is withdrawn from the mould, the outline of the pattern is indented; and the indented parts are then filled in with liquid coloured clays, according to the colours it is wished to produce. The surface is then Scraped quite flat, until the pottern appears well defined.
The tile is then fired, which brings out the colours to the

proper tint. Venetian Tiles and Mosaics.-These tiles are pro 2. Feetina Ties and Mossics.—I nest titles are produced by the compression of powdered clays in metal dies, of any geometrical form that may be desired; the clays having been previously stained with metallic colours. Each tile or tessen is, of course, of the same colour throughout. When fired, they are arranged on a smooth of the same colour and the colours. platform with the face downwards, according to the design intended; after which liquid Roman or Portland cement is poured upon them, and they are thus formed

into slabs of any size required. Tiles made after the manner of the Albambra, and other Spanish Tiles.—There is only one example of these tiles in England, and that is in the Mayor's Chapel at Bristol,

supposed to have been presented to a predecessor in the civic chair by a Spanish merchant. These are made by pressing plastic clays on an embossed mould, which forms grooves or indentations. These tiles are then fired, and come out of the oven with the pattern formed. The indentations are then filled in with enamels of various colours, and fired again, which produces a brilliant effect, and renders the tiles suitable either for floors or casing

To Mesers, Alfred Sinces and Co., of the Vauxhall Pottery (88, p. 770), a Prize Medal has been awarded for a mosaic pavement composed of tensers of vitrified

clay of several colours and shapes, all produced by machinery with great rapidity and facility, and without the necessity of chipping any of the tessers. The machine is patented by the Exhibitors; and, besides making tesserie of the usual form and size, is capable of subdividing them in such a way that, with comparatively few shapes, an endless variety of patterns can be executed, the joints being preserved in straight lines throughout the whole pavement

The mode of working is as follows:-The clay being propared in the usual way, by washing and sifting, and stained with various metallie oxides, is formed machine into long thin ribbands, about I inch thick, and 3 or 4 feet long. Out of these ribbands the tessers are cut by the patented machine with great rapidity, and when dry are baked in saggers in the usual way.

The pavement slabs are made by laying these tesseno face downwards on a perfectly flat slate, the pattern being of course reversed, and covering their backs with a layer of Portland eemeut and two layers of rough thin tiles, carefully embedded in the cement, In this way strong slabs are formed, of about 17 or 2 inches thick, strong anns are isomet, or about 17 or meets time, which are almost perfectly impervious to moisture or rising damp, and can be laid down by any msson. The exhibitors consider that they may fairly claim merit for the introduction of the method, and the flatness

and durability of the surface, as well as its impermeability, The work can be produced at from 2s. 6d. to 5s. per square foot, according to the size of the pavement and that of the tesserse. The specimen in the Exhibition is

walled at 3s, 6d, per square foot,
Messrs, Marchest and Ossoli (Rome, 13, p. 1285) are exhibitors of a number of slabs of cement, of very good quality, prepared for pavement, and imitative of marble mosaic. They have received Honourable Mention for these objects.

Group 4. - MANUFACTURES IN CLAY. The number of objects exhibited belonging to this

group is considerable, and of great importance. The number of exhibitors is not, however, very large, amounting only to between eighty and ninety, of whom nearly forty are foreigners.

Of the English exhibitors there are some remarkable for excellence of various kinds, but especially in fire-clay

goods, terra-cotta, salt-glazed ware, tiles, drainage-pipes and bricks. Of each of these there are several. France has as many as twelve exhibitors sending terra cottas of great beauty, and some fire-clay goods,
Belgium has only four, and all of fire-clay goods, con-

livingum has only nour, and an or invest, as sixting of retorts and crueibles. Of the various States of the Zollverein there are four from Saxony, and one from Bayaria, almost all of chemical apparatas; besides four from other countries, of brick and terra-cotta, Austria has only one, but a very important exhibitor in bricks, Italy has also only one, who sends a clay mosaic pave-ment. From the Peninsula there are four; two of them sending samples of the large jars for which Spain and Portugal have long been famous. From India are several specimens of bricks and terra-cotta; and from the United

States are a few objects of some interest. L. Baicks and Tiles.

Among the materials used for construction none are more really important than bricks, these articles being manufactured of a substance almost universally attainable, worked into a form convenient for use, hardened and rendered more or less impervious to moisture by a partial burning, and when used, cemented together with mortar, or some of those substances described in the first group of plastic materials. Bricks have been employed from the earliest period, and are still as necessary, if not more so, than ever; and, whether in the form of common stock bricks, or any modification for huilding purposes, or as flat or other hrieks for roofing or paving; or lastly, as gutters or pipes for drainage, the number used is so large, and the interest concerned so universal, that even the smallest improvement, either in the mixture of material, the method of hurning, the method of uniting, or indeed any other matter, is of really untional importance.

The facts with regard to bricks have reference to the kind of clay used: the admixture of clay with other material; the size, shape, and proportions of the brick, tile, or pipe; the mode and extent of horning; the production of any glaze or other peculiar surface; and lastly, the mode of using them and attaching them together. It will be found that several contrivances, more or less ingenious, and more or less complete and efficacious, have been submitted for exhibition, and have come under the consideration of the Jury, and the Reporter regrets that this subject, the interest and extent of which he folly recognises, should have been left to him to describe and dilate opon, sensible as he is that the want of professional and practical acquaintance with the arts of construction must seriously interfere with the doe execution of his

task In speaking of the exhibitors of these articles, it will be convenient to consider them grouped, as far as possible, in regular order. We propose to treat them as follows, although it may sometimes be necessary to depart from this plan on account of single exhibitors sending objects

- of different kinds :-
 - General improvements in building contrivances, such as hollow bricks, glazed bricks, &c.
 New and peculiar forms of bricks and ornamental
 - hricks.
 - 3. Common, waterproof, and white bricks. 4. Roofing and paving tiles.
 - 5. Drain-pipes, &c.
 - 6. Bath or scouring bricks.

We have mentioned in the commencement of this Report that a Council Medal had been awarded to the SOCINTY FOR INTROVING THE CONDITION OF THE LABOUR-Society for large of the Committee of the Lakotz-tac Classes (pp. 774-5). For their improvements in the arts of construction as applied to dwelling-houses, and espe-cially to those of the lower classes. Those only who have visited the dwellings of the labouring population, as at present constructed in large to wms, are at all aware of the overwhelming necessity for some great and rapid improvement, and of the vast alteration that might be effected in the moral condition as well as the health of the poor, if the decencies of life were attended to in their habits By introducing a system of construction remarkable at once for strength, elecaliness, warmth, ventilation, dryness, rapidity of completion, safety from fire, and economy, this Society have established claims deserving of the highest acknowledgment, and have insured the gratitude of multitudes who have not yet learned the advantages they will derive. The contrivances include a poculiar form of hrick, made tuhular; moulded articles in clay for window-sills, mulijons, &c., soil and other drains, earthenware water-closets, &c., besides kitchen-ranges, fron bedstends, &c., which do not come under the consideration of the Jury. Many of these are illustrated, not only in the Exhibition (Class XXVII., 124, pp. 774-5), but in the lodging-houses constructed by H.R.H. the Prince Albert, opposite the Exhibition Boliding in Hyde Park; but it is well to state that the cost of these cottages need not hy any means be taken as a model for similar constructions elsewhere, and that, on the contrary, the houses that have been actually erected show a sufficient return for the capital invested, and even at very moderate rents promise

to prove profitable in a strictly commercial sense.

Of all these contrivances the Society appear to put forward the principle of tubular bricks as of first importance. It is true that the idea is by no means modern, similar materials having been employed by the Romans when lightness was needed, as in large vaultings, and being described as of common use at this day in Turis, and other parts of North Africa, where they have indeed been employed for many ages. Bricks of this kind, of somewhat peculiar construction, have been patented by II. Roberts, Esq., F.S.A., the Honorary Architect of the Society, and have been illustrated by the Society in the Exhibition, the one kind made wedge-shaped (the value of which form is doubtful), and bonded longitudinally over each other, so that two cavities run parallel through every course, giving a double security against moisture, diminution in the cost of cartage or tra and much facility for ventilation. We quote the following 25 per cent, on the mortar and the labour,

from a paper published by the Society, and distributed hy them

The dimensions being unlimited, a size has been chosen which, with the omission of the headers, reduces by about one-third, the number of joints, and greatly improves the appearance of the work, giving it more boldness of effect and resemblance to stone than that of ordinary brick-work. This size is twelve inches long, and three courses rise one foot in height; a size equally convenient for the workmen in the manofacture, and in the use of the bricks, for, whilst less liable to damage in moving than those of larger size, their form admits of ready handling and

stowage for transport. Nine patent hollow bricks of the size before described will do as much walling as sixteen of the common sort, whilst the weight of the former but little exceeds that of the latter, an important consideration in reference to

carriage as well as the labour in using.

When passing through the machine, or in the process of drying, any number may be readily splayed at the ends for gables, or marked for closures, and broken off as required in use; or they may be perforated for the pur-pose of ventilation. If nicked with a sharp-pointed ham-mer, they will break off at any desired line; and the angles may be taken off with a trowel as readily as those of the common make,

A sufficient proportion of good facing hricks may be selected from an ordinary hurning, and in laying them a much better bond will be obtained than is usually given

in common brickwork. The bricks for the quoins and jambs may be made either solid or perforated, and with perpendicular holes, either circular, square, or octagonal: those in the quoins may be so arranged as to serve for ventilating shafts. Stone will be found equally applicable for the quoins and jambs, and the appearance of the work be thereby

improved.

Hollow bricks may be made with any good tile machine, in the same manner as ordinary draining pipes, and at about the same cost, in proportion to the quantity of clay contained in them. They are more compressed, require less drying, and with much less fuel are better burned than ordinary bricks, even when only waste heat, or that

The saving in brickwork effected by the use of the tent bricks, when made at a fair price, will be from 25 to 30 per cent, on their cost, with a reduction of 25 per cent, on the quantity of mortar, and a similar saving on the labour, when done by accustomed workmen. The process of drying is moch more rapid than in common brickwork, and the smoothness of the internal surface of walls built with the patent bonded bricks renders plastering, in many instances, quite unnecessary, whereby a further saving is effected, not only in the first cost, but also in the subsequent maintenance. If glazed on the outer face, as may be done with many clays, a superior finished surface is obtainable without plaster.

STATEMENT showing the Comparative Cost of a Rod of Reduced Brickwork, boilt with ordinary Bricks of the common size, and a Rod built with Patent Bonded Hollow Bricks:-

4,300 ordinary bricks to a rod, at . 2,450 Patent Bonded H. Bricks, ,, 25s.	:	:	3	6	3
Saving in bricks per rod .	٠		£1	4	9
4,300 ordinary bricks to a rod, at 24s. 2,450 Patent Bonded H. Bricks, ,, 30s.	:	:	5	3 13	3 6
Saving in bricks per rod .		. !	£1	9	9
4,300 ordinary bricks to a red, at 28s. 2,450 Patent Bonded H. Bricks, ,, 35s.	:	:	6	9 5	5
Faving in bricks per rod .		. !	εı	14	8

This shows an advantage of 29 per cent, in favour of the patent bonded hollow bricks, in addition to a considerable diminution in the cost of cartage or transport, and of The relative prices given above may be taken as the fair average sching prices, de-peding on the cost of relative average sching prices, de-peding on the cost of relative for parties of parties who have so sake these bricks as I official sching of the prices of parties who have so sake these bricks as I official statement that 30s, per 100s may be considered as a fixer asterness that 30s, per 100s may be considered as a fixer price. Owing no their larger discussions, this corresponds to 16s, 101d, for the common nort, or if the contractive of the contractive

In concluding this notice of the centrivance here referred to, the Jury are desirous to place it distinctly on record, that the Cunneil Medal is awarded to the Seciety for their exhibition generally, as exemplifying their efforts in various ways to improve the durellings at the labouring classes, and not for any particular part of it.

A very ingenious mechine exhibited by Messes, Boazz Borruses (Figure 4, 47; p. 1188) is well adapted for the manufacture of Indotate bricks of the best quality, with the manufacture of Indotate bricks of the best quality, with the state of the state of the state of the state of the bricks are extremely hard and strong. His day, that the size childred is very horry, and there are a many as nine small tober ramping longitudinally through state of the state o

Other hollow bricks, manufactured in the ordinary way, and without statement of price, are exhibited by the North Devon Pottery Company (Class 1,, 127, p. 153), bot

those do not offer any marked pocularity.

Elicikes of rinomical form are exhibited by Mr. J. C.

Handar (Thu XXVIII, 114, p. 773), and have been

They are considered to offer a nearon of producing a

better bond thao can be obtained with the ordinary slape,

but it will doublets be very long before the form and

inclure all ricks, will be changed, or in any way modified

for ordinary proposes. It may, however, happone that for

special purposes a change will become advisable, and only

of changears and comparative simpleytic by sworty of

notice,
Other bricks of new farm are shown by Mr. A. Milen
(Prassis, 9, p. 1048), who is considered worthy of Honournble Mentico, and by Mr. R. BESWICK (Class XXVII.,

106, p. 772). Mundled bricks are exhibited by Mr. L. Thorrson (100, p. 772), and Mr. E. S. Key (126, p. 776). The latter are adapted for window frames of cottages, school-rooms, &c., not being liable to decay, and being perfectly fire-proof. They are also cheap, the cost per foot apper, being stated

at 1s, for red, and 1s, 4d, for white brick, including whole panes of sheet glass, but exclusive of earriage. A number of specimens of ornamental bricks are exhi-

A number of specimens of ornamental bricks are exhibited from England, some of them worthy of special ootice. Assong these Lord LOVELACE is Honourphly Mentioned for a stack of three chimneys, constructed for and exhibited by bim (87, p. 770). The form and style of these chimneys are better than the execution.

Mr. J. Livir [111, p. 772]. Ina received Homorrube Mention for movaled beliefs, both plain and ornamental, besider red and white paving tiles, and kint little for multimoustal, the number required for a chinary to feet high from the lose coving out more than 30s, made to any pattern. The plain tiles and parallel are engable of resteing the swather, and form a cheep and durable when the control of the control of the control of the traveling the swather, and form a cheep and durable to the control of the swather and form a cheep and durable to the control of the swather control of the control

Mr. J. Annose (128, p. 776), is the exhibitor of a full consumerate chimocy, also adjudged worthy of Honourable Meution. The form and construction of the bricks employed are very creditable to the exhibitor. We come now to the consideration of good common

bricks, and the Jury have to mention, as occupying the first place amongst these, the series exhibited by Mr. MIERMACH (Aostria, 610, p. 1038), of Vienus, the founder and proprietor of ooe of the largest and most rensarbes establishments for brick-making that exists in the whole world. A Pize Nedal is awarded to this exhibitor.

As some illustration of the magnitude of this existinguist and the good quality of the blocks, we may influent and the good quality of the blocks, we may tunted through the Summering, on the Ameritan ruleway, the property of the property

Beer mands on a space of ground of 3 feld Pospinis neces, while an near of 800 Deglish secres affect a napply of excellent material for brick-making, sufficient for several segments of the state of the secretary of the secretary segments from the subdivisions. There are 2,5,500 feet, in length of drying sheels for the manufacture of endinary necks, and 5,304 feet of mondaling sheels for the manufactics, and 5,304 feet of mondaling sheels for the manufaction, and the secretary of the little excellent to livera 5,000 to 110,000 bricks per hill, or to be run as to time 2,5,9000. There are further in this exhibitances, limited schools for 130 children, as weight and compareder's aboy, and the great watering as

	Number Annual		P	Total			
NAME OF THE WORKS,	of Moulding Benches.	Production of Bricks and Tiles.	Officials.	Overween and Naper- intendents,	Workmen and Carmen,	Number of Persons.	
In the Practice of Austria below the Enax. 1. Inserraborf on the Wiener-Berg (the largest briek) manufactory in the world) — — — — — — — — — — — — — — — — — — —	446 61 36 40 60 6	65,500,000 8,500,000 4,000,000 5,000,000 8,000,000 900,000	13 2 2 2 2 2 2 1	19 3 2 2 3 1	2,620 310 150 180 270 30 3,060	2,890 495 189 230 315 40 4,140	
Hengary.	115	15,250,000	5	6	600	740	
Together	764	107,150,000	27	36	4,160	4,880	

and kneading pits for red and white ornamental bricks. On all the sections there are the requisite dwellings for the officials and workmen, besides stabiling for about 300 horses. The six other factories are provided in the same proportion, and the amount of money turned over in the business amounts to about 1, 200,000 florius c. M. (180,000,00 terinics). the caudial emblored being 600,000

florius C, M, (60,8584).
The ordiusry dimensions of the hricks constructed by these exhibitors are double the usual size, measuring it? and 22 inches, issued of 5 inches by 44, and 22, and they are said to be generally cheaper than such bricks of the best quality in other countries, autenties the construction of the construction of the construction of the partly with ligalite, obtained from numerous and extensive mines in various districts belong-

ing to the same proprietors.
There are one or two exhibitors of improved common bricks, and some others who have sent similar articles chiefly as illustrations for row material. Of these we only mention (as being exhibited in Class XXVIII.) Mesers, Foaman and Soos (118, p. 773), and Mr. F. Fishers Class I., 119, 1533, the former of whom send improved, and the latter white bricks.

Extension before the common blod used in the country are among the country are missing the country are missing to the country are missing to the country are missing seems of the country and the country are missing to the country and the country are missing to the country and the country are country and the country are in the country and in the country are in the country and in the country are desirable to the country and the process in develop a missing the country and the country are country and the country and the country are country are country and the country are country are country and the country are country and the country are country and the country are country are country and the country are coun

is needed to complete the work under any circum. It is an accusary point out all the destanger that would result from taking advantage of this metfod, but the Repetter would not only to notice the peculiar interface of the peculiar interface of the result of the resul

The manufacture of paving tites, roofing tites, and draining tites, including also drain pipes and pantiles, is so far divinct from that of bricks in the ordinary acceptation of the term, that they admit of separate reference in this place, and many of them are more properly considered amongest agricultural implements. We have, however, a few remarks to offer concerning some few of the

various cabitones who have over struke's of this black,
p. 75, 12 p. 174, a Pixt. Model is awarded for a large and instructing stress of switches smanthenned in a possible pretent period of the property o

considerable value.

Mesars, II. and II. Harwoon, of the Brownhills Theries,
near Borslem, in Sunfordshire (137, p. 776), are exhibitors of ritles of all kinds, quarters, someware pieze,
stoner and the considerable of the considerable of the considerable of the considerable of these articles, which are largely supplied and nucleoscomed in the trade, but they have also added chinacy to the considerable of the considerable o

and soundness, and it also produces a natural glaze of

perature.

To Mr. Robert Brown, of Sorbiton Hill, Surrey (117, p. 773), a Prize Medal is awarded for improved Italian tiles, and grooved ridge tiles, invented and exhi-

bird by Nin.

L'util this caliblier introduced his modification of Cutil this caliblier introduced his modification of December 1, 1997, and the Confidence were ill adapted to the Deciglorie climate, and therefore tillne sume, but by the Deciglorie climate, and therefore tillne sume, but by the Deciglorie climate, and the Deciglorie climate in the Deciglorie climate of the subbledee used in the dat Initials tilt, the Initial Confidence is the Deciglorie climate of the Subbledee used in the dat Initials tilt, the Deciglorie climate of the Subbledee used in the dat Initials tilt, the Deciglorie climate of the Subbledee used in the data thinks tilt, the The Illes are coloured pay, the colour being bound in.

The tilts are coloured pay, the colour being bound in. The Cont of these tilts in more medicare than that of any

other Italian tiles used in England.
The grooved-ridge tile is so contrived that the vertical
ornaments can be used separately, at low cost, and with
great accuracy, and can be replaced if broken. The Jury
consider both his and the former modification as of great
merit, and have reason to believe that they are fully
sanctioned by experience under various eigenmatances of

exposure.

A Prize Melal has been awarded to Mr. ANULLER.

(Prince, 40.5, p. 1975) for a new kind of tile introduced by hins, exhibiting much ingonity of design, lexible up hins, exhibiting much ingonity of design, lexible or prize and the prize of the

Mr. Solat, of Bridgerster (210, p. 77%), an enhibite of reducipation and limit bridgs. The number of the order of the control
The metal and for cleaning and pollublag metal goods, &c., known by the mine of Buth brick, is manufactured at Bridgester from the tidal deposit of the river Parret; and shlooph many attempts have been mude to produce a similar strick, we believe they have all bitheron liked. This material is a postion mixture of fine silicious strong in the Parret, and is deposited on the sides of the view's banks as the water becomes still, just before the

time of its abbieg, and some little time afterwards, the mean of the state of the state of draining-pipes and tiles, some of whom, sending also term-cota and glaned stoneware, will be referred to afterwards in this Report; others, sending them ruber as illustrations of machines

than numbersons, do not properly enter two compelles, and other spin, after job offs, that be seen now recardable for other more promisent, although perhaps none recally largest a dept. We must however, of Housenake Nation by the Jury, and whose product are extremely remarks for the unmain beneful and summerized. We allose to the Fart of Exystellates. We allose to the Fart of Exystellates. We allose to the Fart of Exystellates and Pettery Works as forwarded to the Beperter:—
"The raw materials of which these Objects are manning."

"The riw material, of which these objects are manufactured, consists of a path of about 20 Irish zeres, and is only a pertison of a very extensive seam of clay, bounded at the pertison of a very extensive seam of clay, bounded turf boy, producing an inschoolable supply of fact to the works at a chosp rate. The depth of the clay bed averages about 15 feet, and in workshile to within a very consistent of the contract of the contract of the perturbation of the contract of the contract of the contract of measures about four feet, and in workshile to within a perference and burnar white as it needs the bettom.

"The qualities of this clay were partly discovered in 1847, and the manufacture of tiles commenced in 1848. In 1850 it was food necessary to increase the works, and erect two new kins on a larger scale, to enable the manager to turn out a fresh weekly supply of pipes. "The drying shed is 180 feet long, by 20 wise in the clear, and capable of containing in its drying compart

clear, and emphase of containing in its drying comparison that the work of trainways remains, the whole length to accommodate the another para with two works trainways remains, the whole length to accommodate the another area of which the page said, worked by two horses, is simusted. Another range of drying shock in now being a simusted. Another range of drying shock in now length of the contract of the page said, worked by two horses, is simusted. Another range of drying shock in now the correct contracts are also as the contract of th

It may be well to observe, that there is no other fuel than peat med in any portion of this manufacture.

Mr. C. Puttures, of Weston-super-Marie (Outside, West, 63, p. 117), has sent for exhibition a collection of flower-pots, of very admirable hamafacture, and remarkable both for colour, smoothness, and style. The Jury have considered Mr. Phillips worthy of Hosourable Mena-

M. TERRA-COTTAS.

tion for these articles.

The manufecture of terra-cotta is an important and interesting modification of common modeled believable, interesting modification of common modeled believable, interesting modeled and interesting the state of the

than an-shed elsy of condensels purity. Of Daglick existions of terra-octat, the most remark-of Daglick existions of terra-octat, the most remark-octat, and the properties of
It is stated by the exhibitors that these objects are supplied at a reduction of from 50 to 75 per cent, an the price of carved stone or oak. The quality of the material is good, and the style of manufacture earchl and prisisworthy. The Jury recognise the importance of introcases, especially where the absence of durable stone intercases, especially where the absence of durable stone intermed terra-corta may be regarded as almost indestructible made terra-corta may be regarded as almost indestructible rate of the cortain of the cortain of the cortain of the rate of the cortain of the cortain of the cortain of the warp in hurning, yet fee some kinds of oransment, and for received.

A Prize Medal has also been as arded to Mr. BLACKER ans, of King Edward Street. Westimister Bood, London (185, of King Edward Street.) Westimister Bood, London (185, of King Edward Street, Westimister Book, London (185, of King Lindon, London, Lo

MINIMIZED THE ASSOCIATE (1987). The Clour of Several Objects in Mr. PELIAMA, of Broxborner (108, p. 772, and Class XXX., 216, p. 833), is the exhibitor of several objects in red terra-cetta, some adapted for construction and others entirely ornamental. As far as material is concerned these are considered by the Jury to be worthy of a Prize Mcdal, while the artistic merit of the more ornamental articles is equally noticeable. The colour of some of this

terrecture is very dark rich red.

Mesers. Decrives and Warrs, of Lamaeuth, are exhiMesers. Electrone and Warrs, of Lamaeuth, are exhirectly and the control of them of considerable beauty, and they exhibit, together
with Mesers. History the Decrives and Co., also of Lambett,
App. 1713. Both these parles are preprietes of extin25-2, p. 1713. Both these parles are preprietes of extintion of the control of the control of the control
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25-2, p. 1713. Both these parles are preprieted and the control
25-2, p. 1713. Both

To Moure, Fancewoo, Maraza, and Co. (8), p. 711.

Five Medala has been varied for marily pools in the Price Medala has been varied for marily pools in at a high bast. The fire-days found in versus parts at a high bast. The fire-days found in versus parts proposed when reference of the requirement of the requirement of the proposed of the reference of the requirement of th

expressly for the Exhibition, and they falve snown ingremity in adapting the design to the material ingremity in adapting the design to the material read and the state of the

Reporter, rather shows a different combination from that of the Stourbridge clay, but the extremely small per centage of such inpurities as reader the clay flushle must be regarded as an important peculiarity. The vases, pederals, and chimney cans exhibited are all of the natural colour of the clay when harnt, none of them having been

painted or otherwise colored. The exhibitors are adjudged worthy of Honourable Mention.

The following is an analysis of the clays of two different kinds used by the exhibitors. The analyses were made by Dr. Penny, of the Audersonian University, Giasgow:

Silice -	-	-	-	65:20	62:85
Aiumlna -	-	-	-	33:41	35.65
Lime	-	-	-	-32	*45
Magnesia -	-	-	-	.13	*15
Oxide of iro	n -	-	-	-49	*59
Phosphates	-	-	-	*45	'31
				100.00	100.00

A very beautiful vase in terra-cotta, exhibited by Mr. Berrs in the Wess Nave, but designed by Mr. J. Thoutas (122, p. 765.), is considered worshy of I lonourable Mention of the excellence of its form, the colour and quality of the material, and the finish of the work. Some other objects in terra-cotta are shown by Mr. Betts, of less ornamental character, but of equally good material. An elegant but small vase, of dark red terra-cotta is

An elegant but small vase, of dark red terra-cotta is exhibited in Class I. (106, p. 132) by Mr. Bunkett, and is Honourably Noticed by the Jury for the smoothness of its texture and the uniformity of its tint, as well as for

in form. The property of the Parish exhibites of transcription of the property of the extent of the method for Ganzana Churches (We, p. 713, who have some a foundation of the property of the

testimonials from engineers and architects of eminence.

Mr. DEnart, of Paris (France, 45, p. 1173), an arrist
who has contributed some objects of beauty and excelfence, manufactured in a kind of terra-costa, is considered
jury the Jury to be worthy of Honouvalbe Mentiou. Among
receive spirits.

the works of this artist are two figures which show considerable skill in design and treatment, as well as in the

usure of the material.

Infocumble Mention is made also of Mr. Hourrus Housenberg Mention is made also of Mr. Hourrus Housenberg Mr. Hourrus Mr. Hourr

It is necessary to allude to. Mener. Syrair Wassmorr, of Narcesburg (Wartenburg, 69, 1118), are distinguished by the Jury with Honourable Neution as manifectures of some very well-constructed architectural objects of a good kind of terra-vectus of red colour. Those proposed at the manufectury of the calculator, who have been considered a volume calculating drawings of their different products, including payments, draining and other title, and a large variety of mondilugs, windows, and other pilection of the material is manifest in the electric in the direction of the material is manifest in the electric in the

"Me Exacer Mason, of Berlin (Prosin, 244 p. 1061), has sent an extensive raise of dark red and pix terracotas, showing prest merit in design, and modeled of the has sent an extensive raise of the sent and the control of the sent and the sent and the seal that the shown in readering sentillab this pecifical material, and the exhibite is Honomably Mentioned for these terracollevering goods, and appearing in their Chalogue, are a Collevering goods, and appearing in their Chalogue, are a conjectured as Wendelman, and afferding position that the opening and the sentillab of the Chalogue, are a consistent as well as the sent and the sent and the confirmation of the excellent day of the Dubry of Nasson. These matter doubtes, which we need not been principative.

A few excellent and useful works in term-cetta are exhibited from other countries, of which the Jury have noticed some from Switzerland which time good designs, showing much eldenorteness and considerable skill, exhibited by J. Zimozan Plazza (200, p. 1128), tawarded in term-cotte achibited by I. CANTAGALI, of Florence (Tascany, 80, p. 1297), daspied to the country, but not of these objects is an extremely dark red, and it well de-

serves Honourable Meution.

From Spains and Pertugal respectively, there have been for exhibition sequences of the line from earlier and extra for exhibition sequences of the line of the products. These jars are often under very much larger products. These jars are often under very much larger than the second of the larger of the larger of the contract of the larger of the larger of the larger of the larger of the manufacture of the larger of the larger of the larger of the Fasts rights, of the larger of the larger of the larger of products. The larger per (Tenley) exhibited by Mr. Ni, Fasts rights, of the larger of the larg

There is a Portuguese jar from Alemtejo, accompanied by two earthen pots used to cooking, remarkable for their which they are upplied. The material is apparently a very silicious clay containing some mica.

N. GAS-RETORTS, FIRE-RRICKS, &C., AND CHEMICAL UVESSILS.

We have already mentioned the use of fire-clay (obtained generally in this country from beceath certain scams of coal, and its value in the manufacture of terracotta, where being burnt at a high heat, the clay requires to be of such a nature as to resist fusion, or in other words, to have the property understood by the term re-fractory. Many other specimens of manufactured fireclay have been sent, adapted to special and most important urposes, and we proceed now to enumerate the exhibitors, and the nature and degree of excellence of the objects exhibited. It is to be regretted that there are not more exhibitors to compete with each other in this department, but some of those to whom we shall allude have sent specimens which are highly creditable.

The Reporter has had the advantage of an opinion and report communicated by George Lowe, Esq., C.E., F.R.S., one of the Associate Jurors in this matter, whose judg-ment has assisted in guiding the Jury in their awards. Mesers. Joseph Cower and Co., of Blaydon Burn, Newcastle-on-Tyne (112, p. 772), are exhibitors of samples of fire-clay, fire-bricks, and patent fire-clay gas retorts, which are all of admirable quality, and bear the highest reputation. The Jury have, therefore, awarded a

Prize Medal to them.

The use of fire-clay is not of very nacient date, and has greatly increased within the last few years. It is found in England almost exclusively in the coal mensomes, and from different districts the quality is found to differ considerably. The so-called "Stourbridge clay" is the best known, and will be alluded to presently; but other kinds are almost, if not quite, as well adapted for the higher purposes of manufacture, being equally free from alkaline earths and iron, the presence of which renders the clay fusible when the heat is intense. The proportions of silica and aluminn in these clays vary considerably; the former amounting sometimes to little more than 50 per cent., while in others it reaches beyond 70; the miscellaneous ingredients ranging from less than

11 to upwards of 7 per cent.

The works of Messrs, Cowen and Co, are among the most extensive in England, and they obtain their raw material from no less than nine different seams, admitting of grent and useful mixture of clay for various purposes. After being removed from the mine, the clay is tempered by exposure to the weather, in some cases for years, and is then prepared with extreme care. The objects chiefly made are fire-bricks and gas retorts; the latter being now much used and preferred to iron for durability. These retorts were first made by the present exhibitors in ten pieces (this being twenty years ago), and since then the number of pieces has been reduced successively to four, three, and two pieces, till, in 1844, they were enabled to patent a process for making them in one piece; and, at the present time, they are thus manufactured of dimensions as much as 10 feet long by 3 feet wide in the inside, which is, however, more than double the size of the largest exhibited by them,

The following extract from the Report with which Mr. Lowe has favoured the Jury, will be read with in-

terest. He says

"I recommend this exhibitor from my own knowledge as connected with the extensive furnace work of the as connected with the extensive furnace work of the Chartered Gas Company doring the last thirty years, at which period we were baying Stourhridge goods from 81. to 100. per thousand, when a fair trial of Mr. Cowen's bricks, at just one-half the price, convinced us then, and have ever since proved to us their excellency. One especial feature in these bricks and retorts visible to the eye, and so essential to their withstanding high heats, is destroying the otherwise good properties of many fre-

This he arrives at by following the Chinese practice of submitting his elay for years exposed to all weathers, turning it frequently over, whilst young hands pick out the fossiliferons fragments, generally pyritous, which this disintegrating process lays open to observa-The elay contains a high per centage of silica. Add to these points great care in the manufactory, in which every appliance is to be seen, and we have nearly the secret of Mr. Cowen's fame. He has testimonials from all quarters, one from Rouen, stating thirty-eight mouths as the durability of some of his retorts, being four times that of iron ones

The fire-bricks exhibited by Messrs. Cowen are sold at The ner-optices exhibited by newers, Cowen are sold after from 46ts, to 50s, per 1,000 on board at Newcastle, the price varying with the size. The same articles are delivered in London at from 50s. to 70s. The retorts are from 60s. to 80s, each at Newcastle, and in London from

5s. to 10s. more. Messrs. Hangen and Moone, of Stourbridge (119, Messrs, Harpyn and Moone, of Stourbridge (119, p. 773), are exhibitors of fire-clap bricks remarkable for their hardness; and they also seed a glass pot. All these objects are well made, of good colour, and free from irou; and are considered worthy of Honourable Mention. The large pots are used in the manufecture of place, erown, and sheet glass; and those of smaller size in the manu-fecture of filot glass: the pots remaining in the finnance till worn out or broken, and lasting sometimes for two One of the vessels with an open top (called a currett) is used to convey the melted glass from the interior of the furnace to the custing-table for plate glass. a test, perhaps, the most severe that a fire-clay vessel can be put to, but which some of those made by these Exhibitors have stood 180 times without breaking. The purest fire-chay, in which iron is entirely absect, is needed for such

purposes. The wholesale price of the curvetts is 40s. each, The erucibles shown by Messrs. Harper and Moore are made by hand, and are extensively used for brass, iron, steel, silver, gold, and other metals. The bricks used for lining the inside of glass-bouse and other furnaces, where long-continued and intense heat is applied, are also

of good quality.

Glass-house pots are also exhibited by Messrs, Squince and Sons, of Stourbridge (Class L, 117, p. 133), and Messrs. HARTLEY, of Sunderland.

The eclebrated fire-clay used by these and other Exhihitors, and so widely celebrated as Stourbridge elay, lies about 15 feet beneath the lowest of three workable seams of coal (each averaging 6 feet thick), worked at Stonrbridge in the lower coal measures in the south-western extremity of the Dudley coal-field. The hed of elay is four feet thick; and the following is the composition, according to Berthier, quoted in Dufresnoy's "Mineralogie," vol. lik, p. 259:-

Other British Exhibitors of similar objects are Messrs King, of Stourbridge (Class I., 91, pp. 130, 131), well known for their manufactures of fire-clay goods from this celebrated district, and the Exhibitors of a large and interesting series, including the raw material unburnt and finished articles of manufacture, and a small model of a glass-house. Owing to some cause, the goods here shown are not altogether such as to do eredit to the maker. The best objects from Messrs. King are the crucibles, and the greatest interest attaching to their group arises from the fact that the raw or unburnt pots, &c., are shown as well as those which are burnt,

Gas retorts of very fair quality are shown by Mr. RANKAY, of Newcastle, who has also succeeded extremely well in the manufacture of fire-bricks, chimney-pots, and other goods. The retorts show a little more iron than is desirable, but the Exhibitor has been considered worthy of Honourable Mentioo, Retorts of less creditable appearance are exhibited by Mesars, HICKMAN and Co., of Stourbridge (Class XXVII., 107, p. 772), and Mr. A-POTTER, of Newcastle (Class XXVII., 115, p. 773). The surface of both these retorts is cracked and undulating. When we consider the high and long-continued temperature to which these objects are exposed, the absolute necessity of attending to every detail in mixing the clay and moulding the retort will be at once recognised; and the apparently slight defects of some of those sent for exhibition, require to be noticed as of real importance, Mr. J. Pease (Class I., 122, p. 133) is Honourably Mentioned for some fire-bricks of excellent quality exhibited by him

Next to England, the finest specimens of fire-clay goods, on a large scale, are from Belgium, from which country there are three exhibitors of gas retorts. Jury have awarded a Prize Medal to one of these, Mr. T. BOUCHER, of Baudoar (399, p. 1163., who has sent a well-made retort, extremely thin, of good structure, and free from surface iron and cracks. The Jury have awarded the Medal to this Exhibitor on account of the undoubted superiority which it presents over other similar objects from the Continent, and do not enter on any question of priority of manufacture that may arise, or identity of methods adopted by this and other Exhibitors.

The Jury have awarded Honourable Meution to Mr. A. SMAL-WERPIN, of Huy, Longe (398, p. 1163), for a neathy-made retort of rather indifferent colour; and also neuty-mone retori of rather indifferent colour; and also to Messrs. B. Pasron and Co., of Ariennes, Namur (395, p. 1163). (granted by Class I. likewise', whose retori is extremely thin and well made (thickness only 23) inches;, but faulty in colour, the floxy appearance indicating the presence of iron, which cannot fail to act as a flux. Besides the retort, these Exhibitors bave sent fire-bricks and lumps, having the same fault in colour,

but very beautiful in point of manipulation Frauce has sent only one specimen of fire-clay gas retorts, and that not remarkable for excellence. The Exhibitor is Mr. Pauwells, of Paris (1382, p. 1242), who exhibits also an ingenious gas moderator, which does not come before the present Jury for consideration. Fire-bricks and vases are sent by Mr. DE HOISSIMON, of Langeals (427, p. 1199), an eminent manufacturer on the Loire, who has been already referred to, and has received Honourable Meation

Refractory bricks are sent by two Exhibitors from Portugal and one from Spain. Of the former, some (275 to 278, p. 1311) from the Manuracrony at (275 to 278, p. 1311) from the MANUTACTORY at BELISOENS, promise well, but there is no proof of their excellence beyond the appearance of the brick. They are, however, Honourably Mentioned, and the Jury also mention in the same way Mr. Jose Ferraseria Pixro Barro (Prize Medal in Class XXV.), of Vista Alegre 279, p. 1311), who exhibits refractory bricks. The . ury are informed that these bricks are made of a clay also used for earthenware, and certainly admirably adapted for the finer works of this kind, and that the Exhibitor is the discoverer of this bed, which has been used for more than a quarter of a century in the porcelain works at Vista Alegre, now very extensive. Great credit appears to be due to Mr. Pinto for the persevering induswith which be has struggled against numerous difficulties, and succeeded in introducing into his country a most useful and important manufacture. The bricks exhibited are neat, and appear of good quality. They contain much of what is technically called "grog" (coarse fragments mixed with fine paste), which renders them capable of standing a sudden application of heat without eracking, but the small extent of the exhibit does not justify the Jury in giving more than Hononrable The bricks sent by the AULENCIA COMPANY at Madrid

(53, p. 1332) are light and of open texture. The colour is very white, and the raw material, which has only been brought into use very lately, appears to be of remarkably fine quality. As there bappens to be a considerable demand in Spain for various articles of fine pottery, the more extensive working out of this deposit appears to be a very important matter.

and brick crucibles. Mr. Von MULMAN, of Sieghurg on the Rhine (West Prussia, 319, p. 1008), who also sends chemical utensils. This manufacturer makes fire-bricks for blast furnaces and puddling furnaces at a very mode-

Besides the objects in refractory clay already considered, there are some others, chiefly chemical intensils, which, from their condition, magnitude, and other circumstances, are referred to Class XXVII., and which, therefore, it becomes our duty here to report upon. For this purpose the Jary called in the aid of an Associate Juror, T. H. Henry, Esq., F.R.S., and have perfect confidence in the results they bave been enabled to arrive at,

The largest and most important exhibitor of crucibles manufactured of an admixture of fire-cluy and plumbago, and required for purposes where an intense beat is employed, as for the melting of steel and reducing the precious metals, is Mr. H. W. RUEL, of Loudon (Class I., 435, p. 16t), to whom a Prize Medal has been granted The crucibles in question are described, both in this and other countries, as if made of plumbago, but consist, in fact, of an admixture of that mineral, in variable proportions, with the finest and purest fire-clay. The introduction of the plumbago, is, however, n very important modification, and acts by preventing the injurious effects of contraction and expansion during change of tempera-Besides plumbago, other forms of carbon are sometimes used, especially pounded coke. The best crucibles for the purposes that require the greatest resist-ance, are either made of one-half of a finely-ground cement or paste, consisting of old crucibles and fire-clay and one-half coke and graphite, or of larger proportions of clay; but those used for the assay of the precious metals are sometimes made of two-thirds graphite.

The crucibles of Mr. Ruel are of the very best quality. The crueinose of Mr. Risel are in the very oest quantry, and the Associate Juro, Mr. Benry, thus reports of them:—"Mr. Risel has so improved the black-lead or plumbago crucibles, as to drive the fureigners out of the English market, and his articles are preferred abroad. I have repeatedly tried them and have found them excellent. Messrs, Brown and Wingrove, the gold smelters, use them exclusively, I understand, and in order to make sure I have asked them for a written upinium.* Ituel's ossay eracibles resist the action of fused oxide of lead much better than any others I have tried. Mr. Ruel is, I believe, the oldest crucible maker in this way, and I think his grent merit lies in working steadily for a considerable time to improve the English manufacture, and gradually vanquish the strong prejudice in favour of a foreign article by the superiority of his own pro-

To Messra. Lonenz, Kapeller, and Son, of Hafnerszell, near Passau (Bavaria, 28, p. 1099), a Prize Medal has also been awarded for black-lead eracibles, which are described as of more refractory character than usual, and which appear to justify this account. The specimens sent lude one of very nausual dimensions, measuring 2 feet bigh and 20 inches in diameter. They are very well made. These manufacturers have long eujoyed a very high reputation in the Eoropean market, and their crueibles are extensively sold, having been generally regarded as the nearest rivals to those made of Stourbridge elay.

Mr. F. Coste, of Tilleur, Liège (Belgium, 397, p. 1163), is an exhibitor of plumbago crucibles nf good quality, and is considered worthy of Honourable Meution. Those he exhibits are of two kinds, one of them not containing plumbago, but the former, adapted for melting steel, are so contrived as not to require removal for a fresh clurge, and thus present a novelty of construction

Other plumbago crucibles are sent by Mr. G. B. Arwoop, of Massachusetts (United States, 426, p. 1463), but they are understood to be really English, made from

The written opinion thus requested has been submitted to the Jury, and establishes the fact that this exhibitor's very important matter.

From the Zollverein we find one axhibitar of fire-clay portant purposes for which such atemils are required.

American plumbagu, and are not in other respects re-

markable. To Messrs, C. E. and F. Aanolin, of Elgersburg, in the Duchy of Saxe Gotha (Prussia, 778, p. 1093), Honour-able Mention is awarded for a considerable variety of chemical apparatus in earthenware exhibited by them. and of very good quality. The principal objects here to be noticed are the crucibles, which are of four sorts, but there are also retorts, alembics, and distilling apparatus,

besides other articles Mr. E. Mancu, of Berlin (Prussia, 240, p. 1061), has been already mentioned for his terra-cottas, but he is also an Exhibitor of elemical apparatus of good quality, the principal articles being two large and fine jurs for distilling acid. In France we have Mr. Boxxer, jnn. (1026, p.1231), exhibiting a muffle and various chemical apparatus, coosidered deserving of Honourable Mention, the muffles being constructed in parts to avoid fracture by heating; and there are also some very neatly-constructed crucibles, and other apparatus, exhibited by Mr. Devices (France, 476, p. 1200), which appear to be of very good quality. We find exhibited in Class I. (118, p. 153), a number of melting-pots made for easting brass, and other metals, by

Mr. S. Axster. These have been in us for some time, and are made by a patented process. They are recognised as of good quality in all respects.

O. GLAZED FIRE-CLAY GOODS. There are several Exhibitors of glazed fire-clay goods, some of them nearly approximating the manufacture of porcelain, but the articles are considered to belong to the personal one the articles are consumered to belong to the present division of clay manufactures. One of the chief of these is the firm of Messes, S. Gruzza and Co. (123, pp. 775-6), to whom a Prize Medal has been awarded in mother Clas (Class XXV.), but whose salt-glazed ware

demands notice here. This ware is of various qualities, according to the purpose for which it is required, some ubjects, as ginger-beer bottles, jars, &c., being comparatively coarse, while for chemical utensils it is impossible that too much care can be taken, or too much labour and ingenuity devoted to insore accuracy of form and uniformity of texture. For the principal part of the manufacture the clay is mixed, monlded, and dried, as for other pottery ware, but it is burnt in a room which admits of a degree of beat being applied which would melt any clays, unless of the finest natural quality, or very carefully prepared. In addition also to this high degree of firing, the glaze, instead of being applied by dipping, as is usual with cartheoware, is produced by throwing into the furnace, at a certain stage of the process, a quantity of coarse salt, which is instantly vapourised by the intense heat, and this vapour, penetrating to every part of the kiln, produces decomposition where it touches the vessels that are being baked; a film of glass being formed by the combination of a portion of the silica of the elay surface with the soda, while any iron that exists is brought to the surface, becomes oxidized, and gives a tint of colour apparently also adding to the strength of the glaze,

Among the objects thus produced, the exhibitors to whom we have already referred, Messrs. S. Green and Co., have manufactured some of the finest and largest that have been brought into the market; but Messra. DOULTON and Co., and DOULTON and WATTS, have also sent admirable specimens of great practical utility. Nu-merous examples are exhibited, both in Class XXVII. and outside the Building, in the North Western Enclosure. The Jory have especially noticed a group of objects by Messrs. Doulton and Co., including pipes of unusual size, and chemical vessels also of large size and extremely perfect; besides a series exhibited by Messrs. Sixoza, remarkable for being glazed inside only, the body vitri-fied as usual, and the surface of the ware being dry or unglazed. The advantage of the latter condition is considered to be the less probability of eracking, on the application of heat from the outer surface expanding more readily than if salt-glazed in the usual way. All the Prize Medals; and although the manufactures in this apparatus.

kind of material are in no degree less important than others already described in some detail, we can only here refer to them without announcing any further reward. It may, however, safely be said, that the objects exhi-bited on the English side in glazed stoneware, are worthy of great commendation for their excellence, and not less so for their great ntility.*

Mr. Ruffond (89, p. 770) has received Honourable Mention for an ingenious porcelain bath in one piece, two wash-tobs, and several glazed bricks, the former presenting a white glaze upon fire-clay, and being remarkable for its novelty and chespness. The present exhibitor invented his process for making such baths at the instance of the Society of Arts in the season of 1846-7. The

following account has been forwarded to the Reporter :-"The stone materials for this purpose, viz., fire-clay, China clay, and the glaze, are so assimilated that the two clays are of the same porosity, bear the same heat, expand and contract alike, and the glaze will melt only when the fire-clay is sufficiently burnt. They undergo venty-two hours of white best, are not sufficiently fired until cold-blast cast-iroo will melt, and they are produced iu the glazed finished state at one burning

In this state they can be ent with a chisel, are perfeetly non-absorbent, and are not affected by heat, cold, or damp. The full-sized adult bath costs, if perfectly free from blemish, 7l. First class, such as exhibited, 5/. His., or 5s. extra if marbled. Second class, colours not clear but body sound, 35s. to 60s. The glaxed The glazed white bricks are 13s, 6d, per bundred, and are found to stand well.

Mr. E. Underers, of Hirschberg, in Silesia (Prassia, 241, p. 1061), exhibits a set of water-pipes in glazed stoneware of very excellent quality, and is Houourably

Meetioned by the Jury.

Messrs. Salt and Mean, of East Liverpool, Ohio (United States, 203, p. 1450), exhibit a water-vase of somewhat remarkable appearance and good material, and are also Hononrably Meetioned.

Miscellanea.

There are two exhibitors in a material which, as it consists of porcelain, might be referred to Class XXV., but which, being widely disconnected in its application from the ordinary uses of that material, and being fin-cluded in Class XXVII., have been considered by this Jury. One of them presents an adaptation of porcelain for architectoral decoration, and the other for street labels, and we can say only a few words concerning each of them

of them.

To Messrs. Bowers, Chalston, and Woolischoff, of Thustall, in the Staffordsbire Potteries (104, p. 772), a Prize Medal has been awarded for a newly-patented

• Although by the decision of the constituted authorities the Motal which had been exerted to Mewers, 8c rece and Co. 10 Class XXVIII, has been withdrawn in favour of the similar boson's awarded by the dary of Class XXVII, the histories without giving common account of the objects which believe without giving comm account of the objects which believe without giving comm account of the objects which believe without giving comm account of the objects which believe without giving comm account of the objects which believe without giving common account of the objects which believe without private properties of the objects which believe without private properties of the strength of the objects which we have been accounted by the common account of the objects which we have been accounted by the common account of the objects which we have been accounted by the common account of the objects which we have been accounted by the common account of the objects which we have been accounted by the common account of the objects which we have been accounted by the common account of the objects which we have been accounted by the objects which we have been account

apparatus of the retort placed outside.

Of these the jar is stated to have a capacity of 420 gallons; and although not without flaws near the base, is gallons; and so much larger of comes and are detailed to a train a comparity of a significant of the common and a signific application of coloured and moulded porcelain for architectural decoration, capable of being carried cut to great extent, and especially adapted for door-cases and great carried and especially adapted for door-cases and not cornices for abop-fronts, &c. The material is cheap, brilliant in colour, sharp, and perfectly durable. Some of the decorations exhibited are very elegant, but they admit of great improvement, for which the material is

well adapted.

A Prize Medal has also been awarded to Mesors.

Sainnen and Whaller (121, p. 774) for a vitrous marble paste in a kind of porcelain, extremely hard and durable, and better adapted for street labels than anything

hitherto introduced.

Mr. J. Hassasse (131, p. 776) has exhibited a small collection of pigs, pitcher, &c., in stone-ware, which, althouspel of pigs, pitcher, &c., in stone-ware, which, althouspel of pigs, pitcher, &c., in stone properly belong to Class XXVI, and this is the case also properly belong to Class XXVI, and this is the case also properly when we remain an accordance of the control of the

A porcelain stove is exhibited from Frankforf (16, p. 1121), by Mr. J. Horyaxa, and other similar objects are elsewhere in the Building. Some articles in porcelain are elsewhere in the Building. Some articles in porcelain the Jury of Class XXV. Soch are those sent by Mr. Gitar. (France, 884, p. 1220), Mesers, Mixrox (p. 770), and Mr. J. G. Dawnox (Class XXII, 476, p. 484), all of whom are exhibitors of chimneypleses constructed procedula. The two former are noticed in Class XXV.

Mesers. Mayo and Co., of Chuopide, Lendon, are exhittors of a new kind of joint patented by them, and intended to connect glass pipes conveying gases or fluids (Class 1, 18, p. 122; and also of parent siphon vasce for containing advinced mineral waters (Class XXVIII., 7); p. 122; and also of parent siphon vasce for containing advinced mineral waters (Class XXVIII., 7); p. 122; and also of parent siphon vasce for containing advinced by the complex containing the conta

by expertence.

To Mr. E. J. COATER, of Bread Street (Class XXVII.,
18, 19, p. 765), a Prize Medal is awarded for a cheap
and useful combination of iron and glass in the construction of mantelpinces. These are very inexpensive, have
a good effect, and are extremely durable, and are said to
have been extensively introduced in the United States,

although new in England.

A new style of glating greenhouses and other constructions in glass has been exhibited by Mr. Karre, of Chichester (Outside West, 52, and Class XXVII, 192, p. 714), and is Honourshly Mentioned by the Jury. In this method vulcanized Indian rabber is introduced, and the glass is fastened without putty.

Another construction has been exhibited by Mr. Dencer (Ontside West, 61, p. 117), of something of the same kind, and is also Honourably Mentioned.

kind, and is also Honourably Mentioned.

Mr. Ltracoune (Class XXVII., 49, p. 767) is the exhibitor of several small drawing-room fountains, showing some ingenuity and elegance. There is, however,

influing very new produced in the contraction.

New Y. Haars, of New York (America, 283, 2), 1431,

while a skind of earthy fire-proof cement or paint, said to form a very compact and strong film resembling alter, and quite impervious to moisture. It is described as occurring in a strain of reck at this may not large the converge in a strain of reck at this, and is apparedly a faint of eky of black colours, and resultly reduced to a form of the contraction of the contraction colours, which abstracts our expount theretoes not exposure, but does not crack or peel, and is adapted for outside pointing, or for damp walls, decks of ships, &c.

APPENDIX.

EXPERIMENTS ON THE STRENGTH OF PORTLAND CEMENT.

Two exhibition of Pertinal cement on a large scale, seens. J. B. Warre and Sox, of Villenda, and Weers. Homes, America, and Co., of Creat Scotland Fard, to toda News, J. B. Warre and Sox, of Creat Scotland Fard, to toda the Jury their visit to illustrate the strength of their cement as compaced with other kinds, and accordingly to a total control of the compact of the control of the party of the control of the control of the control of the party of the control of the control of the control of the party of the control of the control of the control of the former septements were performed on the 24th September. An other septements were performed on the 24th September in the 24th September in the processor of Sect. Pushey and some other control of the control of which, attended by them, will also be given.

The first experiments were performed by Messrs, White and Co, and were intended to show the relative strength of Portland and Bonan cements. The weights used throughout were iron pigs, estimated at 100 lbs. each.

1. A block of neat Portland eement, 16 inches lung, and having a sectional area of 16 inches (4 inches square,) was suspended from each cad, and the weight applied exactly in the centre. The block had been made four months. It brock at 1,380 lbs, including the weight of the scale (estimated at 80 lbs.). The fracture was perpendicular, even, and good.

2. An exactly similar block of neat Roman cement, made from Harwich stone, and seven weeks old, broke at 380 lbs. This must have been a bad sample of the material.

 A similar block of nest Sheppey cement, made in the month of May, hroks at 980 lbs.
 A block of nest Portland cement, having a sectional area, measuring 24 inches by 2 inches, made 31st March, was pulled anuder with the fracture as shown in the top,

at 2,280 lbs.

5. A block of Portland stone, having the same sectional area, and in all respects resembling the above, broke at 1,480 lbs. The fracture showed no flaw in the stone,

the visit home eneme, the thickness of the joint being the visit home enement, the thickness of the joint being the visit home enement, the thickness of the joint being the visit has been partly on the polyment of the visit has been partly to the lower surface, as showing, that the adhesive force of the ceasent was greater than the coolesion. It was estimated that Rouns cement, a under such circumstances, would separate at under 1,1000 be.

8. Five hard stock bricks were taken, cemented together with a mixture consisting of one-half Portland cement and one-half sand. They were suspended from the upper brick, and the scale was attached to the lower. The fracture took place at 2,580 lbs. at the top

brick.

9. The principal experiment of Messrs, White consisted in breaking down a beam constructed of ten courses of hollow bricks cemented together, the apper part having three courses on edge and four flatwise, and the lower part two courses on edge and one flatwise. They were fastened with Portland coment, and strengtiuened by learning of the properties of the proper

fifteen, were juscreed. The iron measured 13 inch hy ith nearly. The following are the dimentithe beam:-

and fastened with Roman cement and sand, the net weight of the beam, including scale and stone, would have been 21,207 lbs., being a difference of 5,743 lbs. resulting from the use of hollow hricks. On the other hand it appears that the actual area of

cemented surface is only 700 square inches instead of 1,060, which it would have been if solid bricks had been employed; for it appears that the actual sectional area of the bricks is 5] by 4] inches, the rims or sides being Iths inch, so that the hollow part may be estimated at 9 square There are in all forty vacuities, and we thus inches. have-

Six uppermost courses, measuring 36×17-25= 621 In sectional area Three lower courses, measuring in $16 \times 26 \cdot 6 = 433$ Dednet spaces = 40 × 9 - - -= 360 Total sectional area cemented -700

Inches. Sq. Inches

The depth of the beam being $52\frac{1}{2}$ inches, we thus have, as a measure of the strength of the beam, $700 \times 52\frac{1}{2} =$

One object in the peculiar form and proportions of this beam was to institute a comparison between the strength of Roman and Portland cement, a similar beam having been constructed in 1837 at Nine Elms, by Messrs, Francis and White, at the suggestion of Mr. Brunel, the bricks in which were, however, common stock bricks, bonded in the usual manner, and bedded and grouted with a mixture of equal parts of the best Roman cement and elean Thomes sand. In this beam there were nineteen courses, the thirteen uppermost being two bricks thick, and the six lower ones two and n-half; the sectional area being 1,107 superficial inches, and there were inserted fifteen lengths of hoop iron 14 inch by 4th. The beam was borne on two pieces, leaving a clear bearing of 21 feet 4 inches; and after it had been hailt about three months it was loaded with 11,200 lbs. of pig-iron, placed on a platform suspended from the central part of the beam. At the end of another three months the weight was At the end of another three months the weight was increased to $24,000 \, lb$. After tweek months it was broken down by increasing the weight to $50,622 \, lb$ s. The depth of this beam being 57 inches, the measure of its strength compared with that of the other is $1,107 \times 57 = 63,099$; and since 63,099 : 36,750 : 50,652.

29,500, it is considered by the exhibitors that the breaking weight of their beam, if in Portland cement, ought to have been 29,500 lbs.

The heam, as originally constructed on the south side of the Euclosure ontside the western extremity of the Exhibition, was completed in April last, and has since been left unsupported, carrying 17,464 lbs., as before explained, consisting of the full weight of the beam itself, the stone, and the senie, until the 20th September. On 5. Another beam of twenty-two bricks, also fixed at that day it was loaded in the centre part with 15,000 lbs. one extremity (only the number free being reckoned),

weight of pig-iron, and in this state was left till Monday. when it was carefully examined, and found free from any flaw. The loading was then continued until it was weighted with 40,000 lbs., when a defection of nearly one-eighth of an inch was observed. Shortly afterwards, at 41,600 lbs., two cracks were detected, commencing on each side at the fourth brick from the centre, and before long a third erack exactly in the centre. One of these cracks commenced with the fracture of a brick, but the other two at the contact of the cement with bricks. When another 10,000 lbs. had been added, the iron hoop was heard to crack, and the piers were slightly affected, as was proved by the breaking of a string that had been stretched from one end to the other to measure the deflec-With this weight also the eracks extended through the six lower courses, and the deflection was about fiveon up to 62,800 lbs., this weight was borne for a short time, but the fissures all widened manifestly; the central one extended vertically through bricks and cement indifferently, and the beam at length separated into two parts, thrusting the piers considerably out of the upright.

After the conclusion of the experiment it was found, that of the iron boop there were only thirteen pieces traceable, and of these ten were torn asunder at the principal central crack; the other three were doubtless broken also, but at the side fissures. The important part played by the iron in this case must not be overlooked, but cannot very easily be estimated. As a practical proof, however, of the use of hrick heams and their strength, this experiment is of considerable value in itself, besides affording an additional proof of the value of Portland

The true comparative strength of Roman and Portland cement is, perhaps, not so well tested as if the bricks had been of the same kind in the two experiments; but estimating as nearly as circumstances will admit, it appears that the Portland bears to the Roman a ratio of 21 to 1 very nearly. It must, however, be remembered that the Roman cement beam had been built seventeen months, und the Portland only five, a fact greatly in favour of the former material.

The experiments of Messrs, Robins and Aspdin were of somewhat similar nature, but cannot be regarded either as identical or parallel. They were made on various mixtures of Portland coment, some of them joining together bricks and stone, and others formed into slabs of various dimensions. There was no experiment on so large n scale as the brick beam of Messrs. White, but the other specimens were, on the whole, larger, and the illustrations were of great interest. We proceed to enumerate them

1. A block of the shape of that shown in Experiment 1. A block of the shape of that shown in Experiment 4, of Measts. White, but consisting of three parts of sand and one of Purtland cement, and having a sectional area of 4 inches by 21 inches (= 8° 5 square inches) was supended from a clip, and held a scale weighing about 1 cwt. The block had been usade about one mouth. I broke at 1. 2,400 lbs., including scale, the fracture resembling that in the other case, but a part of the cement being broken off hy the clip.

2. A similar block, having a sectional area of 31 by 21 inches, and made with four parts sand and one part Portland ecment, broke with 2,500 lbs., including scale. The fracture was clean, and at the lower part of the neck, The texture of the cement was even. 3. A beam of sixteen common stock bricks, juined by

very thick jutervals of real Portland cement, was held at the extremities, and broke by a weight of 500 lbs. suspended from the middle. In this case the part broken was the hrick only. The beam had been made one month. 4. A similar beam of the same magnitude, but having one end only supported, and projecting 3 feet 24 inches from the bearing point, was weighted, and broke with 256 lbs., exclusive of the scale suspended from the free extremity. In this case the fracture took place at the eleventh brick from the fixed extremity, and both brick and cement were fractured.

was broken by 11 cwt., in addition to the scale.

length of this beam was 51 inches, 6. A solid step, constructed of two parts Portland cement and one part hoken brick, and weighing 34 cwt., was fixed at one extremity, leaving 6 feet 44 inches projecting. It supported its own weight, and broke off close to the bearing point, when the third weight of 56 lbs. (making a total of 168 lbs.), was placed on the extreme end.

 Two blocks of neat cement, 1 foot 5½ inches long,
 inches wide, and 4½ inches thick, cemented together with next cement, broke at 6,000 lbs. The lower part of the block gave way

 Twenty stock bricks in courses, united with cement, composed of one of cement and one of sand, 3 feet 64 inches bearing, the ends supported by iron clamps, and the weight applied to the centre. The bricks broke 9. Six fire-bricks in courses, joints all cement. The

upper brick broke at 2,836 lbs. 10. The five fire-bricks from the last trial were ngain

tested, the iron being inserted in the second brick from each end. The upper brick broke, carrying with it also each end. The upper brick broke, c a part of the lower weight, 4,600 lbs.

11. Two pieces of Portland stone, 2 feet by 11½ inches, 7½ inches thick, neat cement joints. The lower stone broke, carrying away a very small portion of the cement joint; weight 7,272 lbs.

The last five experiments (Nos. 7 to 11) were performed on the 23rd September, in the presence of General Sir Charles Pasley, C.B., Professor Wappler, of Vienna, and other scientific gentlemen, by the two former of whom the

above statement is attested.

tion. They cannot fail to be regarded with much interest by every one connected with engineering and the arts of construction, and, combined with what was before known on the subject, they fully prove the value of the peculiar material known as Portland cement, and its great advantage over the Roman or Parker's cement. There can be little doubt that the mud of many rivers running over soft calcareous rock, and containing also a large per centage of clay, might be used with advantage, as well as the mud of the Medway; but it yet remains to determine the man of the Medway; but it yet remains to determine the true chemical cause of the great difference observable in similar proportions of calcareous and argillaceous matter for the purposes of cement, and till this is done, it can hardly be expected that artificial cements will exactly replace those which occur naturally, and whose value has

been proved by experience. Although it did not form one of the subjects of the experiments instituted before the Jury to prove the resistance of Portland cement to crushing weights, it may not be out of place to add here the results of experiments on this subject

A block of neat Portland cement, manufactured by Messrs. Robins, Aspdin, and Co., thirty days old, measuring 18 inches × 9 × 9, was tested by a Bramah's hydrostatic press, and is said to have withstood a pressure of 41 tons for nowards of a minute, when it broke up with n report.

A similar block, of one part cement and one sand, twenty-eight days old, crushed at 108 tous. Auotier, four sand and one cement, at 45 tons; and another, nine sand and one cement, crushed at 41 tons. A small piece of neat Portland cement, exposing a sur-

face of 14 inch by 1 inch, and six months old, withstood The Jury have great satisfaction in placing these ex-periments on record as among the results of the Exhibi-of the same size crushed at 2,576 lbs.

London, October 1851.

D. T. ANSTED, REPORTER.

CLASS XXVIII.

REPORT ON MANUFACTURES FROM ANIMAL AND VEGETABLE SUB-STANCES, NOT BEING WOVEN, FELTED, OR INCLUDED IN OTHER SECTIONS.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers, and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.

Jury.

DON JOAQUIN ALFONSO, Chairm-N, Spain; Director of the Conservatory of Arts, Madrid, J. E. GRAY, F.R.S., Deputy Chairmon, British Museum; Keeper of the Zoological Department, British Museum.

Bertlish Museum.

Bertlish Museum.

Bertlish Museum.

A. J. Balazan, France: Member of institute.

A. J. Balazan, France: Member of institute.

B. E. Lasazarzer, Fl.Ns., Poporte, 210th Burlington Street; Secretary to the Bay Society.

T. J. Musear, Millional Street; Merchant.

C. Perranson, Russia; Member of the Scientific Committee for the Administration of the Domains of the

T. A. Wist, M.D., 9 Prince's Gate, Hyde Park; Hon, East India Company.

Associate NATALIS RONDOT, I Rue Fontaine, St. George's, Paris; Late of the Embassy to China, &c., &c. (Jurer, Class XXVI.)

In commencing their labours, the Jury thought it advi-sable to divide themselves into Sub-Committees for the purpose of examining the various objects submitted to their attention. The subdivisions of the Class enabled them to do this with facility, and the following Sub-Juries were formed:-

The Chairman, Don Joaquin Alfonso, M. Balard, and Dr. LANKESTER for Sections A and B, including gutta percha and caoutchone manufactures Messrs. Gaav, Annorr, and Wise for Sections B and C, including manufactures from various animal substance

as ivory, tortoiseshell, horn, &e.; and from vegetable substaoces, as wood, vegetable ivory, cork, &c. Messrs, MILLER and PETERSON for Sections E and F. embracing manufactures of straw, and of a miscellane

kind from various animal and vegetable substances, Dr. Lankester and Dr. Wisk were appointed to draw up the present Report. The avocations of the latter gen-tleman having called him from town, the drawing up of the Report devolved on Dr. Lankester. Each of the Sub-Juries was requested to farnish the Reporter with remarks upon the various objects in their Sections; and the Re-porter is indebted for a large proportion of the general remarks on the manufacturer in caontchone and gutta

percha to M. BALARD The constitution of this Class is somewhat peculiar and exceptional. The necessity for its existence was felt in the fact that a large number of articles manufactured from vegetable and animal substances could not properly be included in the Classes which embraced either wove or felted materials. This was especially the case with the very numerous applications of enontehoue and gutta pereha to the production of articles of constant and in-creasing use. What is true generally of these substances was felt in relation to many things manufactured from such animal substances ar form, ivory, whilebone, &c., and the vegetable substances-cork, vegetable ivery, and cocoa-nat fibres. At the same time the Jury experienced some difficulty in defining what articles rightly belonged to their Class without trenching apon the domain of others. This difficulty had evidently been felt in the disposal in the Building of many of the objects exhibited, pown in the isiniting of many or the objects exhibited, and one of their first tasks was to send to other Classes objects which bad been placed in Class XXVIII., and which had appeared noder this head in the Official Catalogue. They had also to examine other Classes for the

purpose of bringing objects into their own Class, which otherwise might have been overlooked. With all the other precautions taken by the Jury, it is to be feared that some objects properly belonging to their Class, from being placed in other Classes, or from not being in the Catalogue, have not received the attention they deserved. Especially have they felt that many articles exhibited in the Foreign Department, from being sent to the Exhibition after the awards were made, may have escaped the notice which their merits would otherwise have demanded

In presenting this Report, the Reporter has adopted the plan laid down in the scheme of "Heads for Juries," published by the Royal Commission, each Section of the Class, where necessary, being treated of under the following heads:—1. General Remarks, 2. Council Medals, 3. Prize Medals, 4. Honourable Mentions, 5, Remaining Exhibitors,

SECTION A,-MANUFACTURES FROM CAOUTCHOUG.

§ 1. General Remarks. The existence of a milky jnice in many plants, which flows from them when their tissues are wounded, is a fact that has been familiarly known from time immemorial. It is, however, only a matter of recent discovery that this milky juice characterizes certain families of plants. Although the great majority of plants which yield this juice in ahandance are tropical, yet they are not without their Earopean representatives. The spurges, dandelion, and celandine of our road-sides are instances. The families of plants which furnish this milky juice in the greatest abundance are Moracea, Euphorbiacea, Arto-carpea, Apocyaucea, Cichoracea, Papaveracea, Campa-nulacea, and Lobeliacea.

naturear, and Lobelineer.

This jaice, which is called by botanists "the milky juice," because it has an appearance similar to milk, has also the physical constitution of that fluid. It is an aqueous liquid, charged with soluble matter, in which float globules of a substance insoluble is water, and which are by their tensity held in suspension in the liquid, but for which the milky liquid, but for the contract of the contract for which they have no affinity, in the same manner as butter is held in suspension by milk. From the difference of the refractive powers of these two substances, each of which, taken separately, would be colourless or trans-parent, arise the opacity and white colour of the two; hence the compound is properly called a "milky juice.

The analogies which this juice exhibits with the milk of animals and equetable embloss are seen in the manner in which it acts when left to itself. Run out into the air, received and preserved in close vessels, it separates itself into two layers, as milk itself would do. The watery part very soon has an insoluble part floating upon it, which collects together, and swims at the top as cream wirms upon milk, and which forms nearly the half of the

But with these physical resemblances the analogies cause. That which in milk and in enulsions produced from seeds collects on the surface of the aqueous liquor, in properly speaking, a fairty body, containing oxygen in its composition, as they all do; while the kind of cream which avies non the milky jujec of the plants when the surface of the plants when the produced of the plant when the produced of the plant when the produced of the plants when the produced of the plants when the produced of the plants when the produced of the produced of the plants when the produced of the plants when the plants when the produced of the plants when the plants

the Indian name of constribute.
This substance has long been known to the natives of
This substance has long been known to the native of
America. It was not, however, till the expedition of the
French Andenican to South America in 1723, that is
proporties and nature were made known in Strope by a
excited lifted steadings; and subsequently notices of this
nationance were sent to the French Andersoy in 1731 by
excited first steadings; and subsequently notices of this
nationance were sent to the French Andersoy in 1731 by
excited first steadings; and the substance
of of the last contentry under the beginning of the present
it was brought into this country in small quantities,
lead presid marks, it exquired the name of follor-rubber.

lead precil marks, it acquired the name of Indiscrebber.
Although, after its upplication to the water-pooling of garmens, its commission gradually increased, the sinon the property of the property of the property of the import of this article had increased to between 100,000 and 800,000 pounds. In 1842 the import of this article had increased to between 100,000 and 800,000 pounds. Up to the present time the conone port alone in South America is said now to send to Green Britain nearly 4,000 exts amountly. To the large consumption in the United Kingdorf we obtain him to be a send of the contract
country. The particular species of plants which are employed for procuring India-rubber are very numerous, and it is probable that many yield it which are not yet known to botanists. The tree which supplies most in Continental India is the Ficus elastica, a tree belonging to the order Moracese; it is exceedingly abundant in Assam. All the apecies of ficus yield caoutchouc to a greater or less extent in their juices, and even the common fig (Ficus carica) of Europe contains it. Species of ficus produce the caour-chone brought from Java, and F. radula, F. elliptica, and F. princides are amongst those mentioned as affording and P. principles are amongst those mentioned as anorthing an portion of that brought from America. Next to the Moracor, the order Euphorbiacor yields the largest quantity of caoutehoue. The Siphonia closiva, plant found in Guiana, Brazil, and extending over a large district of Central America, yields the best kinds of India-rubber that are brought into the markets of Europe and America. To another order, Appeysancer, we are indebted for the exemthous which is brought from the islands of the Indian Archipelago. The plant which is the source of this substance in those districts is the Urccola clustica, a climbing plant of very rapid growth and gigantic dimen-sions. A single tree is said to yield, by tapping, from 50 to 60 lbs, annually. Many other plants of this order yield countchone, and of those given on good authority we may mention Collophora utilis and Cameraria latifolia, plants of South America; Vahea gassnifera, in Mada-gascar; and Willinghbeia edulis in the East Indies. To this order belongs the cow-tree, or Hya hya (Tubernamontana wills), of tropical America, which yields a milky juice that is drunk by the natives of the district in which it grows.

The caoutchoue, whilst it is in the tissues of the plant,

The connectione, whilst it is in the tissues of the plant, apparatus, these foreign matters, crushed by the mill, are is evidently in a fluid condition, but after its separation carried off by degrees, and the purified portions of canonic from the other fluid parts, its consistence becomes changed, chose unite the one with the other. By the subsequent

and it forms a solid mass similiar, in its external character, to vegetable albumen. In this state it is deuse and hard, but may be separated and rolled ont so as to form a sheet resembling leather. It has many interesting and peculiar properties. Insoluble in water and in alcohol, it dissolves in ether, in the sulphuret of carbon, the fat olds, and the liquid carburets of hydrogen.

It is off and classic at the ordinary temperature, but at the temperature of g² above the freezing point it acquires the hardness of wood. A temperature of 100 'softens it without altering its form. It then unites with itself with the greatest facility, and two pieces recently cut spart remains on so to moder it impossible to discover where the remains of the properature, and the state of the control of the properlying to the piece. The fair fight response to properlying, does not recover the primitive prowhich, on cooling, does not recover the primitive pro-

perties of caontehone.

In this store of recent coagulation, and while still in a pulpy condition, caoutehoue possesses in degree of plasticity which admits of its receiving, by means of moulds, the most varied forms.

The prince part of the constitution of commerce, in obtained by the mixer of the countries in which it is preduced, in the form of shapeless masses, collected at purpose of extracting the pince from its condition in a purpose of extracting the pince from its condition in a trucked made in the earth, and compilated in this rade to the pince of the condition of the control of the control of the pince of the control of the control of the trucked as large truck. A part of it, lowever, possesses other forms, which the rules are of the natives attempts of the commerce of the control of the control of the shaped bodies, and there dipped in the modula in the shaped bodies, and these dipped in the modula of the shaped bodies, and these dipped in the modula of the shaped bodies, and these dipped in the modula of the shaped bodies, and these dipped in the modula of the shaped bodies, and these dipped in the modula of the shaped bodies, and these dipped in the modula of the shaped bodies, and these dipped in the modula of the shaped bodies, by tracking the modula and perting it cut in frequent to the shaped bodies and the shaped bodies and the shaped bodies. It is shaped to be shaped bodies and the shaped bodies are shaped by the shaped bodies and the shaped bodies and the shaped bodies and the shaped bodies are shaped by the shaped bodies and the shaped bodies are shaped by the shaped by the shaped bodies and the shaped bodies are shaped by the shaped bodies and the shaped by the shaped of the shaped by the shap

Caoutehoue is obtained from both the Old and New World. The East Indies furnish caoutchone, of which numerons specimens have been exhibited in the Crystal Palace by the East India Company. This caoutchouc, which comes principally from Java, is often glutinous, and is less esteemed in commerce than that furnished by the equatorial regions of America. Great quantities of caoutchout are imported into Europe from Mexico, from South America, and especially from the province of Para, in Brazil. That which comes in the shape of bottles is generally preferred, and when it is pure, and the different coats which comprise it are well united, it may be employed immediately for many purposes. But it often happens that the coats which form the pear-shaped masses are badly united. It then becomes necessary, in order to make use of them, to work it up hy a process of kneading, so as to obtain it in a coherent or homogeneous mass. This operation becomes especially indispensable when, as most commonly happens, the caontchouc is in large impure masses, and mixed with sand and the debris of vegetable matter. These impurities do not antirely proceed from the moulds made in the earth, into which the inice has been allowed to exude, and in which it has been nice has been allowed to exude, and in which it has been left to thicken and solidify, but their quantity and their presence between the coats of the pyriform masses show that the impority is mainly to be stributed to fraud. The exoutchour thus obtained is not applicable to any use nutil it has undergone a previous purification.

The parification of the caustreleno is accomplished by substituting the impure caustreleno to the action of rylinders farmished with teeth turning in opposite directions and of massication. If the matter which renders the canotichone impure adheres very closely when dry, this protaining the control of the degrees, and the purified portions of canotic control of the degrees, and the purified portions of canotic conexposure of these masses of purified caoutchoic to a second massication, but performed dry, they are softened by the heat evolved during the forcible compression to which they are then submitted. In this treatment the enouchous becomes softened without being liquified, and a bomogeneous mass is formed which is cut in the form of rectangular blocks.

These are again placed in casting monlds, in which they are powerfully compressed, until they are empletely cooled, when it is found that the pressare has freed them from cavities, air-bubbles, &c. By submitting them to the action of knives moved very rapidly by a mechanical action, and the edges of which are constantly kept wet by a thin jet of water, the caoutehout is eut into sheets of various thicknesses, which, subdivided in their turn, constitute those small parallelopipedons used by draughtsmen

to rub out the marks of black-lend pencils This use of caoutchook was, in England, for a long time the only one to which it was applied; but this limited use was far from indicating the extent to which enoutthe multiplicity of services it has been called upon to perform for sanatory and industrial purposes. To rub out peacil marks, to form the rude slippers which seemed well adapted to the Indian toilet, but to which a form acceptable in Europe had not been imparted, were, in fact, the only uses to which caoutehoue was applied up to 1820. In England was discovered the art of strytching 1820. In England was discovered the art of stryching it into thin sheets, and thus making it available for the production of waterproof fabries. In France was discarcred the art of drawing it out into delicate threads for the manufacture of elastic tissues. We are indebted to Messes, Mackintosh and Ilancock for the application of caoutchoue to the rendering tissues waterproof, and for the manufacture of those gurments which throughout the world have rendered unquestioned service to the cause of health, and have made the name of one of their inventors

so justly popular. The garments called Mackintoshes are well known. They are formed of fabrics covered on one side with caontehoue, or two fabrics are united by the countehoue between. They are thus rendered impermeable to water, but at the same time they possess a flexibility such as it had never been possible to obtain by the employment of other varnishes. For the purpose of obtaining the sheet of caoutehoue sufficiently thin for this purpose, it is dissolved. The solid carburets of hydrogen are soluble in the liquid carburets, and for this purpose spirits of turpentine and the volatile products of coal tar were first employed. But after having obtained this solution, it was necessary to evaporate a great quantity of it for the purpose of obtaining a coating of caoutehoue, which at first occupying a great space, should be reduced to a small one when the drying was complete. For the purpose, howknending the caoutchoue, by means of powerful machines, with the spirit of turpentine or naphtha, and impregnating it with the menstrua without dissolving it, and softening it without making it a liquid; the caoutehoue rendered pulpy, is then spread upon the cloths by means of a flattening mill, and the process of evaporation is thus dispensed with. Waterproof garments were thus rendered cheap and available for the use of every class. description of garment, nevertheless, presented a notable fault which was not avoided until a later period, and which arose out of the properties inherent in the enoutchoue itself. This substance, which in ordinary circumstances possesses very great clasticity, such as to justify the name by which it is designated in France, gomes elastique (clastie gum), loses this elasticity when exposed to a temperature near the freezing point of water, and this suppleness, which might almost cause a sheet of enoutchoue to be mistaken for an animal membrane, gives place all at once to the rigidity exhibited by the same membrane when dried. This property, which is cold weather was a real defect, when applied to fabrics ren-dered waterproof by caontehoue, has been found very useful in the making of garders, braces, and other articles cold rendered them very inconvenient. However, Mr. in which the clusticity of the caontchingc has been brought [Goodyear at last succeeded in making abose of raw Indianous supersed that which had, notill then, been obtained by "mibber purified," and perfectly free from objection, thus

the employment of spiral metallic springs. In order to obtain the threads which are used for the manufacture of clastic tissues, either the flasks of caoutchoue in its natural state, out in half and flattened by pressure, or else those masses of purified enoutchone which are sold in continuous slicets, out by knives, wetted by a small jet of water, are employed. These sheets are divided into thongs; the latter are afterwards subdivided into very narrow bands, which serve in their turn to produce the threads employed for the manufacture of the tissues. If hy a slight elevation of temperature the natural elasticity of the caoutehous is increased, these narrow bands can then be stretched is increased, these marrow ands can then be stretched into threads of great length by drawing them out and rolling them upon bobbins. But it may be well conceived that the management and wearing of the threads would be very difficult if they retained their elasticity. Fortunately the partieles of the constitution eventually accommately the partieles. modate thenselves to the forced position which they have been made to assume, and the exposure to a low temperature materially hastens this result. The threads having thus lost their elasticity can then be introduced like common threads into the fabrication of stuffs; they can be covered with a different thread, by winding spirally round them cotton, silk, &c., and this compound thread may be in its turn introduced into the composition of new tissues. In all these operations the enoutehout has retained all its rigidity, but that clasticity of which it has been deprived by a long distension and a low temperature, can be restored to it by means of a proper degree of heat, The stuff thus woven is exposed to a temperature of from 140' to 160 Fahrenbeit by the passage of a bot iron, when each thread resumes with its primitive length the diameter which it first possessed. The fabric diminishes in length without increasing in width. The tissue is thus compressed, and the caouteboue, which has regained its elasticity, communicates it in a permanent manner to these tissues. The manufucture of these threads of caoutchouc constitutes at present a distinct branch of industry from that which, making use of them either in an uncovered state, or covered with silk and cotton, combines them with ardinary threads in the way of weaving; and, like the manufacturers of linen or cotton fabrics, the makers of the elastic tissues buy the threads of enontchance in bulking of different numbers. When the limited lengths of the narrow bands from which these threads are manufactured is borne in mind, the necessity is foreseen of being able to unite them end to end for the purpose of making continuous threads. A remarkable property of cooutchoic renders this easy. It unites with itself with the greatest readiness if it be the least warm; and two surfaces recently cut with a very sharp instrument, may be made to adhere together by means of pressure, with a cohesion equal to that which unites the other parts of the same thread. But although in this case this property is made meful, in other instances the limited elasticity, and the rigidity communicated to it hy a low temperature, are great drawbacks.

However, all these properties inimical to its use disappear in that combination of sulphur with caoutehous called vulcanized India-ruhber, which exhibits such special properties as to form in some degree a new sub-stance. This transformation of caoutehoue was first

while in England the employment of caontebone was being developed principally in regard to the rendering of eloths waterproof, and in France its elasticity was being made available for the manufacture of certain tissues, it was turned to account in America for waterproof shoes, by making use of the processes discovered by Mr. Charles Goodyear, who, since 1836, had been engaged in the discovery of means for making use of enoutehoue, with a skill and perseverance which have borne the most happy fruits. It is not that attempts at fashioning according to the European taste, and thus rendering useful the Indian shoe made of caoutchouc, had not been frequently made in Europe, but these attempts had bardly been successful in giving them acceptable forms, and the stiffening by

completing by the manufacture of waterproof shoes the service which Mackintosh had begun by the invention of the garments which bear his name. Since 1842, Mr. Goodvear has imported into Europe shoes which possess an unlimited and permanent elasticity, and which resist cold; two of their surfaces may be pressed against each other without the least adhesion taking place. These are precisely the remarkable qualities which characterize that enoutehoue which is called in the present day vulcanized Indin-rabber. Impressed, perhaps, with the idea, too often moreover a just one, that the specification of a patent is sometimes nothing more than the occasion of attracting the attention of imitators, Mr. Goodyear took no patent for this article, but he endesvoured in Europe to take advantage of his discovery, by communicating it as a process of which he nlone possessed the secret, which might be lost to mankind and disappear with its sole possessor, when Mr. Thomas Hancock, of Stoke Newing-ton, who had been engaged in Europe in the working of enoutehone with no less perseverance and success than Mr. Goodyear in America, discovered anew the process of the vulcanization of India-rubber, and secured it by a patent, which Mr. Goodyear afterwards demanded for the same subject. Mr. Thomas Hancock discovered that a band of caontekone dipped into melted sulphur, and im-pregnated with this substance, without losing any of its properties, only required to be afterwards exposed to a temperature of about 300° Fahrenheit, to acquire properties entirely novel, which were precisely those possessed by the material employed by Mr. Goodyear for the waterproof shoes.

This was, as may be even, a new discovery of a five strong barrier and the strong strong strong and a strong known as board on the strong and a This discovery must, however, have presented in diffisallers, and repulsed also the furnitus cooperation of strong and the strong strong strong and a strong have pointed out to Mr. Blancock the existence of subject in the predictions of Mr. Goodyers, and these also dislabal deemed indispensable, it could not it may manner than the strong strong strong strong and the strong properties as due to the discovery of the confident condition in given temperature which also or and able to imput to the attractor of careful condition of a given temperature which also or and subject the expression of the attractor of careful condition of the strong strong and the strong conditions and the strong strong and the strong of careful conditions a given temperature which also or and subject the expressions.

Whatever may be the other of merit assigned to Mr. Goodyver and to Mr. Hamocok is this important invention, the latter has not the less exclusive merit of lawing discovered that subject may be received that subject may be received. The subject may be received that subject may be received the transmission of India-rubber. On seeing Mr. Charles Goodgreer of the price which he subsequently food not, it is felt that he regarded their intervention as indisponable, while it is now demonstrated that subject a fool is sufficient; if often substances are employed in certain crass, it is not so much the subsequently law of the consideration
The vulcanization of India-rubber is an easy process. The India-rubber, softened by the heat evolved when it is being kneaded by strong machines, is mixed with the sulphur in the masticating apparatus already alluded to. is mixture retnins all the solubility of the caoutchoug in the different menstrun,-the property of becoming hard at a low temperature as well as that of uniting with itself; but as soon as it is exposed to a temperature of 3000 Fahrenheit,—a temperature which would have sufficed to change the pure exontebooe,—the matter acquires new properties. It is no longer soluble in the meastrax which dissolve enoutehoue, but is impregnated with them by contact, and swells out like an animal membrane that is moistened with water; resuming its primitive properties on being dried. It no longer becomes rigid when exposed to cold, nor does it unite with itself, and it resists without any alteration a temperature which would have sufficed to transform the ordinary eaoutchough iato n sticky matter; it is, in short, vulcanized Indiarubber. This absence of the tendency to adhesian is so decided, that in actual manufacture no use whatever can be made of the shavings of the enoutehone thus modified.

and the means of separating the sulphur and reproducing the pure consolutione presents at the present day an important problem to solve. If this action of heat which modifies the consolutions is exceeded upon a mixture enclosed and compressed in a mould, the material then acquires a form which the indebnite and permanent clasticity of the volcasized Iudia-rubber causes it tu

retains.
This sulphurization of the India-rubber, instead of being produced with free sulphur, may be obtained with sulphur in a state of combination, as with the chloride of sulphur. If articles of common constitutions are immersed for one of the common constitution of the common constitut

is designated by the name of concreted constrience. From the moment in which the velocination of fulialrables was known, all the inconveniences which ordinary constrience which is continually increasing, made the control of the continually increasing, into now. The enumeration of the objects exhibited by into now. The enumeration of the objects exhibited by turn to the control of the objects of the control of the control of the objects of the objects of the control with the control of the objects of the product of the unit was the most individed, Mr. Goodper, in America, and the firm of McKintosh, in Europe, will tend to show how widely spread, and how varied the nee of this material.

§ 2. Council Medals.

has already become.

1. Cusatas Macaisvou and Ca., 7a Aldermalusy (76, pp. 784, 785). The firm of Clarites Mackinston had Ca comprises the names of the men who in Europe have made the most useful discoveries in the art of apply. Mackinston, who gave his own names to the waterpoof garnets, and Mr. Thomas Hancock, whose have of merit in the theoryty of the vulcanization of India-subber we of articles exhibited by this firm, the importance of the uses in which the substance is capable of being applied, expectably since the discovery of the process of vulcanization.

tion, can be readily appreciated.

The kinds of fabries with which the garments called Mackintoobse are manufactured have always remained the same, but the garments themselves have acquired more lightness and less smell, and the substitution of vulcainated for common coottchone insures to them at the present day a permanent suppleness.

The other services which these fabrics are called upon to perform, have been greatly multiplied. Their price having become levis, they are capable of being applied in line of targashings for overing waggons, carriages, &s. which was also as the service of the services of the services water, and which had at first been made available for a water, and which had at first been made available for a water, and which had at first been made rain properties one, has allowed of their being made into portable baths, which can be robled up like an Mesers. Merkshoth and Co. are made with much carr, and with a degree of degance which shows that in Europe these articles are but tiltie used except by the more op-

It is not only in the making of shoes that Indiarnables has been called in to supersels teather; the articles exhibited by Messrs. Mackintosh and Co. show the use that nhe made of it to form pistons of pumps, and how substituted for leather or metal ones. Sheets of count-chouse of different colours, either month or worked in relief, are brought in to supersede moulted ornaments in the manifacture of fermiture, of ottomans, and in the hinding substitute of the properties of the colours of the state of the st

The use of vulcanized India-rubber to form the pittonvalvesis steam-enjases on the serve principle, has greatly contributed to the employment of these novel motive powers, which are destined in some degree to effect a change in mavigation by allowing steam to come in solely as an auxiliary to the wind. The exhibition of Messrs, blackintosh and Co. comprises a valve of this description, which after as months we have undergone 20 see alter594

ation that it may be foreseen that these articles possess an almost unlimited durability. The rendering available the impermeability of their fabrics to air and gas has likewise been extended. To the air-custions which have been long used are now added the air-mattresses, so well adapted as beds for travellers and invalids; boats inflated with air, at once portable and incapable of sinking, and which for life-boat uses and in inland voyages are capable of rendering great service. The collection of Messrs, Mackintosh presents some specimens of this kind of great interest. Licut, Halkett, of the Royal Navy, by making them in several closed compartments in such a manner that the stuff being pierced through at one point cannot lead as a necessary consequence to the sinking of the bent, has rendered more certain the services which these machines are called upon to perform. The applications of the elasticity of enoutchone have also been greatly in creased. The wheels of carriages bave been surrounded by it in such a manner as to prevent the disagreeable noise which they make upon the pavement. Hollers for inking printing types and lithographic stones have been made from it; it is employed for the making of cushions for hilliard tables, and to supersede the use of suckingcords in bedsteads. Advantage has been taken of the clasticity of an India-rubber band, which has a tendency to return to its primitive length when the action of opening a door has clongated it, for the purpose of forming door-springs, the use of which is beginning to spread widely

The force with which caoutchone untwists itself, when it has been twisted, has caused it to be employed in the mechanism of window-blinds.

A thin tube of India-rubber, of tolerably large diameter,

haft flattende at the hottom, to that it terminates in two date edges, which the elasticity keep in just position, flat edges, which the elasticity keep in just position, feetly supersels eviliancy laydranic values. The elegewish clare in constant below oney but personate of inty which are in constant below oney but personate of inty below. The chalcidge of full-in-labels is made as ring of it applicable for unifug con-tens or earther indees one below. The chalcidge of full-in-labels is made as ring of it applicable for unifug con-tens or earther indees one below. The chalcidge of full-in-labels is made as ring of it applicable for unifug con-tens or earther indees one which is the contract of the contract of the contract of the pipes to able one within another, presents a method of the conveyages of water in large towns.

A thin hollow sphere of India-rubber, terminating in an appendage in the form of a tube, introduced in a theceld state into an opening arcidentally made in gas or water-pipes, may by means of being expanded by indiation, be used to press upon the sides of these pipes, and thus present a method of occlasion of great simplicity, which will allow these pipes, which it has become necessary to replace, to be removed without inconvenience.

Mr. Isoland Extract Hodger has lately proposed to make use of cond of voluntation Higherather as a messo of reudering its elasticity servicesible in raising weights, and has offered by the use of different cords, which are to be stretched necessively, and then released all at once, with increased force. This invention is any yet to use for any one to be able to judge of it by experiments on a large seale. The source of power in this application of ladia-rubber presents a curious physical problem, as it is in videatly only in the property of the control of the con-

mechanical sorce. The substitution of valcanized India-rubher for metallic springs in the buffers of locomotive-engines, is one of great service. The masses of vulcanized India-rubber deaden the shocks with an ease which may cause this employment of canntchout to be considered as one of the nost useful to which it has been applied up to the present day.

A certain number of the novel applications are due to Messay, Charles Mackinotsh and Co. The ability which they have displayed in the manufacture of canethone has afforded to other inventors of these new applications the measus of patting their ideas into practice. Without the discovery of vulcanized India-rubber they could, moreover, never have been carried out. The Jury, therefore, in order to recompense the considerable services rendered in the employment of caoutehous by Messay. Mackintosh, Hancock, and their other partners, have awarded a Council Medal to the firm of Charles Mackintosh tools and Co.

 CHARLES GOODYEAR, Newhaven, Connecticut, United States (378, p. 1461). Mr. Charles Goodyear, of Newhaven, Connecticut, exhibits a very remarkable collection of productions in caoutchoue, manufactured in the United States in numerous manufactories by processes which are his own, and for which he has patents in his which are his own, and nor which he has percuise a moven country. The eighteen to twenty licenses granted by Mr. Goodyear for the use of his processes, and a capital of more than 2,000,000f, expended in the establishment of his manufactories, attest the importance which this branch of manufacture has attained in America. Mr. Goodyear exhibits in his collection a number of articles of the same kind as those nanufactured in Europe, whether with vulcanized India-rubber alone, as springs for waggons, elastic maps, balloons, sponge-bags, tobacco pouches, or with India-rubber covered upon one or both sides with stuffs of various natures, or uniting together two fabrics by a coating of waterproof material according to the processes originally employed by Mr. Mackintosh In the manufacture of air-cushious and mattresses, and especially in that of waterproof garments, more strength and greater thickness are to be remarked than in the articles manufactured in Europe, but with less finish in the workmanship and less elegance in the forms. It may be thus clearly seen that these articles, which are as yet only used in Europe as objects of luxury or of more refused comfort, have already in America entered into general consumption, and become, by their price, within the reach of the least opnient classes, to the tastes and wants of which the manufacturer has been compelled to accommodate himself. Providence has given us in caoutchoue a species of natural leather, plastic and imperme-ulde to water, and which is especially adapted to increase the well-being of that class of workmen, the nature of the well-being of that case of workmen, the nature of whose occupations compels them to encounter the incle-mency of the atmosphere. In the manufacture of these articles it is, therefore, of importance that the resources and requirements of individuals of this class should be kept in view. Besides these articles common to the mannfactures of America and of Europe, Mr. Charles Goodyear exhibits a series of productions which have interested the Jury in a high degree by their novelty, and which promise to become the object of numerous and novel applications.

The ordinary deuts overed with India-rubber present as great resistance when they are pulled in the direction of the flows, but they have vith great fieldity if they are mainted by the waving. This is an inconvenience which might stand in the way of mose of their uses, and against the waving. This is an inconvenience which might stand in the way of mose of their uses, and against fidentiation of a species of said of feel; which he mann-festure by machines of his own invention. This staff, therefore the said of the said consistency as prefer of regard felt obtained by mechanical means, which can written the said direction.

By covering these stuffs, formed of three, four, and even for and at costs of catagode threes, this a thin term for an at costs of catagode threes, while a thin to the interview of the filters, will further increase to the contract of the filters, will further increase tracellar starties of a species of retaining and waterpoord paper—a real vegetable purchasent of which he has been completely associated to the contract of the contract of the same analysis and the contract of the contract of the contract to serve up very well adapted for primary and the contract to the contract of the contract of the same analysis and contract of the contract of the contract of the place and calculate sphere of darge distantance of the contract of the contract of the contract property. By covering with this waterpoor folices a species of weeken woulding in the new canaded in profor their learness of prices, and expectably for their lights, tool. By covering this name matter, described eithering with corons fibries, he has been after to expelye it in the contract of
With this kind of complex stuff are made, at the present day in the United States, the apparatas for life-boats, the insubmerable boats, as well as those postocoss inflated with air, which were first constructed by Mr. Armstrong, of New York, and which, by simplifying certain equipage which the armies were compelled to carry with them, have already readered service to the United States in their

war with Menico.

It is well known that the application of India-rabber to the manufacture of above was in a more expected to the manufacture of above was in a more expected property of the state of the st

Mr. Goodyne has, in addition to those, exhibited a feeperiment of a lith species of also, or entirely new periment of a lith species of also, or entirely new periment through with an infainty of very small below. These shows, which by reason of the revisions of the form of the below of the species of the below of in regard in external materiar, while they nevertheloss in regard in external materiar, while they nevertheloss in regard in external materiar, while they nevertheloss principation. This condensation of the mainter of propiration is a serious inconvenience laborate at the proceolinary Machinianshies. These inconveniences may be entirely memorial, without the administrative longcolinary Machinianshies. These inconveniences may be entirely memorial, without the administrative longcolinary Machinianshies. These inconveniences may be entirely memorial, without the administrative longture of the speciments of the material of the contractive of the specimens of the specimens of the contractive of the specimens of the specimens of the specimens of the material of the specimens
In the multiplicity of objects to which constituous has been intely applied, it was proper that childhood should have its sfare. Mr. Charles Goodysar has conserved the constitution of the constitution of the constitution of the constitution of the constitution valuation of inclinabler, by heating it in moulds. He is thus enabled to produce of the constitution of the constitution of the constitution of shocks, and moisture, and which, while contribution to the piccauses of childhood, only deprive it of that

It has been alreedy seen how Mr. Charles Goodynes had in America, since the year 1844, worked is canochouse, to which the addition of enlightur nod carbonate of lead had imported the generate clasticity. By combate office contribute with nightur and majoravia he has latterly would be a supported by the support of the su

differently coloured masses, he has been able to produce shaded specimens, which are beginning to be substituted for horn in the manufacture of buttons, and of handles for penknives and table-knives, and which rolled out into thin sheets are adapted to take the place of wood in the venecring of furniture. Although this invention is as yet a recent one, there is good reason to suppose that it will very soon bear its fruits. By varying the preparations of sulphur and magnesin combined with the enoutchooe, it has already been made to attain different degrees of consistence; and probably in a short time industry will be able to discover in this substance, so indestructible, all the degrees of cobesion that solid matter exhibits in its most varied states. This enumeration of the articles shown by Mr. Goodyear at the Great Exhibition, incomplete though it is, nevertheless suffices to indicate the extent of the services which he has rendered to the art of applying India-rubber to the most diversified uses, and justifies the high distinction he has obtained, as well as the award which the Jury make to him of a Council Medal.

8 3. Prize Medale.

1. Time Harwama Reman Coreasy, Colchester, Connecticat, Cuisie Sasare (194, U. S.), 14(3). The manner-entral Cuisie Sasare (194, U. S.), 14(3). The manner control of the control of th

Company.

2 Little Britain, Leedon (75, 7, 23).

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invention with a Prize Medal, 3. S. C. MOULTON, New York (534). Mr. Monlton exhibits some articles in India-rubber prepared in England, principally by Mr. Goodyear's processes, and which bave appeared to the Jury to be well made. They have particularly noticed some waterproof fabrics which Mr. Moulton exhibits as having been produced by machinery and without dissolving the esoutchout, a method, the result of which is to obtain waterproof fabrics entirely free from the disagreeable smell which they often pos Amongst the very numerons objects comprised in Mr. Moulton's collection, the Jury bave especially noticed some balf elogs, the same as those shown in the American Exhibition, but made with greater eleganor, and which, being easy to put on with a common shoe, easy to take off, and of a tolerably low price, seem to exhibit the form in which these articles (the utility of which is every day better appreciated) may be best eatended in Europe, and more generally employed there. The Jury have also noticed some articles of saddlery which exhibit a new application of valcanized India-rubber, in superseding the leather usually employed in their manufacture. The Jury award a Prize Medal to the exemble of Mr. Moniton's manufactures.

succeeded in impuring to it the rigidity and handless of wood, but of a plant wood, and therefore succeptified Sustrum, Paris (France, St.6), p. 1221). India-subbles, Sustrum, Paris (France, St.6),

therefore, what great advantage would arise in uniting together two substances, the qualities which should in some degree complete each other. Amongst the different articles of Messrs, Grossmann and Wagner's manufacture which have attracted the notice of the Jury, they have remarked some shoes to which these manufacturers have realized this union. These shoes, the soles of which are of leather, possess greater durability than those which are entirely made of India-rubber, and have not the defect of slipping upon the payement. The Jury have rewarded the manufacture of Messrs. Gressmann and Wagner, and pecially the perfection to which they have brought India-rubber shoes, with a Prize Medal,

5. THOMAS FORSTER, Strentham, Surrey (178, p. 787). Mr. Forster exhibits some waterproof garments of good make. These garments, in which the especial object has been to render them more accessible to the less opulent classes, are produced by means of the combination of ordinary enoutchone with certain resignant substances, which are moreover added to saitable quantities so as not to interfere with the suppleness or the flexibility of the fabric. Mr. Forster produces articles in the coloured paste of India-rubber, which he was the first to bring into use. The good quality of these fabrics made by Mr. Forster has been proved by long use. The Jury award him a Prize Medal

Jury award from a prize accusa, 6. Christopher Nickels and Co., 13 Goldsmith Street, Cheapside, Loudon (78, p. 783). The manufacture of clastic tissues constitutes one of the most important uses of India-rubber. Messrs. C, Nickels and Co, devote themselves with much success to this special numn-They exhibit a collection of articles of this description proceeding from their factories, which show of how great a variety this species of weaving is sus-ecptible. The clastic tissue serves oo longer solely eeptine. The cluster tissue serven do longer solety for the manufacture of garters, braces, and beha; it is applied to the maoufacture of gloves, sandals, elastic cords, and other articles of the same kind, of which Messra. C. Nickels and Co.'s exhibition contains a complete collection. The Jury award them a Prize Medal.
7. M. LEUNENSCHLOSS, Rouen (313, p. 1192). The manufacture of clastic tissues, which had its hirth in

France, has received in that country a great degree of development. It comprises the ouncrous fabrics of this description of productions, a few of which are represented at the Great Exhibition. The Jury have especially noticed the productions of this nature which are exhibited by M. Leunenschloss, and which are worthy of the reputation which this manufacturer has described obtained. He is moreover the author of several ingenions inventions, which have rendered this manufacture more easy and regular. The productions which he exhibits in braces and laces for tailors' and ladies' use, are remarkable for their good quality and their elegance. The Jury award a Prize Medal to M. Lennenschloss.

8. Messes. Holtraing and Höffken, Barmeo (1 Zellv. 652, p. 1086). The collection of braces exhibited by this firm presents a series of articles, jo which the threads of elastic tissue are employed for one of their most useful applications. The workmanship and appearance of these articles also entitle them to commendation.

§ 4. Honourable Mention,

I. Messrs. Bunn and Co. (77, p. 783). A very extensive and interesting collection of specimens of the various descriptions of India-rubber, more especially from Para. Also specimens of gutta perelia, and examples of the processes to which these substances are submitted in their preparation for application in the arts.

2. W. H. Beake (Class IV., 115, p. 204*). Speci-

mens of India-rubber weh manufactures of various kinds. These consist of tissues of alpaca, mohair, and Genappe hraids, covered with caoutehoue on one side, and having a peculiarly light and elegant character. and naving a peculiarry light and elegant ensineer. The exhibition comprises also specimens of "mineralized India-rubber," having the same properties as vulcanized India-rubber, and prepared with the object of avoiding the smell of the sulphur used in its preparation,

rubber, in a style which enabled the makers to sell them at a low cost. This is one of the establishments in America registered under Mr. Goodyear's patent.

4. J. C. Cosurso, United Kingdom (82, p. 783).

A variety of articles of dress made of various fabrics, and rendered waterproof by eaoutehous. The articles included coats which might be worn with either side outwards, also ladies' capes and hoods,

R. E. Hoisers, United Kingdom (72, p. 782).
 Various applications of the elastic property of vulcimized India-rubber, as in mechanical purchases, guns,

The Reporter would also call attention to the caoatchoic minufactures exhibited by Mr. J. Honsey, of

London, 188, p. 787, which cootnined several very elegant specimens of goods manufactured from vulcanized Indiarubber, as also fabries coated with enoutehoue of various colours, in which the coloors were mixed with the eaoutchone and not subsequently applied, so as to pre-veot their being removed by wear or the application of The ladies' and children's boots and shoes exhibited by

Mrs. TALLEAMAN (70, p. 782) afford an instance of a new and useful application of caoutchouc.

§ 5. Remaining Exhibitors, Under this head the Reporter has endeavoured to give a

list of the names of exhibitors of various articles made of eaontehone, or into which it enters, whether exhibited in Class XXVIII., or belonging to some other, J. SANDERS, 11 Fore Street, Cripplegate (73, p. 782).

India-rubber waterproof umbrella ten J. L. HANCOCK, Goswell Mews, Goswell Road (83, p. 783). Portable India-rubber shower-bath, hose-reel.

and infinted air-tight bed chair. S. MATTHEWS, 58 Charing Cross (81, p. 783). Large-

sized Iodia-rubber portable boat, and India-rubber cloak boat, designed by Licut. Halkett, R.N. Iodia-rubber portoble bath. C. JOUGERY, 8 Maddox Street, Hanover Square (Class XX., 40, p. 579). Self-adjusting white watered corset, Elastic corset belt for invalids. India-rabber tissue, of

French mannfacture J. S. Hall, 308 Regent Street (Class XXVIII., 184,

p. 787). Improved elastic over-shoes, with leather soles and plush heels, to prevent slipping. TURNER, Orehard Place, East India Docks (223, p. 142). Coal and its products. Products from caout-

chone and wood J. OUTRIDGE (29, p. 980). Choutchone from River Demerara, near the Falls. Milk from the cow-tree, from

River Demerara, . HUET, Rouch (Seine-Inférieure), and 12 and 14 Rue du Cimetière, St. Nicholas, Paris (270, p. 1189). Indiarubber articles, braces, and twists,

J. D. Leblond, Carver, 5 Rue St. Louis (an Marais) Paris (1301, p. 1239). Patent India-rubber male and female figures for artists. C. L. DUCCUURTIONS, Caontchoue Stocking Manufac-turer, 4 Rue Fontaine au Roi, Paris (1199, p. 1235).

Machine-made enoutchone stockings and belts.

BRIQUET and PERRIER, Tissue Manufacturers, 22 Roe Jeno Robert, Paris (1116, p. 1232). Elastic caontehone tissues for braces, garters, &c., and specimens of that manufacture.

- RABOURDIN, Manufacturer, 88 Rne des Marais St Martin, Paris (1416, p. 1244). Braces; garters; silk and lodia-rubber fabric. — Leakhr, St. Petersburg (Russia, 311, p. 1376). Clogs

in India-rubber, for ladies and geotlemen. Waterproof morocco pillow. H. H. Dav, New York (308, p. 1453), Iodia-rubber

J. J. ROMPLES, Erfurt (781, p. 1094). India-rubber elastic braces and watch-guards. Silk and half-silk shoe stuffs, mixed with India-rubber: shoes made of the same material.

ROOYACKERS and Son, Rotterdam, Makers (52, p. 1145). 3. Messrs, Church and Chitteness, United States Boots; varnished boots, the leg without scam, A Chinese (392, p. 1461). A collection of shoes made of India-boot. Boots of vulcanized caoutchoug. Louisa Piece, Goneva (233, p. 1281). Caontchoue kait stockings for invalids. J. Vis. (Louischoux Maonfacturer, 161 Rue St. Jacques, paris (729, p. 1213). Caontchoue tissues abstire stock.

J. Vir., Caoutehous Maonfacturer, 161 Rue St. Jacques, Paris (726, p. 1213). Caoutehous tissues, clastic stockings, belts, knee-caps, &c.

SECTION B.—MANUFACTURES FROM GUTTA PERCHA.

The substance designated by the same of gutts periods promounced periods, is the constitutes, actioners of representative periods, is the constitutes, actioners of a great master of the properties which characteries foliates are also as the constitute of the being spelled as provided as seen before its soil adopted. Gutts percha process as great an independent of the constitutes and wood; it is explicit of level profitted by best and of feather and wood; it is explicit of level profitted by best and wood; it is explicit of level profitted by best and wood; it is explicit of level profitted and wood; it is explicit the large and the constitution of the level profitted and wood; it is the shaped beautiful. The profitted is much level profitted than total level profitted in much level quantities than total levels and the profitted in much level quantities than total levels and the profitted in much level quantities than total levels and the profitted in much level quantities than total levels and the profitted in much level quantities than total levels and the profitted in the profitt

Whilst the plants which farmish caontchouc abound in the whole of the territorial zone which extends between the tropics, the Isonandra outta, belonging to the natural order Sapotaces, is the only tree which yields gutta It grows scarcely anywhere except in certain parts of the Malayan Archipelago, and up to the present time has been almost exclusively obtained from Singapore. It was brought for the first time into Eugland, in the days of Tradescant, as a curious product, under the name of Mazer wood, and subsequently it was frequently brought from China and other parts of the East, under the name of India-rubber, in the form of elastic whips, sticks, &c. In 1843, Doctors D'Almeida and W. Montgomery drew particular attention to it, together with its various singular properties, its easy munipulation, and the ases for which the Malays employed it. The most common employment of it was for whips: and it was by the intro-duction of a horse-whip made of this substance that its existence was for the first time known in Europe. The exhibition of the products of the East Iodies, shown by the Honourable East India Company, proves that the natives of the conotry in which the Isosandra gutta grows, knew also how to appropriate it to the maunfacture of different kinds of vases, and that Enropean industry has little more to do than to imitate their processes.

The importation of gatts percha into England, where the employment of this substance first drew attention, the employment of this substance first drew attention, the employment of the substance for the hore A,000,000 lks; and during the last three years the importation has assemented to a much larger quantity, and one which begins to cause some apprehension as to offer the end of the core of the property of the core of the

During the first few years of the employment of guts percha, it was the ensuine to end toom the tree for the purpose of chaining the pulse, which, left to itself, very off its own acrost. There is reason to hope that European industry will soon be embarked in the entitivation of this product, and that the Value (which is the name that the product, and that the Value (which is the name that the multiplied by means of a regular culture, naturalized in other countries that those to which it is indigenous, and worked by regular incisions, which will only take from volved by regular incisions, which will only take from volved by the terms of a regular culture, as the protor of the control of the control of the control of the volved by the terms of a regular culture, naturalized in volved by regular incisions, which will only take from volved by the terms of the relation of the control of the volved products of the means of furnishing at a low price of the means of the regular culture of the control of the control of the volved products of the means of furnishing at a low price of the means of the control of the control of the control of the control of the volved products of the control of t

a substance which is destined to render notable services to industrial and domestic economy.

The gutta percha, which arrives in Europe in the form of Innips of some pounds weight, is far from being pure. The natives of the Malayan Archipelage ninke no scruple of introducing into it stones, earth, &c.; the presence of which in the interior of these blocks renders a purification is dispensable, which purification, however, is capable of being attained without much manipulation.

Ever since its first introduction into Enrope, gutta per cha has, in fact, found everything provided for the purpose of elemsing it, and has been found expanle of being worked by the processes and instruments which are employed in the purification of India-rubber. At the present day the block of gutta pereba, ent ioto slices by a strong machine, is softened by means of bot water, divided and torn into shreds by the same machine that is used for India-rubber, which serves to kaead the gutta percha in such a manner that the crushed stones and earth may be separated from it on being diluted in the water; it is then dried, and submitted, by means of a owerful machine, to a mustication similar to that which ludia-rubber is made to undergo; and when, after some hours of kneading, the mass has become homogeneous and sufficiently softened, it is drawn by the drawing-mill into cylindrical cords, into tubes of various diameters, or it is spread out by means of the flattening muchine (as is done with lead) into sheets of various thicknesses, which are finally divided into bands, from which are cut out with a upping tool the pieces which are required to be employed in different uses.

Whatever difficulty monotherarer may have had in generating paths produced in the he make of they have presenting paths predicted in the he make of they have present paths and the second control and the second discovery of sec to which it is adapted; and in the space of a few years have delicerted masterias and imperioal and principal used of paths predix as to insperiod; he and principal used points predix as to insperiod; he and principal used points predix as to insperiod; he of non-manter. This is very nearly the only use to which or flower than the prediction of the prediction of the control of the prediction of the been flund to result from this employment of grant and control of the prediction of the correct produced the prediction of the prediction of the prediction of the correct prediction of the pred

Indestructible by water, and at the same time a bad conductor of electricity, gutta pereha has been found available for enclosing the metallic wirse employed is the electric telegraph; and the use of this substance may certainly claim its share in the saccess of the subnarine telegraph, which has just brought London and Paris within a few minnes of each other.

It may be conceived to what a variety of forms a substance can be turned which, becoming not five without adhering at the temperature of boiling water, regains at the ordinary temperature the slight clasticity and the consistence of bether. Thus agriculturities and manities that the slight classifier is a substantial of the inchests of all listed, light, inclustrativithe, and capable of being mended by a slight degree of heat and pressure when they are won cost.

It is especially in the mountercure of articles for maritime me that gutta percha, resisting as it does the action of water, and especially of sail water, appears to action of water, and especially of sail water, appears to the sail of the special percha as useful part in a waterpool gratrates. If India-rabber has been advantageously combined with leather, it may be consciented that the combination of gutta percha with wood, of which Mr. Forster has offer perchair arthraptes.

The decorative art has also taken advantage of the plastic properties of gutta pereha. All those different articles of furniture, the prices of which are so much enhanced by enrying, are capable of being reproduced by means of presance, and thus multiplied at a low price. Writing-tables, work-baskets, &c., can be produced in gutta percha, and thus be made to combine the threefold advantage of lowness of price, elegance of form, and absence of fragility. In the large manufactory which is more especially devoted to the employment of gutta percha, are made every day a great quantity of mouldings, friezes, panels, leaves, &c., and of articles of every de-scription. These, combined by the decorator, covered with gilding (which gutta percha takes in perfection), are, in the manufacture of picture-frames, and in the decoration of furniture, capable of superseding the carving upon wood, which is so costly, nr papier-maché and carton-pierre, which present the defect of great fragility. On going through the Exhibition of Messrs. Thom and Co., as well as that of the Gutta Percha Company, we may judge of the extent which the employment of this substance promises to the decorative art by the imitation of carving upon oak, rosewood, &c. Bronze articles have also been reproduced in a felicitous manner; and the elearness of the edges and the purity of the forms make it easy to understand how gutta percha has been found capable of being used for making galvano-plastic moulds, and how some experiments have begun to be tried for the purpose of substituting this material in the process of stereotyping, for the metal with which at the present day the pages of our illustrated books are multiplied. This employment of mutta percha for the reproduction, by oyment of gutta percha for the reproduction, by pressure, of objects for interior decoration cannot but be widely extended, enabling the many toenjoy those graceful and elegant forms which, as long as they could not be reproduced in a material indestructible by water and free from fragility, could only be brought within the reach of the few.

Quite recently, by the exertions of Mr. Truman, a lump of coloured gutta percha, moulded into the form of a juw-bone, has been found engable of holding together artificial teeth, and thus advantageously super-citing those settings in gold, which were so costly, and the absolute rigidity of which, moreover, presented much inconvenience. The alight but sensible elasticity possessed by gutta percha renders it, on the courtary, very well adapted

to this use.

There is another use to which the excritions of II. Mapple have rendered ratin percha applicable. Solve of this abstraces, flated on this upper benthers by memor of are not affected by water, which will last a long time, are very simple and commonical in their make, the roles of the property of the solvent of the solvent of the they conse oft, and can be made to serve mer by memor of a freak hesseling up when they have become unit for which cannot full to become extended in such a present manner as to resder nonlable service to health. Gatta with mechanisms of the solvent of the solvent of the with mechanisms of the solvent of the solvent of the with mechanisms of the solvent of the solvent of the with mechanisms of the solvent of the solvent of the with mechanisms of the solvent of the solvent of the with mechanisms of the solvent of the solvent of the with mechanisms of the solvent of the solvent of the with mechanisms of the solvent of the solvent of the with mechanisms of the solvent of the s

This solution of gutta percha in the oil of tar, like that of coauthouse, which, by its evaporation, leaves the econtobouse uninjured, can be unde use of to obtain sheets of gutta percha of extreme thinness, which have already begun to be used in surgery, as well as in the preparation of waterproof papers and cloths. It is more especially to the manufacture of chemical

are all for the preservation are amongsus of rectional real and a period of the preservation of the preser

§ 2. Council Medal.

THE GUYTA PERCHA COMPANY, Wharf Road, City percha napplications of this substance have been invested by the Gutta Percha Company; and the great development which this Company has given to this branch of industry has continued to the control of th

realized all that could be hoped from the employment of this substance. The exhibition also of specimions was made and the control of the control of the control of the mended that one of its great revards should record their scene of exercision which have in a few years shown to striking a namner the extent to which this new unbatance to the control of the control

§ 3. Prize Medal.

This Wore Has Geven Dearna Convany (26), p. 21). In the distribution of the swarfed of which patts perha is the object, the Worl Ham Grita Perha is the object, the Worl Ham Grita Perha in the Convance of the Jury the novived objects mountderword in gettin percha, in which they have made a convention of the convention

§ 4. Honourable Mention.

J. Martin Canison, Paris (France, 786, p. 1218). The Jury think it right to record their sense of the merit of M. Cabirol's application of gutta percha to the manufacture of sargical instruments and apparatus, although the consideration of the merit of the particular object belongs to another Class.

§ 5. Other Contributors.

F. WHISHAM, 9 John Street, Adelphi, Designer and Inventor (Class X., 419, p. 454). Telekerephons, or speaking relegraph. Gutta percha telephone, Ballawy and the street of
THE GETTA PERCIA CONTANT, Pat., 18 Wharf Road, City Road (Class XXVI), 21, p. 73.13. Tables and pier glass in gutta percha crement, in the natural colour. F. Thoursway, Westfield Terrace, Sheffield, Investor and Manufacturer (Class XXII, 500, p. 750). Pattern and Manufacturer (Class XXII, 500, p. 750). Pattern THOSS and Co., 98 New Bond Street, Designer and Manufacturer (Class XXVI, 1, p. 730). Gutta percha manufacture, Decentious; granded; various precimen

and patterns of frames, brackets, mouldings, &c.

T. Walker, I Conduit Street, Regent Street, Inventor and Manufacturer (Class XXVIII, 87, p. 784). Gutta percha hat-bodies, Ventilated velvet hats, &c. Hat-case, answering for a life-buoy fleat, foot-bath, &c.

Miss Moonson, Keasington (Class XXIX., 253, p. 802). Gutta percha models. W. T. Litry, Newington (Class XXIX., 253a, p. 803). "London Street Seenes," "May Day," &c., modelled (by the hand) from gutta percha, by Miss E. Moorson, of Kensington, aged 13.

of Kensington, aged 13.
F. Diszi, Vicuna, Manufacturer (348, p. 1024). Gutta percha articles, including sticks, riding-whips, snuff-boxes, goblets, flower-pots, &c.

goblets, flower-pots, &c.

T. Wheeless, Toronto (353, p. 969). Medallion in gutta percha of the Earl of Elgin, Governor-General of Canada.

SECTION C .- MANUPACTURE FROM IVORY, TORTOISESHEAL, SHELLS, BONE, WHALEBONE, HORN, BRISTLIN, &C., CORE, COTOA-NET FIRBE, VEGETABLE IVORY, &C.,

The articles manufactured from the above substances, and not included in other sections, are not numerous, but are of a very miscellaneous character; it is therefore, almost impossible to give any connected account of them, Many of these materials were exhibited us raw products in Class IV., as ivery, whalebone, curk, &c., and to the Report on this section the reader is referred for their natural history. Such substances as ivory, bone, and horn enter into the manufacture of many articles of use which have been referred to in the Reports on previous sections. The articles exhibited in this section will be referred to under each separate substance mentioned, and as near as possible under the heads before employed,

I. Animal Substances included in Section C. 1. Ivory.

This substance, obtained chiefly from the tusks of the elephant, of which a great variety were exhibited in Class IV., formed a conspicuous object in many parts of the Exhibition. Many of the articles farmed of ivory which were exhibited displayed those qualities of taste and design which, although some were intended for use, removed them from the class which contemplated objects of utility, and placed them for examination under the Jury of the Fine Arts. Such were many of the specimens of ivory carving exhibited by the Hon. East India Company. grote-que carvings of the Chinese, as well as busts and statues in ivory, were all thus placed beyond the jurisdle-tion of the Jury of Class XXVIII. The principal appli-cations in ivory brought before this Class were delicate veneers, combs, and work inlaid with ivory.

Prize Medals.

THOMAS STAIGHT, 12 Walbrook, Manufacturer (Class 1V., 109, p. 203*). Specimens of turning and carving in ivory. Many of the objects exhibited were beautifully executed. A set of ivory chessmen, representing Crusuders, was especially deserving of notice. There were also specimens of carving in pearl deserving of commen-

STAIGHT, D. and Sons (Class XXIX., 252, p. 802). Specimens of ivory veneering and other manufactures in

ivory of a useful kind

J. PRATT and Co., Meriden, Connecticut, United States, Inventor (567, p. 1469). This Company exhibited speci-mens of ivery veneer cut by machinery. These veneers were exceedingly delicate, une piece alone, 12 inches in width and 40 feet in length, having been sawn from a single tusk. The machine by which this veneer was produced was an invention of the exhibitors

Jonn Fenn, New York, United States, Manufacturer 111, p. 1440). An exhibition of several articles nanufactured from ivory. The workmanship was very superior. The cumb exhibited cantained 150 teeth in the

Noel, sen., 33 Rue de Lanery, Mannfacturer (France 666, p. 1210). A large collection of well-manufactured ivory combs with hollow round teeth,

August Hanenicht (Victor, 376, p. 1029), Amongst Accept Harencert (Venua, 376, p. 1029). Amongst a number of articles for fitting pr dessing-cases and for the toilet-table were some beautiful ivery cond. Leuwin Gersana and Co., Weishadcen, Nassan (13, p. 1132). A cup in ivory, with figures in alto and lesso relieva, the subject being Christ blessing the Children;

also brooches and bracelets in ivory, carved with much taste LOUIS JOSEPH MASSUE, 3 Ruo Aumaire, Paris, Manu-

facturer (615, p. 1207). A large assortment of well-manufactured ivory combs

— Wolf, 2 Rue St. Appoline, Paris (744, p. 1216).
Specimens of ivory curved in various forms. HOLTZAPIFEL and Co., 64 Charing Cross, and 127 Long

Aere, Manufacturers (Class VI., 232, p. 295). The Jury had their attention called to the beautiful specimens of lvory turning exhibited by this Company in the department devoted to the exhibition of machinery, where they were exhibiting their turning apparatus. They were specimens of plain and ornamental turning, but some of a very superior kind, H. WILLIAMS, Dublin, Inventor (163, p. 787). Eccentric

ivory turning without eccentric chuck. C. Shaw, Mount Street, Dublin, Producer (164, p. 787).

Specimens of mechanical sculpture in ivory, JOHN MAUNDER, Launceston, Cornwall (28, p. 780). A miniature dessert set turned in ivory.

In determining on the prizes in ivory work the Jury had some difficulty in ascertaining whether particular sp eimens belonged to their department, especially in the case of carving, in which case so many of the objects came under the Class of Fine Arts. Other exhibitors in ivory in Class XXVIII., to whom prizes were not awarded, were as follows :-Peter Jourson, Wigan, Manufacturer (15, p. 779).

collection of funcy articles, many of which are turned in

E. CRUNDACK, York, Proprietor and Manufacturer (18, 779). A collection of ivory combs made by hand, Walter Trueffer, 1 New Bond Street (65, p. 782). Carved ivory brushes and combs.

OSCAR SMITH, 21 King Street, Covent Garden, Manufacturer (95, p. 784). Specimens of ivory turning and carsing. G. GARRETT, 1 Victoria Terrace, Woodhridge Road,

Ipswich, Manufacturer (141, p. 786). Ornamental snuff-boxes turned in ivory. W. D. HEMPHILL, Clonmel, Ireland, Designer and Ma-

nafacturer (158, p. 786). A variety of specimens of turned and carved ivory Joun Francis Kain, 27 Brownlow Road, Dalston, Inventor and Manufacturer (45, p. 780). A full-sized hird cage made principally of ivory.

2. British Ivoru.

This substance was exhibited by Mr. HENRY BROWN, of 187 Whitechapel Road (49, p. 780), and on account of its being likely to turn out an important and valuable discavery, and in many cases calculated to supersede real ivory, the Jury awarded a Prize Medal to the inventor.

3, Tortoiseshell and Horn,

Tortoiseshell, which is abtained from several species of the reptilian order Testudinata, but the best specimens more especially from the hawkbill turtle (Testudo imbricuta), cuters into the composition of many articles found in other classes of the Exhibition. It is employed in the manufacture of workboxes, clock-cases, tea-caddies, cabinets, card-cases, spectacle-frames, and other things, It in also employed in the manufacture of combs, and these articles of use were exhibited in Class XXVIII. For whatever purposes employed, the tortoiseshell is prepared The part of the tortoise called the shell in the same way. exists as a layer of cellular gelatinous matter on the surface of the external skeleton. This substance is separated from the osseous foundation on which it rests, by the application of heat. For this purpose the whole shell of the tortoise is exposed to the action of heat till the epi dermal plates start from the bone beneath, and the final separation is effected by a long knife. The tortoiseshell, which is represented by the epidermis in other animals, is mainly composed of a substance resembling gelatine in its chemical character, and a small quantity of inorganio matter. On examination under the microscope it is found to consist of cells, which are naturally compressed, but may be made to assume a spherical form under the inflaence of a solution of potash and heat. On the application of heat the tortoisesbell becomes softened, and in this state may be compressed into any form required for manufacture. Sheets are thus prepared which, when cooled and cleansed, are submitted to machinery, by which they are ent into combs or other articles of use. No new or remarkable application of this substance came under the natice of the Jury. The collection of objects, however, exhibited by RICHARD PETERS and Son, of Birmingham (131, p. 786), and referred to another class, afforded several instances of the uses of tortoiseshell,

Hore is employed for all the purposes of tortoiseshell, and its much greater elempness gives it a more extended application. Knife-handles, buttons, nubrella-handles, whiptops, bell-pulls, drawer-knubs, sides of lanterns, besides all kinds of combs, are some of the purposes to which this useful substance is applied. In manufactures from horn that substance is chiefly obtained from the ox, although the tips, and even the whole horns of other naimals, as of the ram, the antelope, the buffalo, the deer, are employed for special purposes. Among the imports into Liverpool for special purposes. Among in 1850 were the following:-

Deer horns	_	_	250	
Buffalo horns -	-	-	200	
Butfido tips	-	-	120	
Ox and cow horns	-	-	700	

The latter were brought principally from South America, where they are obtained from the wild oxen of the Pampas Horn, like tortoiseshell, is composed of a gelatinous matter with inorganic salts. Under the microscope it is seen to he composed of cells, which indicate its epidermal character, in common with the matter of which the nails, claws, hoofs, and hair of animals is composed. The hurn which is used is developed around a vascular substance, which projects into the interior of the horn, and which is removed by steeping in water. In its preparation for manufacture, horu is exposed first to the action of boiling water, then of heat, under which it becomes softened, and may in proper moulds be made to assume almost any form. One of the best collections of articles in horn-work exhihited in the Crystal Pulace was that sent by the Sultan

or TCRKET, and the Jury accordingly awarded to his Highness a Prize Medal.

The following Prize Medals were also awarded for combs and articles of ornament manufactured in both tortoise-

shell and horn. E. CRUNNACK, York, Proprietor and Manufacturer (18, p. 779). Turtoiseshell and horn dressing-combs. FAUVELLE-DELABARE, 10 Boulevard Bonne Nonvelle. Paris (France, 202, p. 1183). Tortoiseshell and huffalo-

PHILLY, Passage Choiseul, Paris (France, 680, p. 1211). Bracelets, brooches, and ornaments in tortoiseshel

Poinsionon, --, 23 Rue Neuve St. Martin, Paris (France, Polisticoso, "23 net centre of control state of polistics
4. Mother-of-Pearl.

An extensive assortment of mother-of-pearl ornaments, An extensive assortment of mother-of-pearl ornaments, consisting of medallions, pen-holders, needle-cases, thim-hles, &c., exhibited by J. Schwarz, of Vieuns (684, p. 1042), and a collection of black and white pearl buttom by J. Charwis and Soxs (Class XXII., 256, pp. 625, 625), of Birmingbara, were the only articles brought under the notice of the Jury of this Class, and Prize Medals were awarded to each for the superior workmanship they exhibited,

5. Shells.

But few examples of the use of shells for cameos were seen in the Exhibition. A Prize was awarded to a collection exhibited by N. JULIN, of Belgium (383, p. 1163). Shells are frequently worked into the form of baskets, vases, &c., and are made to imitate flowers. This kind of work forms a considerable branch of industry in the West India Islands, in the Channel Islands, and in the Mauritius. Prizes were awarded for this kind of industry to

the following:-Mesers. Balketeld and Co. (Mauritius, 5, p. 956) The Misses Grieto (Bahannas, p. 976). Griet, The Countess of (Marritius, 1, p. 956). Miss Nicolla (Bahannas, p. 976).

In the collection of the Honourable East India Comny were interesting specimens of bracelets and necklaces from Dacea. The construction of these ornamental objects employs a large number of persons. They are made from transvene slices of the Turbinellus scolinus, and are often ornamented with metallic studs, or carved with various

6. Whalebone.

This substance is extensively employed in the arts, and was exhibited in its raw state in Class IV., and in various other Classes. Its manufacture for the purpose of covering whips, telescopes, and other instruments, and in thin strips for plait used in making bunnets and other articles of dress and use, came before the Jury of Class XXVIII. and the fullowing Exhibitors were awarded Prize Me-

II. Horan (Class IV., 103, pp. 201*, 202*). Westall and Co. (Class IV., 104, p. 202*).

7. Bristles.

Brushes of all kinds made from bristles were rewarded in the collections by the following Exhibitors:-

Prize Medals.

H. M. ENGELER and Son (Prussia, 242, p. 1061). Painting brushes Frso (Sardinia, 77, p. 1305)

G, Forse (Prussia, 813, p. 1095). Hall brushes instead F. A. FRINNEBY (181, p. 787).

E. LAUBENCOT (France, 1296, p. 1238). C. L. LONGRE-HAEZE (Belgium, 430, p. 1164).

K. G. PATTA (Austria, 350, p. 1024). A. SMITH (55A, p. 784). Pareting brushes. IL Sonzi (Belgium, 265, p. 1159).

Honograble Mention.

A, Dow (29, p. 780). L. F. FAUQUIER (France, 502, p. 1201). J. G. HINDE (196, p. 788). P. PAILLETTE (France, 1377, p. 1242).

8. Hair.

Besides the uses to which the hair of animals is applied, and which are noticed by other Classes, the Jury have had hrought before them a collection of bowls, dishes, plates, &c., formed of the hair of the rabbit, hare, and other animals, which are felted, and afterwards varnished. These utensils have the appearance of papier maché, or varnished leather, and possess the properties of being strong, durable, and very light. This manufacture is carried on principally in Russia, and a Prize Medal has been awarded to T. Bardoffsey (Russia, 265, p. 1375) for a collection of those articles.

9. Porcapine Quille.

Allied in their production to bristles and hair are the quills of the poreupine. In the Canadian collection were several examples of articles of clothing and furniture or namented with these quills, obtained from the North American por-cupine. The quills are dyed, and the colours appear to be durable; and this use of them seems to be new and worthy of imitation in Europe. A chair and other articles, this ornamented, were exhibited by Mr. W. Duxn, of Quebec (Cauda, 119, p. 965), and by Mr. R. Marshall, to whom Prize Medals were awarded. Several articles of dress, ornamented in this manner, were exhibited.

10. Quills of Birds

Goose and other hirds' quills are found in other Classes, but two applications of this material came before the Jury. In the first instance, E. R. Riony (58, p. 782) exhibited a collection of brushes made from split quills, which seemed to possess the qualities of cheapness and durability. The next instance was the application of the split quill to the making of children's caps and bonnets, and other articles p. 1229). Both these exhibitors were deemed worthy of a Prize Medal.

11. Silk-worm Gut.

This substance, used by the angler, and generally sup-sesed to come from China, is manufactured in Spain, and the specimens exibited from the province of Mureia, in the Spanish collection (199, p. 1342) were deemed worthy a rize Medal, (Awarded a Prize Medal by the Jury of Class 1V.)

11. VEGETABLE SUBSTANCES INCLUDED IN SECTION C.

Specimens of this substance in a raw condition, the produce of the cork oak (Quercus suber), were exhibited in Class IV. Many of the applications of eark found a place in this Class. The most interesting of these was that exhibited by Messrs. Espaines and Manghave (125, p. 785), in which various uses were made of eark which had been verseas. ad been veneered or cut into fibres. The following is the description of the specimens of this article exhibited, which the Jury have deemed worthy a Prize Medal:-

Case No. 1,-1, Specimens of finished hats, made of cork, with the vendors' names, and the respective weights, 2. Specimens of cork-hat bodies, or foundations, made

solely of cork. 3. Specimen of a cork-hat body, or foundation, strengthened by muslin, as generally made and used by the trade. 4. Specimens of cork plates, cut by steam machinery, varying from 50 to 120 plates in the inch, in the state in

which they are supplied to the hat-body makers.

5. Specimens of cork-tip pieces, of the like nature, in the state in which they are supplied to the hat-body makers.

6. Specimens of cork-hat cylinders, partly prepared and nade up, in the state in which they are supplied to the last manufacturers.

Specimens of cork-hat hrim plates, in the state in which they are supplied to the hat-body makers.

8. Specimens of cork-hat brims, jurily prepared and made up, as supplied to the hat manufacturers.

 Specimens of printing on eark plates, with type and engraved blocks, exhibited by Mr. A. J. Mayer, inventor of the steam machinery employed at the City Saw Mills in this trade, Case No. 2 .- Fibre cut from cork by steam machinery,

in its prepared condition, for the stuffing of ships' mat-tresses and beat cushions, to be used at sea for the preservation of life,

Case No. 3,-1. Specimen of a sea mattress, partially

stuffed with cork fibre. 2. Specimes of the same, finished.

3. Specimen of a circular bolster, similarly stuffed. 4. Specimen of the application of cork fibre, applied as n packing to the stuffing-boxes of steam-engine pistonrods, and which is said to require no Inbricating material. Case No. 4 .- Floating models, illustrative of the mode

of using the eork fibre mattresses and bolsters as lifepreservers at sea. To the following exhibitors Prize Medals were awarded

for general manufactures in cork, as well as the excellence of the manufacture of cork for the ordinary use of stopping bottles, casks, and other vessels:-

DUPRAT and Co. (France, 492, p. 1201). GEBONA, THE PROVINCE OF (Spain, 189, p. 1341). J. GUINART (Spain, 188, p. 1341).

2. Vegetable Ivory.

This substance is the albumen (perisperm) of the seed of a small species of palsa growing in the valleys of the Audes, whence it is now imported in very considerable quantities into this country. Hamboldt first drew atten-tion to its hardness and whiteness, and the uses to which it is employed by the natives of the districts in which it awarded to the grows. It is called the "niggers'-head tree," on account 235, p. 1344.)

of dress, also baskets, by J. C. F. Hadix (France, 1963, of the form and size of the large black drupaceous fruit in which the seeds are contained. The fruit coasists of several cells, in each of which is contained four seeds. The seeds are covered by a tough fibrous testa, which, on being removed, exposes the albumen, which represents the soft meat of the cocoa-nut and the seeds of other palms. At one end of the seed is a little cell, in which is enclosed the embryo, which seems to germinate without effecting any change in the condition of the hard mass by which it is surrounded. This is not the only palm whose seeds are hard enough for the uses of the turner, although the only one which is employed extensively for this purpose. The botanical name of the plant yielding these seeds is Phytelephas macrocorpa, and the order to which it belongs is that of Palmer. It is a good substitute for it belongs is that of Palmer. It is a good substitute for ivory, where appearance and dursbility are not principal objects. Its whiteness soon becomes tarnished, and it wears when used for articles where much friction is required. The only urticles made from this substance, required. The only princips made from this measures, exhibited in Class XVIII., were those of Mr. BENJANIN TAYLOR (47, p. 780), which consisted of a variety of objects turned with great skill, and for which in Prize Medal was awarded.

3. Cocoa-nat Fibres.

The seeds of the cocon-nut palm (Cocos sweifera), so well known by the name of " cocoa-nuts," are contained in a large fruit or busk, which is composed of long solid woody fibres. The natives of Ceylon and India have long made use of these fibres for weaving various coarse fabrics; hat although cocon-nuts were brought to this country enclosed in this shell, it has not been till recently that they have been manufactured in Great Britain. They are now used for cordage, matting, brushes, and other parposes, to which the woody fibres of other plants, and even the bristles of unimals, have been applied. Prize Medals were awarded to the two following ex-

T. TRELOAR (39, p. 780). Samples of matting made

T. TRELOAR (192, p. 199). Campies of insuring many of eccon-nut fibre (patterns provisionally registered). The same, with an admixture of Manilla hemp. Door-mats of cocon-nut fibre. Hearth-rug of the same. Mattress of patent curied cocon-nut fibre. Brushes and brooms, various, all filled with the fibre. Specimens of cocountifibre plait. Bounet and hat made of the plait. Specimens of senting, or fine cloth of cocoa-nut fibre.

WILDEY and Co. (40, p. 780). Specimen of manufactures from the fibre of the outer husk of the coconnut, consisting of floor-mattings, plain and coloured; door-mats; netting for sheep-folds and other uses; hansocks; nose-bags for horses. Cocon-nut husk; fibre from the same; fibre prepared for brushes, substitute for bristles; fibre curled, substitute for horse-hair mattresses; fibre dyed; yarn span from fibre; cordage, from fibre; curling and spinning by machinery, and patent preparation of fibre from the husk.

The use of cocos-out fibre for bedding presents many advantages; it does not become knotty or hard, it does not harbour vermin, and it is not affected by variation of climate; it is also recommended by the great chenpness at which it can be produced,

4, Pulm Leaves.

In their uses to the inhabitants of the tropics the family of palms represents almost all other families of plants. No part of these princes of the vegetable kingdom seems to be useless; and at every stage of their growth some new use appears to be developed. In the Mauritius collection, the Countess Gazy exhibited a basket and wreath of flowers formed out of the leaves of the double coconnut palm (Lodvicca Seychellarum), which were considered worthy a Prize Medal,

In the Spanish collection were exhibited some most beautiful specimens of plait, made from the fibres of a species of palm; also some elegant eigar-cases from the Island of Luron, and for which a Prize Medal was awarded to the Economical Society of Manilla. (Spain, D. GENERAL MANUFACTURES FROM WOOD, NOT BEING

FURNITURE, Under this head is included turnery in its various branches; carving, not having a special application, and not producing a work of art; all kinds of coopers' work,

1. Turnery

as well as basket and wieker work.

Many of the articles exhibited in this Class illustrative of turnery have been already referred to under the head of the materials employed in this art, more especially ander Ivory and Vegetable Ivory. The following exbihitors displayed objects presenting many points of interest in the art of turnery, though not regarded by the Jury as of sufficient importance to be rewarded with Prizes

B. Mitroup (167, p. 787). Concentrie balls, made of solid spheres of box-wood. This eurious art was first introduced by the Chinese. - GARRETT (141, p. 786), Ornamental turned souff-

boxes in ivory and fancy foreign woods.

J. Peri (175, p. 787). Turning apparatus for entiting in relief in the lathe. Fac-similes of medals, coins,

flowers, &c. OSCAR SMITH (95, p. 784). Specimen of ivury turning and carring, forming a pedestal, vase, and flowers, Unique specimes of ivory turning; a solid piece, the form of an egg, hollowed out to the thickness of the natural shell from a perforation of the twelfth part of an Turned by George A. Smith, 22 May's Buildings,

St. Martin's Lane. W. D. HENPHILL (158, p. 786). Plain and ornamental lvory turning.

2. Carving and Working in Wood,

The more beautiful specimens of this art were referred to the Class of Fine Arts. The following collections, however, presenting many objects of interest, and good instances of the application of carving to utility and the improvement of the form of articles of ordinary use, were Middled Prize Medals by the Jury:

N. Schröder (Grand Daeby of Hesse, 77, p. 1129).
A collection of geometrical models, (Awarded a Prize

Medal by Jury of Class X.)

N. P. Tresen (Sweden and Norway, 44, p. 1352).

A collection of wooden vessels for various purposes, ornamented with carvings. These articles are made by the peasantry, and the present collection came from

Christiana Captain Seea (China, p. 1420). A collection of objects brought by the exhibitor from China, and consisting of carvings in various kinds of hard coal and in pearl. KEHRLI BROTHERS, Meyringen (Switzerland, 242, p.

1282). A collection of articles of various kinds carved in wood The HEIRS of G. LANG (Bavaria, 77, p. 1101), Principally toys carved in wood. J. Wiatz (Switzerland, 259, p. 1283). Various articles

of wood carving. Spa, in Belgium, has long been celebrated for its work in wood; and a collection of boxes, exhibited by J. E. Marin (Belgium, 414, p. 1164), was regarded as worthy

a Prize Medal. The Jury also wish Honouruble Mention to be made of the beautiful collection of workboxes of the same kind exhibited by E, and L. Misson (Belgium, 412, p. 1164).

3. Coopers' Work of all kinds The collection of articles rewarded with Prize Medals

in this department are regarded by the Jury as worthy of that distinction, both on account of the neatness and Straw work.

durability of the workmanship, and the cheap price at difficulty of the workingship, and the views price of which they are sold. The American and Canadian pails are a very superior article, and calculated for extensive use in Europe. The tube and casks from Switzerland and Portugal iodicated admirable workmanship:

County Count

J. BAILET (Canada, 86, p. 965), Water-pail J. A. FAESSLER (Switzerland, 229, p. 1281). Milktubs, &c.

G. Loaing (United States, 424, p. 1462). A large collection of water-pails. J. W. Macoregon (146, Class XXVII., p. 786). Casks

for ships.

A. P. RANGEL (Portugal, 1120, p. 1317). Wine-casks. 4. Basket and Wicker-work.

Several collections of articles in this division were exhihited, some deserving mach credit, as those in the collection of the School for the Indigent Blind; but the Jury did not observe any qualities in them that would eall for more than the expression of their satisfaction at finding this brunch of art represented in the Exhibition. A basket made of willow wood, worked in a peculiar manner, called the Sussex truck-basket, was exhibited by Mr. T. SMITH, of Hurstmonceaux (172, p. 787), to which the Jury awarded a Prize Medal,

E. MANUFACTURES FROM STRAW, GRASS, AND OTHER MATERIALS.

The objects exhibited in this department were not numerous.

1. Indian-Corn Straw. This substance is manufactured into brooms in the

South of Enrope and in North America, and several col-South of Enrope and in North America, and several con-lections of these articles were exhibited. The following were considered as deserving of Honourable Mention:—,

D. PASTORELLI (Tuscany, 35, p. 1294).
R. Warner and Co. (United States, 431, p. 1463). la the Cauadian and American Departments several

exhibitors contributed brooms of this material, 2. Straw Hork.

In various parts of the Exhibition collections of straw, plaited and made into flowers, baskets, &e., were exhibited. In some instances willow shavings were plaited and made into articles of dress. The following rewards comprise various collections in this department which the Jury considered worthy of reward or distinction :-

Prize Medals.

ART BROTHERS, Wohlen (Switzerland, 227, p. 1281). Straw work. (Awarded a Prize Medal by Jury of Class

AMBROISE CLARAZ, Fribourg (Switzerland, 228, p. 1281). Straw work.
C. D'HEUBEUSE (Prussin, 244, p. 1061). Straw work.
F. P. Haas (Wurtemburg, 79, p. 1119). Various forms

of straw plaiting. J. RENDALL (144, p. 786). Straw work. SCIEDERGER and AREMANN (Switzerland, 234, p. 1281). Straw work. (Awarded a Prize Medal by Jury of Class XX.)

S. TANDLES (Austria, 657, p. 1041). Straw flowers. L. Tomassia (Austria, 97, p. 1012). Willow plait.

Honourable Mention. Islan and Orro, Wildegg (Switzerland, 213, p. 1280).

EDWIN LANKESTER, REPORTER.

London, February 1852,

CLASS XXIX.

REPORT ON MISCELLANEOUS MANUFACTURES AND SMALL WARES.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFECIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.]

Jury.

Viscount Cannino, Chairman, 10 Grosvenor Square.

Viercent Cavarro, Chairone, 10 Groveror Square.

**Producent, Papel Columne, France, Producent Spie Producent S

W. K. SMITH, Virginis, United States; Mineralogist,

D. W. MITCHELL, II Hanover Square; Secretary to the Zoological Society,
Richand Dawn, F.R.S. (Jamer Class IV.); Professor to the College of Surgeons, Lincoln's Inn Fields; President of the College of Surgeons,
NATALIS HONDOY, France (Juner Class XXVI.); late of the Embassy to China; Member of the Central Jury;
Delegate of the Cambers of Commerce of Lyous and Faria.

Members of other Juries, who by request attended some of the meetings of the Jury, and furnished information on the Chemical Arts.

M. BALARD, France (Juror Class XXVIII.); Member of the Institute; Professor of Chemistry at the College

A. PATER, France (Auror Chas IV.); Member of the Institute; Member of the Central Jury; Professor to the Central School, and to the Conservatory of Arts and Manufactures, at Paris.

THE number of Exhibitors of all nations in this Class is seven hundred and forty-two According to the list furnished under the title of Head Juries, this Class was intended to comprise the following

artieles A. Perfamery and Sonp.
B. Articles for Personal Use, as Writing-desks, Dressing-cases, Work-bones, when not exhibited in connexion with precious metals (XXIII.), and Travelling-gear gene-

rally

C. Artificial Flowers. D. Candles and other means of giving light.

E. Confectionary of all kinds. . Bends and Toys, when not of hardware; Fans, &c. . Umbrellas, Parasols, Walking-sticks, &c.

H. Fishing-tackle of all kinds, archery, &c. I. Games of all kinds.

Other Miscellaneous manufactures,

The latter title is very comprehensive, and might have been made to include all objects not specially enumerated in the lists of other classes. Practically, however, little difficulty was experienced in arranging with the Juries of other Classes for their adjudication of those manufactures with which they were most conversant; consequently to the above list there will have to be added only Artificial Essences, Blacking, Lacifer Matches, Artificial Ivory, Tasidermy, Ethnographical Models, Educational Models, Pipes and Amber-manufactures, and Spuff-bones. Candles were the only "means of giving light" brought before the notice of this Jury; and of beads those of amber only were taken into their consideration. The term "Miscellaneous" nevertheless was retained in order to enable the Jury to review a few objects not admitting of classifica-

elected their Deputy Chairman and Reporters. From this date antil the 23rd of July inclusive, the Jury continned their meetings for the most part three times a and having, on the latter day, sent in their final List of Awards, they adjourned.

Owing to the vary various character of the mannfac-tures brought before the notice of the Jury, it was quite evident, as its members could not be equally conversant with all, that it would be expedient to divide the Jury into Sub-committees, of which four were formed, whose duty it was to make a preliminary examination of certain allied classes of manufacture, and to report thereon before the discussion of the awards took place. In those pre-liminary caminations the Committees availed themselves freely of their privilege of calling in the aid of persons intimately acquainted than themselves with the

more intunted y acquainted than tenseries with the chimical merits of particular branches of art. to be made a list of objects belonging to their various sections, a labour strended with no little difficulty on account of the necessarily imperfect state of the Catalogue at that time, and also from the elassification which was adopted in the British Department, being impossible in the colonial and force of the control of th did not include all the articles ultimately submitted to the judgment of the Jury, and the Committees had often to search for them in other Classes.

The examination of the goods was usually commenced

before eight o'clock in the morning, and continued for six or eight hours during each day, the earlier hours being occupied by the entire Jury in visiting the various stands and discussing the Awards; whilst soon after the admission of the public the Jury for convenience again divided into Committees. It is quite possible that with Jury to Preter a few objects on summing or commonstices. It is quite possible that with The English Jurors held a preliminary meeting on the July of May, 1833, and on the 17th, the foreign Jurors having been appointed, the full Jury assembled and by more than one Jury, elicited on comparison of the award books at the close of our labours, amply to tifies the anxiety on the part of the Jurors generally not to pass any object of ment, even though they might feel doubtful as to its belonging to their respective closses

In recommending subjects for the award of the Council Medal, the Jury of Class XXIX, adhered strictly to the spirit of the instructions of the Council of Chairmen, and of the explanation given in the "Minute of the Royal Commission on the award of the Conneil Medal," and in no ease have they made any application for its grant, except for a new and useful investion in important arts. The recommendations were three in number, namely, in favour of L. A. Dr. Milly (France, No. 644, p. 1209), for the invention of practical methods of using line in the manufacture of stearie candles, and the me of boracie acid in the preparation of their wicks; Prick's Candac Company (Class IV., No. 83, p. 201*), for the invention of improved methods of treating and distilling fatty bodies, and the appliention of the products obtained thereby to the manufacture of candles; J. Mangues Con-STANTIS (France, No. 94, p. 1175), and (Portugal, No. 1299, p. 1318), for the invention of an elastic dressing to the materials used in the manufacture of artificial flowers. whereby they are not permanently injured if crampled in packing, but regain their form on being slightly shaken; also for the adaptation of textile fabrics to the imitation These recommendaof flowers for botanical museums. Juries; but the Council of Chairmen, whilst confirming the award of the Council Medal to L. A. De Milly and J. M. Constantin, negatived that in favour of Price's Candle Company. The Jury feeling that they had not made the recommendation until after a laborious investigation on the part of the Chemical Committee, Messrs. De La Rue, Hoffman, and Suith, and after ample discussion on their parts, protested on the 23rd of July against the decision of the Council of Chairmen in the

following terms :-"The Jury of Class XXIX, ananimously and respect-fully protest against the decision which the Council of Chairmen have come to respecting the recommendation of a Great Medal for Price and Company, and feeling that their decision is based upon insufficient information regarding the merits of the case, they hope that the Council of Chairmen will not refuse to reconsider the

In consequence of this protest, the Chemical Committee were invited to attend the meeting of the Council of Chairmen; two of their number, the Reporters, did so, and fully explained the grounds on which the recom-mendation had been made; but (as they were informed) it was subsequently found on reference to the minutes of a preceding meeting, that in consequence of a decision with regard to awards generally which had once been taken into consideration, the protest could not be enter-tained by the Council of Chairmen. The Reporters, however, cannot but regret that there should have existed any impediment to the correction of a decision which, from a careful scrutiny of the merits of the case, they emsider

The Prize Medal has been awarded for excellence of workmanship, navelty of construction, beauty of design, ar goodness of manufacture, combined. At first sight it may appear strange that the same reward has been given to a child's toy and to the botanical models in wax of flowers; to the important chemical art of stearie candlemaking, and to the apparently insignificant sugar-confectionary. On reflection, however, it must become evident that the only method of making the Awards was to discard for the moment the consideration of all Arts except the one immediately under discussion, and to reward excellence in that one, irrespective of its value as compared with any other. The estimation of the amount of merit recognized by a Medal must, therefore, mainly depend on the unture and difficulties of the maunfacture for which it is given, and marks only that an individual Exhibitor has attained a degree of perfection in no case inferior to that to be expected from the exist-ing state of the art as evinced by the examples in the

Building, or known to have been produced elsewhere. In the same branch of industry questions of relative merit were only so far gone into as not to reward mediocre or bad productions; and consequently it will be seen that the Medal is in most cases a mark of positive, and not of relative merit, the Jury not having pretended to select the best only, but also the very good. This will be best illus-trated by quoting an example, and for that purpose one of the most important arts is selected, namely, that of soapmaking. In this no extraordinary superiority of any one manufacturer was evinced above all the rest, but a great number had attained a high degree of perfection, in which only differences of degree might be traced. It is evident that the Jary could not have selected any one, are even two or three, for reward without doing an injustice to many others; and it became necessary either to give no Medals at all, or to give one in all cases of decided merit. The Jury chose the latter alternative. The distinction of Honourable Mention has been

accorded in those cases where the merit of the Exhibitor was far alove medicerity, yet still below that of the recipients of the Prize Medal.

The detailed Report is arranged in an order slightly

differing from that set forth at the enumencement of thi introduction, the following being the arrangement which was decided on:-

A. Monufactures depending upon Chemical principles, Soap and Perfumery. Candles.

Protean Stone, or Artificial Ivory. Blacking, Chemical Matches

Confectionary, and Fruits preserved in Sugar. B. Manufactures relating to Notural History, Artificial Flowers.

C. Articles connected with Education, Educational Models.

Ethnographical Models, Collections of Produce. D. Manufactures for Personal use.

Dressing-cases, Writing-desks, Work-boxes, Umbrellas and Parasols. Walking-sticks.

Fans. Pipes and Amber-manufactures. Sauff-boxes.

E. Monafactures relating to Amusements. Apparatus for Manly Games, viz., Cricket, Archery, Raekets. Fishing-tackle.

Toys. F. Miscellaneous

Including all articles not sufficiently numero or important to be classified under distinct

The plan followed has, in most cases, been to give a short historical sketch of the progress of an art, to discuss the scientific principles on which it is based, and to add such a description of the process employed as to enable the general reader to comprehend its chief details. The productions of each country, in alphabetical order, are then stated, and, lastly, the chief contributions of the successful exhibitors are specially noticed. The Report, however, is necessarily unequal in its details, some notices being much more complete than others. The Reporters are quite aware of these and other defects, and can only plead the very great difficulty of obtaining cor-rect information on such a variety of subjects as the Report contains, and the very diversified nature of the goods exhibited.

The Reporters have great pleasure in thanking their colleagues, Viscount Canning and Mr. Arthur Henfrey, for Reporta on special subjects; M. Natalis Rondot, for information respecting the arts in France and in China;

and Mr. J. J. Mechi, for the communication of statistics in some branches of trade; and, lastly, in acknowledging the assistance of their friends, Mr. Richard Thomson, Librarian of the London Institution, and Dr. Anthony, in supplying much historical unatter. The Commissioners of Her Majesty's Customs, and John Wood, Esq., the Chairman of the Board of Inland Revenue, have also contained in the Board of Indian Revenue, gave uso obligingly furnished the Reporters with statistical in-formation respecting the Imports into, the Manufactures of, and the Exports from, the United Kingdom, for which they take this opportunity of publicly expressing their best thanks. They have also made free use of those valuable French and Belgian Reports, entitled respectively " Rapport du Jury Central sur les Produits de l'Agricul Jury et Documents de l'Exposition de l'Agricul-ture et de l'Industrie Exposition 1849," aud "Rapport da Jury et Documents de l'Exposition de l'Industrie Belge en 1847,"

A MANUPACTURES DEPENDING UPON CHE-MICAL PRINCIPLES

I,-SOAP AND PERFUNERY.

The first of the two branches of industry now to be considered is probably of greater interest than any which will be discussed in the succeeding sections. The magnitude of the manufacture of soap, the importance of the trude, and the enormous capital embarked in it, as well as the wonderful relation which it bears with regard to the most important links in the chain of chemical industry, is not often sufficiently estimated. A distinguished chemist* of the present day says-

"The quantity of soap consumed by a nation would be no inaccurate measure whereby to estimate its wealth and civilization. Political economists, indeed, will not give it this rank; but whether we regard it as joke or carnest, it is not the less true, that, of two countries with an equal amount of population, we may declare with positive certainty that the wealthiest and most highly civilized is that which consumes the greatest weight of soap. This consumption does not subserve sensual gratification, nor depend upon fashion but upon the feeling, of the beauty, comfurt, and welfare attendant upon cleanliness; and a regard to this feeling is coincident with wealth and eivilization. The rich in the middle ages, persons under a profusion of costly scents and essences, were more luxurious than we are in eating and drinking, in apparel and horses; but bow great is the difference between their days and our own, when a want of eleanliness is equivalent to insupportable misery and misfortune!

It is interesting to east a glanec upon the early history of this important braneb of trade. No mention of soap is to be found in the works of authors prior to the Christian ers. The term soap occurs repeatedly in the Old Testament,† but the learned Beckmann! has proved, in his Treatise ou Soap, that the Hebrew word " Borith," which has been rendered soap, rather means alkali. One of the most ascient descriptions of batbing and washing is to be most abovent descriptions of battoug and washing as to be found in Homes's parrantive of the preparations made by the mother of the lovely Nausiena for the washing expe-dition to the river. Life-sunstaining meats and refreshing wines, softening oil in golden vessels for anoisting the skin, are carefully enumerated; hat soap formed no skin, are carefully enumerated; hat soap formed no part of the inventory. The Homeric virgins were igno-rant of this invaluable oleo-alkaline compound. Pliny is the first writer who gives us an authentic account of soap. He states that it is made from tallow and ashes,

- * Liebig's Familiar Letters on Chemistry, Letter xl., p. 129
- † Jeremiah, e. ll., v. 22; Malachi, c. iii., v. 2. † Beckmann's History of Inventions, translated by John-ston, fourth edition (Bohn). § Odyss. vi.

ij Pliny, Nat. Hist., xxvlii. (vol. ii., page 328 of Holland's translation), and in speaking of soap ointment, xxiii., o. 2,

the best materials being goats' tallow and beech-ash. He was also acquainted with the hard and suft varieties of soap; he calls it a Gallie invention, but states that it was particularly well prepared in Germany, where the men were more in the habit of using it than the women. It served to colour the hair yellow. From the description of Pliny, it is evident that he really means soap, although the purpose for which it was employed creates some difficulty; and it would appear that the soap of the ancients contained some colouring agent, and served chiefly as a hair-dye, and likewise as a remedial agent. It does not seem that it was used for the purposes for which it is now almost exclusively employed. Besides several kinds of fullers' earth," and plants with saponaceons juices (struthing), the nucieuts availed themselves of solutions of soda and potash, which continue in use for washing in the present day. Strabo speaks of an alkaline water (soda) in Armenia which was used by the scourers for washing clothes, and we find express mention of the emsasting erosics, and we mai express mention of the employment of a lye made with the ables of plants (pot-ashes), in cleansing oil and wine jars, and the images of the gods in the temples,† The metbod of strengthening the lye by means of quick-lime was known, undoubtedly, the type by sheard of queek-time was known, unconsecury, in the time of Panius Ægineta. The agent most commonly used for washing garments, however, was paired orine, which is still employed in the cloth-districts for washing wool. The fullers were literally and metaphorically in bad odoors, and were required to exercise their trade outside the town, or in unfrequented streets; but they were permitted to place tubs at the corners of the streets for the convenience of passengers and their own profit. Regarding urine in the light of soap, the Emperor Vespasian may be said to have originated the sosp-duty, as this soarce of revenue was not lost sight of by him, though, as Beckmann remarks, it does not appear very clear how the tax was collected,

After Pliny, soap is mentioned by Geber, in the second eentury of the Christian era, and at a later period frequently by the Arab writers; but although undoubtedly used for washing, it is spoken of chiefly as a remedial agent for external application. It would be a difficult matter to truce the onward progress of sosp-making, step by step, but it is certain that the boiling of soap flourishe in the seventeenth century, as we possess extensive directions of that date for its preparation

It is only in the most modern times that the soapannifacture has attained that extraordinary development which distinguishes this branch of trade; various cir-cumstances have contributed to produce it. The valuable researches of Chevreul, although they explain the nature of saponification, have contributed less to the advance of the soap-manufacture than to that of candle-making, bereafter to be described. On the other hand, the development of the manufacture of soda has proved a most powerful stimulus to that of soap, which when freed from its dependence on the uncertain and limited supply of has the personner on the uncertain and morred supply of barilla and keep, made such strides ac could not have been anticipated. Mr. James Manpratt, who was the first in England to carry out successfully, and on a large scale, Leblane's method of preparing sola from chloride of soldum (sea-salt), informa as that he was compelled to give away soda by tons to the soup-boilers before he suceeeded in convincing them of the extraordinary advantages to be derived from the adoption of this material. As soon, however, as he had effected this, and when the soup-boilers discovered how much time and money they saved by using artificial soda, orders came in so rapidly that Mr. Mospratt, to satisfy the demand, had his soda

* Several varieties of fullers' earth are exhibited in the Greeian section, Nos. 13 and 16, which, in all probability, are identical with those formerly used by the classical ancients; the reader is referred for the defaults to the *Ulust*, Cat., vol. Ili., pages 1492-3. There is also a specimen of fullers' earth-contributed to the South African Department by J. Calf (No. 55). See vol. ii., p. 952.

+ Egypt has sent some very interesting specimens of

Natros, or native sesquienrhonate of soda: this salt is the America, or matter resignate rot some this said is the tense of mineralogists. This has also contributed a specimen. See Egypt, Nos. 11, 16, 17 (Itlast. Cat., vol. iii., p. 1408), and This, No. 149, (p. 1416.) discharged red-hot into iron earts and thus conveyed to the sonp-manufactories. From that period a coostant race was kept up between soap-making and the artificial production of soda; every improvement in Lebiane's process was followed by an extension of the soap trace, and it is a carious fact that the single sea-port of Liverpool exports annually more soap at present than did all those of Great Britain previous to the conversion of chloride of sodium into carbonate of sods. The manufacture of soap has, on the other hand, been a powerful stimulus to the preparation of soda and of the important secondary product, hypochlorite of lime (bleaching powder), which are so intimately allied with almost all branches of chemical trades; thus soap occupies one of the most important pages in the history of applied elemistry. The increase in the consumption of this article has led, moreover, to the discovery of new materials for its production; it has opened new channels to commerce, and thus it has become the means as well as the mark of civilization. Almost the means as well as the mark of civilization. Atmost the cocon-not and the palm have been introduced into the manufacture of soap. The following statistics respecting manufacture of soap. The following statistics respecting demonstrate the increasing consumption of these oils:-

Imports	of Palm-oil in	_	1820	-	_	17,456
,,,			1830	-	-	213,476
22	11		1840	-		315,563
	**		1850	-	-	447,796
Imports	of Cocoa-mut of	la	1820	_	_	8,353
			1830	-	-	8,534
			1810			

The consumption of palm and cocoa-nut oils in France, although considerably less than in the United Kingdom, is rapidly increasing, as will be seen by the following

1850 - - 98,039

- 62,610

Imports of palm and cocos-nut oils into France-

1830 -

```
1897
1830
1840
            - -
                   _
                       4,622
                   - 33,691
            -
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The development of the trade in palm-oil has contribated largely to the abolition of the iniquitous slave trade on the west coast of Africa, and in many parts of the coast has entirely suspended it.

Theory of the Formation of Soap.

Before we proceed to the examination of the separate specimens of soaps exhibited, a few words may be said respecting the materials employed in their manufacture. They are, on the one hand, alkalies, and on the other, fatty and resinous substances derived from the organism of animals and plants, especially tallow, lard, palm-oil, cocon-nut oil, olive-oil, linseed-oil, fish-oil, and common rosin. Although physically and chemically widely dis-tinguished from one another, fats and oils present unme-rous analogies. None of these substances is a pure chemical compound; the majority are mixtures in vary-ing proportions of different chemical bodies, which may be isolated by mechanical or chemical processes. When this separation has been effected, the isolated substances which are the proximate principles of the fatty or oily bodies, though again differing much from one another, exhibit one common chemical character; when exposed to the influence of powerful decomposing agents, they are broken up in a similar manner, yielding on the one hand an acid, and on the other a nentral body.

All fats may be resolved into two proximate fatty substances, one of which is fluid at the common temperature -- it is termed olein; the other is solid, and is called stearin. The prepondemnce of one or the other of these its property of dissolving in salt water readers it proportionate constituents determine the state of aggregation linky adapted to the formation of a Marine soap. One of the fat. The body usually designated atteries is generically a mixtor of the stearin of the details into an individual of the desire of the stearing that of the desire is under the desire of the stearing the stearing that of the desired that the stearing with a must hazer quantity of water than

analogous body, margarin, the two substances differing in their relative proportion according to the source from which the fat is obtained. Thus, the solid fat from sheep (tallow) contains chiefly stearin, that of the pig (lard) and of clive-oil, chiefly margarin; the solid fat of palm-

Stearin, margarin, olein, palmitin, and cocin are all compounds of certain fatty acids with oxide of glyceryl, and may be viewed as substances resembling neutral salts, or rather compound-ethers. The changes which all these substances undergo when submitted to the action of powerful bases is well illustrated by the deportment of olcin with oxide of lead (litharge). When boiled with this base, the olein is decomposed into oleic acid and oxide of glyceryl. The former combines with the base forming an insoluble soap, called olente of oxide of lead (dischylon plaster), and the oxide of glyceryl, separating in combination with water, forms glycerin (hydrated oxide of glyceryl), a substance bring a certain analogy with the group of bodies termed alcohols. It remains dissolved in the water employed. If olein is boiled with a solution of potash or soda, oleates of potash or soda are ohtained; but being soluble in water, they remain dissolved together with the glycerin.

The oleates of potash or soda, when separated from the water by processes immediately to be discussed, are what we call in common life Some. Similar some are formed by the remainder of the fatty seids, for example, stearie and margarie acids. Palmitate of seda, obtained by boiling palm-oil with soda, likewise forms a chief ingre-dient of many soaps,

Potash and soda, as they occur in commerce, are com hinations of the alkaline bases thus denominated by the chemist, with earbonic acid; and though, by long boiling, they could decompose (saponify) fats, yet the operation is tedious and the saponification generally incomplete. It is better to deprive the alkalies of their carbonic acid, which is done by mixing them with quick-lime and water; the quick-lime combines with the carbonic seid, forming an insoluble carbonate of lime (chalk), and the water retains the potash or sola in solution, contaminated still with such impurities as the alkalies contained (sul-phates and chlorides, for example), and a minute quantity of Caustic lime

Common rosin (colophony) is the residue of the distillation of natural turpentines, and consists principally of pinic acid, together with a little sylvic and colopbonic acids. When rosin is boiled with alkalies, carbonated nr not, a compound is readily obtained, but of course no lycerin. Thus, when it is boiled with soda, a pinate of oda is chiefly produced. This compound exists in conglycerin. siderable quantity in yellow-soap, and gives to it its distinctive character

The character of soap is not only affected by the nature of the neids which it contains, but also by that of the alkali which has served for its preparation; the scapa containing potash are generally soft and pasty, those prepared with sods are hard and solid.

The compounds of stearic, margaric, oleic, palmitic, cocinic, pinic, and sylvic acids with potash nr soda are all readily soluble in alcohol and hot water, but more so in the former, which, on evaporation, leaves the soap in a translucent state; hence its application in the preparation of "Transparent soaps." Soaps, however, are insoluble in n solution of many neutral salts, particularly when concentrated; this property is of great use to the sonp-boiler, who employs it for the separation of the soap from its solution to water, generally adding common salt to set the soap at liberty. As soaps are likewise insoluble in strong alkaline lyes, the same end is sometimes attained hy boiling down the sosp to a certain consistence, when it separates from the excess of lye.

The soap made with cocoa-unt oil is, however, soluble in very strong brine, and the same plan of separation does not succeed with it; but as it is more generally employed together with other fats, this difficulty is then overcume, most other roaps, thus giving a larger yield, but, of course, being of proportionally less value. This property is, however, unfurtunately often turned to profitable account by the seap-maker. As an instance, may be quoted an analysis of Dr. Ure, who found a London coccount of a scap to entain 75 per cent, of water, whereas 25 per cent. of water is a large quantity for any but potable-scaps to contain, and these generally contain less than 50 per

The greater part of our knowledge concerning the chemical constitution of flats, and the changes which aceumpany their decomposition under influence of allakies, is due to the materity researches of Chevreal, prosecuted with wonderful acuteness and perseverance in a collected form, under the title of "Reterrish Chimiques now let Corps Grass of Origine Asimula," a work which will over remain a model of philosophical inquiry,

Processes.

There are two processes theirly employed in the privation of respect, he must implied of this is that called the Cold-process (from the combination long national at the Cold-process (from the combination long national and their process (as it is generally effected in comparatively small vessels). For the purpose of making soop in this comparatively small vessels. For the purpose of making soop in this commercial cold, and concentrated by expertises. As the chartest of solidon and employer of sods, while commercial cold, and concentrated by expertise, and the chartest of the chartest

The ordinary method is called the Large-boiler-poccas, as it is namely conducted on a very large scale, in holiers capable of holding many tons. A quantity of week solar boilers of the state of the state of the state of the boiling point, and the whole of the fat is generally added at one time. The ebullition is then carried an for some hours, and when the 1ye has become exhausted of its abild, it is pumped away, and a fresh portion of by a similar than the state of th

histories and the second secon

The mottel-way is prepared in a similar manner, except that the operation of fitting is dispersed with, and except that the operation of fitting is dispersed with, and childy of raphible of irran, produced by the action of the year when the control of the cont

mottled-soap is of more value, from its containing a less proportion of water.

It is evident, on comparing this with the ends-process, that it is much more electrific, as an excess of slatch may perfect execution to the end of the period of the period period is also more with the imparities contained in the fat, at each pumping; and a very pare chemical in the fat, at each pumping; and a very pare chemical in the fat, at each pumping; and a very pare chemical of comparatively impare materials. If the solo-ash employed does not countin sufficient saline impurities to common salt to effect this object repet hims be exhausted

lye is pumped off.

There have been several patents for changes in the process of the manufacture of soap, one of which (by Arthur Donn) was for effecting the saponification in close vessels, at a very high temperature, 134 * 5 C, (310* F);

vessels, at a very high temperature, 154 · 5.C. (310 · F.); this plan has not, however, been generally adopted. Another patent was obtained for an exactly opposite plan, by Mr. Hawes, who making use of strong tyes and much mechanical mixing, effects the asponification of the fast in a comparatively cold state. The product is then put into a copper and "fitted" in the ordinary manner. Several patents, taken out for supposed improvements,

Several patents, taken on for supposed: improvements, which may be instanced the preparation of roap from lones, fish, &e., which is merely introducing an adulternion of patents of patents of patents of patents of patents of patents. The Plotting-roap, exhibited in many foreign Sections, is prepared by senting ordinary soop with the addition of a certain quantity of water, and then bentiage it into a literature of the patents of the pate

The stop called Silicated-toop, now manufactured extensively at Liverpool, is farmed by mixing a basic-silicate of sola (made by boiling powdered flint in a close vessel under pressure wite caustic soda) with hard-toop in the melted state. It appears to possess remarkable detergent properties, but is liable to feel gritty in the hand. #isr-Stop.—This stop, which is made from wax and soda

"Mars-Nosp.—This soap, which is made from wax nadocals by the paper-banging makers to mix with their distemper colours, in order to prevent their rabbings off, cannot be the colours of t

Properties and Action of Soap,

The designant property of easy is usually considered as despensive control, on the equatity of likely which is despensive control, on the equatity of likely which is should not be employed in preference. An objective to the latter of the statist, which is injurious control of the statist control of the statistic control of the employed in preference. An objective to districtive of the article washed, and ejeculity of control of the employed control of the em

^{*} Philosophical Transactions, Part I , 1843.

water. The combination of the alkali with some part of the dirt cannot be denied. Several constituents of this very indefinite admixture of many substances are of an essentially acid character, especially those derived from perspiration: others become acid when exposed on a large surface to the action of the air, in consequence of a sort of spantaurous saponification. This action cannot, howof spontaurous saponification. This action cannot, how-ever, be the sole modus operandi of scap, the valuable properties of which without doubt arise, in a great measure, com its power of dissolving substances which are insoluble in water. We know that certain mineral salts exert a solvent power upon substances which are entirely insoluble in water: thus it is well known that borax causes shellhe to dissolve with great facility, and the chemist will at once call to mind the remarkable solvent property pos-sessed by a soapy-compound ready formed to the minual organism; hile is essentially a combination of an alkali with fatty acids (giveoclotic and tanrocholic), and it dissolves with great facility the neutral body cholesterin, which, like fats, is insoluble in water. In addition to these two modes of operation, soap doubtless also produces a mechanical effect. The property which it has of increasing the cohesion of water so as to enable it to form a lather or froth is most valuable in the removal of solid insoluble particles of dirt, which are carried away by the frictional action of the suds when forced into and out of the minute interstices of the substances subjected to the operation of washing, and are kept suspended by the froth and thus prevented from again soiling them.

If we about these views regarding the operation of washing rapperly. In Bernauch is all other raise with the quantity of true stop which it contains; the determine which is the contains the contains the determine of droping the subsence in the state of this statings at 150°C, 212°F1, consequently materially assists in the contains the contained of the contained of the contained state of the contained of the contained of the search and proceed. We next energy revent, that the contained contained of the contained of the contained time is suspected. We next energy revent, that the contained the contained of different kinds. They, therefore, to not more samples of different kinds. They, therefore, contained the contained of the contained to the contained the contained the contained of the contained to the contained of the contained the contained of the purpose they had amplied from all the Kulhiston. The proceeding of the contained of the contained of the contained of the proceeding of the contained of the contained of the contained of the proceeding of the contained of the contain

Perfumery,

From the earliest times of which we have any record, the sence of small has been graified with perfumers; the Egyptian applied them as conservative of the hodies of their decessed friends, and as incerne before their venerated shrine. On the wall of every temple in Egypt, from the presiding delivery of the place; on the walls of the tonsiglaws in bright colours the preparation of the spices and perfumes for the enablament of the nummy, and three very nummies and the vasco of Oriental abbanct transported to our amounts, self with despuree the same

From the time of the Ecodus throughout the long period of aresh hastery, (16) Wit recreeds the not of perlament, of a few his hastery, (16) Wit recreeds the new of perlament, and of which was to be oldered from the tideline periodic peri

Of the no of these Invaries by the Greek, and afterwards by the Boman, the detail is more capious. Pliny gives much information respecting perfume-drags, the method of collecting them, and the prices at which they were most lavishly swel; for even three times a-day did some of the Invarious people whom he deserbles anoist and event themselves, carrying their precious perfumes with them to the baths in coulty and degant boxes called with them to the baths in coulty and degant boxes called

The track from the Eas in these perfumed-maps caused may a versal or regal in studie, to the low-S, and many y a versal or regal in studie, to the low-S, and many S, which there is the state of the low-state and vitality to the Syste short importance as markets, and vitality to the cent it excepted to the in ministrates on the tunary of the wealthy by manufacturing mapsons or perfumes. So may be suffered to the state of the state

When we consider that there are some perappreciate the strong smelling musk more highly than any other, and another who would "die of a rose in aromatic pain," the definition of a perfume becomes a matter of some difficulty. Nowithstanding, however, the various impressions that volatile substances make upon different constitutions, a few general principles may be determined by which perfumery may be judged. In the first place, it is necessary to distinguish whether the substance is a themical compound, or whether it is a mechanical combiuntion of various chemicals. In the former case, if care-fully prepared, it is independent of the perfinne, and its odour, whether agreeable or repulsive, has a determined character of its own. In the latter case, that is, if the scent depends upon a mixture of substances, an opportunity is offered to the manufacturer of exhibiting his skill. Perfumes, on evaporation, should yield no resinous residue, and the various essential oils of which they are made ought to be combined so harmonionsly that none of the components is perceptible, not only at first, but even during the progress of evaporation. The less the ingre-dients differ from one another in odour and volatility the less difficult it becomes to achieve this desideratum. Hence well-prepared Eau-de-Cologne is generally con-sidered to be the perfection of perfumery. The constituents of this scent are, so far as is known, the essential oils of the lemon, the citron, and orange, prepared from the fruit indifferent stages of maturity, and they approximate so closely to one another as to produce a single aromatic impression. Other oils are added to Eau-de-Cologno, but in so mirate a proportion that they scarcely demand any notice in comparison with those mentioned Eau-de-Cologne that leaves a residuary odour either of otto-of-roses, oil-of-cloves, or oil-of-cinuamon, after volutilization, however agreeable these oils may be to individuals, must be designated as of inferior quality.

Still much practice is necessary to ascertain differences in the quality of the perfumes, and the task is rendered more difficult if numerous specimens have to be compared; for this reason the Chemical Committee returned repeatedly to the examination of the various specimens before reporting to the Jury, by whom the Awards were only fixed after a farther investigation.

Several of the perfames, or ruther essence scabilities, are of particular interest, and deserve an especial notice. We alliade to a series of artificial organic composade power of the contract of the contract value of the contract value (oils and essences. Most of them are substances belonging to the group of compound-others, and the contract value of the contract value
past a sent called Water-generally has been extensively used in perfunery; it is adalased from an ertenceon most in perfunery; it is adalased from an ertenceon for the perfuner in the perfuner is a detailed in calderfule quantities. Chemical analysis of this of has described quantities. Chemical analysis could be a select, consisting of nailey like sold and pryexy life spirit, which may be formed by a commissione of in persunate which may be formed by a commissione of in persunate which may be formed by a commissione of in persunate material substance. This observation was not lost upon the colour of certain frights into marked a degree, that it is the colour of certain frights into marked a degree, that it is the colour of certain frights into marked a degree, that it is one of their matter to those others.

Several artificial essences of this kind are exhibited, Neither the time nor the quantity of material at the command of the Reporters permitted them to examine all these products; they are, therefore, obliged to confine themselves to a notice of the following:—

selves to a notice of the following:—

Pear-Oil is a spirituous solution of acctate of oxide of amyl. The latter may be obtained with facility and to

any). The latter may be obtained with facility and to any amount by identifing equal parts of concentration any amount by identified to the contract of the contract the rectification of potato or grain spirity with two parts of acetate of potatos. It is remarkable that the either itself does not posses a very pleasant odoor, and that its superact that properly diluted with spirit. Articles pear-oil is now prepared in large quantities in England. It is chiefly employed in the manchatter of the losenges specimens, so that the flavour in its applied state may be stead also by side with the perfune.

Apple-Oil consists mainly of valerianate of exide of any l. It is obtained as a secondary product in the preparation of valerianic seld, by the distillation of fessel oil with biehromate of potash and sulphurie seld. The distillate has to be shaken up with a dilate potash-solution in order to remove the valerianic seid, when the ether floats on the top, and may be removed with a pipette.

mote on the top, and may be removed with a pipelin.

of artificial concess, the specimen analysis was found to of artificial concess, the specimen analysis was found to or emmon harytes taken. It is easily obtained by bodies public and collection of the specimen analysis and collection of the specimen and the specimen and the specimen and the specimen analysis and the specimen and the specimen and the specimen analysis and the specimen and t

obtained is perfectly adapted for the purposes of flavouring. Copine. Our and Grapp Out.—Specimes of three oils, Copine. Our and Grapp Out.—Specimes of three oils. Freech, and German manufacturers. They seem to be often employed with the view of giving ordinary suriestation. The copine of a careful analysis. A few superficial examination proved indoubledly that they are compounds of fundeurious that analysis. A few superficial examination proved indoubledly that they are compounds of funderious that analysis. A few superficial examination of the contract of the copine of th

Artificial Oil of Bitter-Almonds.—As early as 1834, Professor Mitscherlich, of Berlin, pointed out a peculiar liquid formed by the action of fuming intrie used upon benzole, and possessing the odour of natural oil of hitter-aimonds in a high degree. It was called nitro-benzide or hitro-benzole. The preparation of this compound was, however, too expensive to admit of its substitution for

natural oil of bitter-almonds, as the sole sources of bengole, at that period, were the compression of oil gas and the distillation of benzoic acid. In 1844, one of the Reporters* succeeded in demonstrating the presence of this substance in common light coal-tar-oil; and in 1849, C. B. Mansfield† showed by a careful investigation that beasole may be easily obtained in large quantities from tar-oil. French Department, under the funciful title of " Essence de mirbane. the Reporters met with several specimens of oils, which on examination proved to be nitro-beuzole of more or less purity; they were, however, unable to obtain any positive information as to the extent of this obtain any positive information as to the extent of this manifacture; but it does not appear to be very considerable. The method employed in England for its preparation was devised by Mr, Mansfield, and is very simple; his apparatus consists of a large glass tube in the form of a cold, which at the upper end divides into two tubes, each of which is provided what has fanned. A stream of concentrated nairie and flows slowly into one of this funnels, and benzole, which for this purpose need not be perfectly pure, into the other. The two substances meet at the point of union of the two tubes, and chemical comhinstion ensues with the evolution of much heat; but as the newly-formed compound flows down through the coil. it becomes cool, and is collected at the lower extremity. It then merely requires to be washed with water, and, If then inferely requires to be washed with where, name lastly, with a dilute solution of carbonate of soda, to render it fit for use. Nitro-bezole is closely allied to oil of hitter-almonds in its physical characters, yet it preents a slight difference of odour which may be easily detected as the control of the control by an experienced person. It is very useful for perfuming soap, and is probably capable of application in confectionary and cookery, as its flavour resembles that of hitteralmonds, without containing any hydrocyanic (prussie)

UNITED STATES OF AMERICA.

The greater portion of the scope exhibited in the American section are transparent, the preparation of which requires the employment of a large quantity of alcoholter than the properties of the preparation of the pretor of the free mile to the pretor of the pret

The American spirituous perfumery, which was found to be inferior to that exhibited by other countries, is contributed by the makers of toilet-soaps. One Exhibitor sends only a tooth-wash or dentifrice.

AUSTRIA. About 3.750 tons of clive-oil-sosp, valued at 235,000 f.,

are manufactored anomaly is duration, betales usep most with sallew, and other fast. The two large storic annihilation with table and the fast in the two large storic annihilation and the salley and there is the contribution to the Exhibition; thus aftering an opportunity of paleign of the nears in that leastify the salley and the sal

The only Exhibitor of prefumery, Jones Maria Faria, Crist, p. 1644, p. 1644, see 12 August 200, ene, which was on liberally distributed by means of a small fountain, that the supply in charge of the attendant was exhausted before the Jury had made the Awards, so that only the the specime had evidently but much of its perfume from exposure to the sir, the Reporters, at the request of the Austrian Commissioner, M. C. Buchek, and with the

^{*} Dr. Hoffman.-W. D. L. R.
† Quarterly Journal of the Chemical Society, vol. 1., p. 244.

sanction of the Excentive, examined, subsequently, a fresh sample, which was taken from a cask of Ean-de-Cologne which had remained under the care of the Customs, and which had been overlooked by the attendant. This sample was found to be equal in quality to the Eau-de-Cologne rewarded with Honourable Mention.

BELGIUM.

It is very remarkable that Belgium has sent to the Exhibition on green onf-song forast-song), for which it has been flumous from a very early period, and which, at one time, was an important article of exportation. Even now it is preduced to a far greater extent than the hard sods-song, the manifecture of which was commenced but Theory Joves, there, the preparation of districtions, Theory Joves and the programment of districtions, and he sends tollett-song outly,

BRITISH COLONIES.

The British colonies have not yet progressed sufficiently in the art of soap-making to compete successfully with the world, as regards quality; at the same time it must be stated that their productions are, in most cases, ere-The yellow-soap from Canada possesses a most disagreeable odour; the fancy soaps are likewise badly made, giving no lather whatever. The Cape of Good Hope sends a specimen of wall-made yellow-soap from J. Suttricms. India has contributed soap from Malabar, composed of cocos-nut-oil and sods, and made up into irregular bulls and long bars; this soap contains an execus of alkali, which effloresces at the surface, and is in general of alkan, which emoresces as the surface, alkan a greatest a very crude production. From Madras there is a speci-men of well-made marine-soap manufactured by F. Ker (p. 922); and from Cevion ornamented soap, called olassoap, manufactured at Kandy, from cocos-nut-oil. New South Wales sends very creditable specimens manufactured at Bathurst, 140 miles from Sydney; the collection courributes very good yellow-soap, manufactured by Comprises yellow, eard, and toilet soaps. Nova Scotia courributes very good yellow-soap, manufactured by Clanke, of Halifax (p. 970, Central Committee). New Zealand,—J. A. SNITR (No. 6, p. 1001), exhibits good soap made in Aucklaud. South Australia,-The good soap made in Aucklaud. South Australia.—The specimens from this colouy are all of yellow-suap, which was made by W. H. Buaronn (Class XXIX., Award Lists, p. 613), who is noticed in the List of Awards. Some Diemen's Land sends samples of good household song, made by H. CLEMBURN, of Hobart Town (Xu. 144, p. 595). The West Coast of Africa sends specimens, which are interesting, as having been manufactured on the Oil-coast they consist of soap made with a mixture of palm-oil and palm-kernel-oil, some made entirely with palm-kernel-oil, and soap made with ground-unt-oil, their production are likewise exhibited, The oils used in

Естрт.

A few interesting and excellent specimens of perfumery have been sent from Egypt, comprising Rose-water of Fayoum, Orange-flower-water, and Mint-water of Rosetta.

FRANCE.

Although modera discoveries in chemical science, by framishing a cheep substitute for barilla, have deprived flammilles of some of its local advantages, this town is still the chief centre of the sop-manufacture in France, and from its position in the moder of the oil-producing countries, it is likely for a long period to retain the high reputation which for ages it has enjoyed for the oil-ve-calsoap to which it has given its name.

At one period Marseilles supplied the whole of France At one period Marseilles supplied the whole of France supplied to a supplied the period of the control of the ally entailed by the establishment, good brouning gendiality entailed by the establishment, good brouning gendlarge towns, of soap-manufactories, in which tailor, planci, and other fasts, are employed in lieu of city-ceil besides which nearly all the steuric candle-makers convert their oelee sed into scorning and household sons."

^a M. E. Peligot has proposed to use the oleic acid of the stearic works for the scouring of wool, because it may be readily removed by carbonate of soid. This valuable plan does not appear to have mat with the encouragement it deserves, more especially out of France. The Parisian perfamers produce excellent toilet-soaps by the "large-boilet-process," remarkable for the fragency of the perfame, and giving a good lather. In many cases toilet-soap is manufactured by the "cold-process," and is generally of an inferior quality, giving only a disagreeable sline when used in washing; there are, however, ampoles in the Exhibition free from this defect.

Many French people never use soap to their faces, employing as a substitute aromatic vinegap, a few drops of which are added to the water used in washing. Hence the "vinaigred-ed-tollette," is an important manufacture, which is chiefly monopolized by Paris, whence it is sent to all parts of France. There are Three Exhibitors of

this aromatic vinegar.

spirituses perliamry is proposed in great porfection by the manufactured Park, since of whom shall their own records ship, they generally, also, combine with it was the control of the control of the control of the composition of the control of the control of the golden and laws been conjustify rewarded. In the pregarder, and laws been conjustify rewarded. In the present of the control of the research of the control of the control of the conminates portion in solution. To recover this, the water is ministed portion in solution. To recover their, the water is ministed portion in solution. To recover their the water can ministed portion in solution. To recover their the water is present the control of the contr

In 1847 there were, it appears, **110 perfumers in Paris, employing 731 workpeople in the manufacture of toller-source, cosmelies, essential oils, and spirituous and squrous perfumery, the value of whose productions was 385,6804. The workmost earned, on the average, 2a. 7d. per day;

the work women, 1s. 6d.

According to M. Natalis Bondot, 12,042,970 lbs. of sosp,
valued at 14,2012d, were exported in 1850 from France,
a quantity which, as will be hereafter seen, nearly equals
that exported from Great Britain in the same year: besides which, 3,398,390 lbs. of perfumery, in value 431,6394.

rates when a person to presumery, in some expects. There are Two Exhibiters of artificial essences in Prance, the season simply a series of compound thavorings, included to initiate the savour of various fivist; the second exhibits two specimens of chemical compounds, namely, artificial essence of ofter-atmost and artificial essence of ofter-atmost and artificial essence of ofter-atmost and artificial essence of other atmost and artificial essence of our other artificial essence of the second of the s

Of the Nine Exhibitors of soap in the French Section, Two represent Marseilles, and Six, Paris; and, with two exceptions, these manufactures exhibit toilet-soap only. There is likewise a small contribution of soap from Alguers.

GERMANY.

At one period all may was manufactured in Germany by the inducer, on at time sailed, the Greena sorthoff of the control of the

many is generally very good.

with the muriatic acid, and forming muriate of potash with the marante need, and rormang naturates of polassis (chloride of potassium), the soda combining with the fatty acids, and forming a soda-soap. At one time this plan was of great value to a coustry like Germany, removed from the source of barilla, and producing little or sone herself. Modern chemistry, by furnishing an abundant supply of cheap soda, however, readers this circuitous chairs of much hear value, and it must herefore give was n of much less value, and it must therefure give way

to the enward march of science. The Zollverein States of Germany are represented by Four Exhibitors of soap; Three manufacture household and scouring soap of excellent quality; the other, toilat-soaps. Hamburg is represented by One Exhibitor of floating and other toilet-soaps,

The perfumers of Germany are in great force, being Eight in number, and reckoning two John Maria Farinas in their ranks, making no less than four Farinas in the Exhibition, all claiming to be the original. It appears that speculation is carried to so high a pitch in Cologne, that any child, entitled to the surname of Farioa, is bargained for as soon as born, and christened Jean Maria; at times this event is aven anticipated. The perfumery of Ger-

is represented by Oue soap-maker, who exhibits olive-oil-

soap, and toilet-soap of fair quality. PORTUGAL.

sends the produce of the Royal Seap and Tobacco Con-tractor. The collection comprises olive-oil-soda-soap tractor. The collection comprises (Marseilles); rosin-and-tallow-soap (yellow-soap) and toilet-soaps, all of which are creditable.

There are only Two Exhibitors of soap in the Russian

Section, one from St. Petersburg, the other from Warsaw, The latter sends very excellent toilet-soaps. Russin possessed, in 1842, Sixty-four soap-manuf tories, which produced soap valued at 205,8001.; and, in the government of Moscow, Three manufactories of per-fumery, employing Fifteen workmen, which produced

goods valued at 5,080%.

The quantity of soap manufactured in Spain is very large, and exceeds that required for her home consum; tion, a considerable portion being annually exported to the Spanish colonies. The common hard-soans are those principally produced, and they are made by the "cold-process." The following is a list of the towns and provinces in which the manufacture is chiefly carried on, the figures indicating the number of manufactories, wherever it was indicating the manner or manusciories, wavever is no accertainable :—Badajos (Zoeres; Cadis, 3; Burgos, 4; Gerous; Guadalajara, 2; Guipaneoa; Huelva, 2; Hueses, Jaen, more than 10; Legrono; Malaga, 7; Madrid; Navarre, 7; Oreuse; Port St. Maria, 1; Tarragous, Talada : Valenaire, Saville, 19; Societ, Samoraca 16; Jeen, siove than 10; Logrono, Mainga, r; Rasara, Navarra, r; Owene; Port St. Maria, 1; Tarragona; Avarra, r; Couse; Port St. Main, 1; Tarragona; Course of the Prostern, I. Madrid is represented by Owene; which is noble at hoots a persoy per proud less than the state of the product of the product of the maria factories; constaining of the ordinary mottled Castile-scap, made with hardin and the collection of the confinery mottled Castile-scap, made with hardin and the walchate of from. This scop is very perfect, and is by sulphate of irou. This soap is very perfect, and is sold at the rate of 5l. 11r. 3d. per cwt., or almost exactly In 1843, Malaga produced 19,700,000 lbs. ls. per pound. see pourse. In 1843, Managa produced 19,700,000 lbs. of soap; and in 1844, according to information collected on the spot hy M. Natalis Roadot, Cadiz, Xeres, and Port St. Maria yielded 450,000 lbs.

SWITZERLAND.

The contributions from Switzerland consist merely of a small quantity of tooth-powder and hair-oil. It is stated that the tooth-powder is in general use, and is prepared from an indigenous stone, which is calcined and pulverized.

TUNES.

The Tunisian scops are composed of clive-oil and sods,

and are made in every part of the Regency, generally in copper vessels, holding from 40 to 50 cwt. each. The soda-lye is prepared by mixing the crude soda with the necessary quantity of lime, and putting the mixture into a reservoir, when water is added; under the reservoir is a well which catches the caustic lye as it flows from u hole in the bottom; from the well it is transferred to a copper vessel, and mixed with a proportionate quantity of oil, and boiled until it is made either into a hard-soap, or into one of a softer sort. The price of the hard-soap is from 30s, to 32s, per cwt., according to that of the olive-oil; the soft-soap is about 25s, per cwt. Soap is a very important article of commerce in Tunis, and is generally used by the lowest classes, whose habits of cleanliuess are remarkable. There are five specimens of soaps made into bars; a toilet-sosp, moulded by putting it into a small brase cup; and a jar of soft-soap; all of which are of a very primitive make.

The Tunisian collection of perfumery consists of scented waters, without any admixture of alcohol; they are prepared by distilling the flowers with water in a copper still. The ottos of Tunis, which are obtained by repeated distillations, are prized as being more fragrant, and are consequently more costly, than those made in Eastern countries, the usual price being from 3l. 15s. to 5l. per ounce, according to the description of flower from which they are obtained. Perfumery constitutes a most im-portant branch of commerce in Tunis, a great quantity of scented waters being annually exported to France, Genoa, There are also specimens of Swak, which is and Malta. There are also specimens of Swak, which is used by the Moorish women for whitening their teeth; and perfumed necklaces, noticed in the List of Awards.

Turkey has sent u great variety of soaps, many of which are perfumed with mask, and ornamented with inscriptions; one kind, from Adrianople, is made up into hollow balls, containing a small bell, similar to those sometimes attached to the collars of horses; the Reporters sometimes attacked to the counts of norses; the Reporters oould not, however, ascertain the purpose of the bell. The collection comprises soap from Adama, Adrianople, Candia, Jerusalem, Damascus, and Tripoli, benides a soft-soap called Alicant soap. None of these soaps afford a good lather

The perfumery consists of :- orange-flower water and The perfumery consists of:—ornage-flower water and rose-water, both very firgarant; Texsooh or musk-pasts; Kouderma or pastilles, for hurning in the Seraglio; Tensouh, or musk-pasts medallions, purses, and and uccklace; and amber Tesbihs or chaplets, made of a paste composed of various perfumer. As the names of the Exhibitors of these various articles are not given, and as it. appears that the specimens were bought at the bazaars,

TESCANY.

Tuscany sends the produce of One Exhibitor, comprising olive-oil-soap, tallow-soap, and yellow-soap; the two for-mer may vie with any in the Exhibition, but the yellowsoap is not equal to that of English manufacture. In 1848, Tuscany possessed Sixty manufactories of soap and candles. In no country in the world is the manufacture of soan

UNITED KINGDOM.

carried on to so large an extent as in the United Kingdom, in which there are Three hundred and twenty-nine dom, in which there are a mre numered man eventy-more makers, besides Sixty-eight soap-remelters (perfuners). Ireland not being subject to a duty on soap, there are no ready means of ascertaining the quantity which is there manufactured; but in Great Britain alone the production amounted in the year 1850 to 201,410,826 lbs, and yielded an Excise-duty of 1,299,232l. 10s. 2d. Of this quantity 12,555,493 lbs. were exported to foreign parts, the draw-back on it being 82,308l. 18s. 9d. The total quantity

• Io documents published from time to time by the French Minister of Commerce, it is stated that the common otto-of-rose is sold in the banars at 5 plastres the miks!: reckonlog the mithal at 4.75 grammes, er 73-774 troy gralus, the avoirdupois ounce of 537-5 genios would cost

consumed in Great Britain, therefore, amounted to 191,855,333 lbs. Of this quantity 22,858,382 lbs. were used by manufacturers, on which the duty, amounting to 97,342, us. 11d., was remitted. This leaves the net revenue derived from the soap-duty at 1,119,581l, 10s. 6d., after deducting the drawback and the remission to mannfacturers. Deducting the quantity exported, and that used by manufacturers, it appears that 168,996,951 lbs., or, in round numbers, 75,445 tons, were consumed in 1850 for domestic use in Great Britaiu (making 8 lbs. 1 oz. each person); besides that manufactured and consumed in Ire-land, of which there are no retures. The Excise-duty was first imposed in Great Britain in 1711, the rate being 1d. per pound. In 1713 it was raised to 14d, per pound, and in 1782 the duty on hard-soap was fixed at 21d., and that on soft-soap at 11d, per pound. In 1816 the duty on hard-soap was raised to 3d, per pound, at which rate it was levied until May 31, 1833, when the duty was reduced tu 14d, per pound on hard-soap and 1d, per pound on soft-sonp. The present duty is according to rates, with an addition of 5 per cent. The collection of this duty (notwiths) anding the great improvement in the Excise regulations of late years) places the British mannfacturer under certain restrictious as to his operations, which prevent him from conveniently making toilet-soap In order to obtain toilet-soap the ordinary soap has to uudergon second process of clarification, and, after having been perfumed, has to be made up in some presentable form; it is this which has given rise to the business of the soap-remelter, who buys his soap of the maker, remelts, perfumes, and then makes it into tablets. Exhibitors, however, of tuilet-soap carry on all the operations in their works. In Ireland the perfumer generally makes his own soap by the "cold-process," and One

Exhibitor soult stole-oup made in the way, Several description of har are used by the Bittals nonmaker, the principal case leving tulinor inequired from the Several description of the several description of the proportied in large quantities from Banais, shouth America, and Americali, the produce of the two interacted countries and Americali, the produce of the two interactions of the two constants of the classes used, to white much to sheld bone-fat and "kitches-stoff." Kitchen or "nough study" propinities of the sock, who frequently also far of unables and occasionally a points, in order to increase the weight, the regard of allows, and then sock of the neap-maker, the the rigar deal shops, and then sock to the neap-maker,

who much is down previous to one. Before the repair of the duty on and, large quantities. Before the repair of the duty on and, large quantities to the duty of the duty of the duty of the duty contained the duty of the duty of the duty contained the duty of the duty of the sum most berefold from the stillnuts if zero to the sumseculatively the want of the suph-sole, who after a laret time discrebed the impore backle, which and only wan contained the sum of the suph-sole, who after a laret time discrebed the impore backle, which and only wan the operation smally occupying two days; whereas the the operation smally occupying two days; whereas the contained the duty occupying two days; whereas the days of the duty occupying two days; whereas the sum of the duty occupying two days; whereas the days are the prevention of the duty of th

Within the last three years the soap manufacturer has been supplied with fine American rosis (colophouy), very much purer and of a much paler colour than that of English make; from this cause yellow-soap has been much improved, and is now made of a beautiful pale yellow colour (prinarose soap).

Yellow-soap, first manufertured in England, is that produced in the largest quantities, and it composed for tallow, roois, and sods. Mottled-soap is next in importance, and is usually must from kitelore-stiff and sods. Cerd-soap, which is used to a great extent by the cloth-manufacturers of Yorkshire, and the lace and stocking blueshers of Not-Orychire, and the lace and stocking blueshers of Not-Orychire, the control of th

example, palm-oil-soap, which is usually prepared as a component of yellow-soap; coco-nut-oil-soap; and other kinds prepared chieffy for exportation, in which a low price, unfortunately, is a more important consideration than a high quality.

has a high quality.
Soft-cop is node with potath (instead of wide) and
Soft-cop is node with potath (instead of wide) and
Soft-cop is node with potath (instead of wide instead of the cich-districts. There is smally as mail
quantity of tailow mixed with the oil, so as to produce
intended for the cich-districts. There is smally as mail
quantity of tailow mixed with the oil, so as to produce
to the teterate of potath formed in consequence of this
addition, and which is less deliquescent than olent of
porticles, but it is easily detected on dissolving the scap
porticles, but it is easily detected on dissolving the scap

in water.

At present very little soap is made in this country from olive-oil, partly because, since the alternation in the duty on foreign soap, its manufacture does not reay the coapmaker, and partly on account of the "London New "Cattlie-ong," as it is found to be better adapted for the retextion of a proper degree of moisture in pharmsceutical preparations.

Out of the 329 soap-makers of the United Kingdom, only Seven come forward to represent the soap-irade. On comparing the productions of other nations with theirs, it is evident that as regards tallow, palm-oil, and rosin-soaps, the British soaps are generally better manufactured, notwithstanding the Excise restrictions under which the English mannfacturer labour.

English mannfacturer labours.

The English toilet-soaps are in no respect inferior to those of other countries, and are generally far superior in their detergest qualities, on account of their being made from soap manufactured exclusively by the "large-boilerprocess. The high reputation of the so-called Windsor-soap in all civilised States is an ample testimony of the estimation in which English toilet-soap is held by the makers of other countries, who adopt its name for any sort they wish particularly to recommend. The preparation of toilet-soaps is generally confined to the remelter. whu perfumes and ornaments them in various ways. The marbling is effected by rubbing up the colours, such as vermilion or altramarine, with a little olive-oil or soap, and taking a small portion on a palate-knife, which is pushed through the melted mass, and moved about according to the fancy of the operstor. Many soaps are coloured throughout their mass with mineral colonrs. Vermilion is used to produce the pink colonr of rose-soap, artificial ultramarine to produce hlue, and various ochres to prosoap into a mould, fixed in a lever-press, and composed of a top and bottom die, which fit into a loose ring; hy n rapid pressure the shapeless mass takes the form of the ring, and is at the same time embossed on the top and bottom of the cake. The urnamenting by means of coloured cameos is effected in a similar manner, but requires two presses, one of which forms the cake, and makes depressions for the reception of a different coloured soap, which is filled in by hand, and the cake is then placed in the second press, which embosses the coloured portion

No less than Twelve out of the Sixty-eight sospremeters of frost lifetinia cabilit. Most of them send solo perfunercy; and Eight manufacturers, besides the Twelve English of the Sixty of the Sixty of the Sixty of the Gaussy and Found in many cases to be very fragrant and agreeable, but in others the employment of an access of some strong-smelling essential oil remedered the compound consumption of perfunercy into the United Kingdom in the year 1550 were substituted in 1907, and adapt was paid of 1917, but in all probability some spirituous perfuners are consumed, "of which 172,139 [98, were insported, and

which yielded a duty of 12,772!.

Two Exhibitors have contributed specimens to which alinsion has been made in the preceding pages, and to which a great degree of interest attaches, as being among the first attempts at the application of harmless chemical

95

compounds for the imitation of the flavours of fruits and compounds for the initiation of the involves of reals and liqueurs, namely, Oil-of-Pears, Oil-of-Apples, Oil-of-Pine-apples, Oil-of-Cognac, Oil-of-Grapes, and Onion-Sauce. There are Ninety-five Exhibitors of soap and perfu-

mery; of this number Sixty-two are solely ur chiefly manufacturers of soap, and Thirty-three solely or chiefly manuncturers or soap, and Thirty-three solely or chiefly makers of perfumery, though many of the perfumers send both soap and perfumery. Of those who exhibit soap, Seren (kuglish) are merely remelters and perfumers of the goods they purchase of the roap-boilers; Five are makers of a floating of foam-soap; and Four exhibit soap made by the "cold-process."

Among the perfumers there are Two who exhibit savory sances, and Five the artificial essences before described.

Of the Ninety-five Exhibitors there are—

31 Holders of a Prize Medal. 18 Who obtained Honourable Mention. 46 Unrewarded.

The number of Exhibitors from the various countries

America.	Uni	ted 8	itate	-	_	-	-		9	
Austria	-	-		-	-	-	_	-	4	
Belgium	-	-	-	-	-	-	-	-	1	
British Co	nole	les :-	-						1	
Cana	ln.	-	-	-	_	-	-	-	2	
Ceylo		_	-	-	-	_	-	-	ī	
Cape	off	hoos	Hoe		-	-	-	-	í	
India		-		`-	_	-	_	-	9	
New	South	h W	ales	_	_	-	_	_	ī	
Nova			-	_	_	_	_	_	i	
New			_	Ξ	_	_	_	Ξ	i	
South		atma l	t-	=	-	-	-	_		
Van	Die	men'		vi.	Ξ	=	Ξ	Ξ	i	
West	C	-4 -4	1.5	ian	=	-	- 5	-	9	
Egypt	COL	art OI	A.11		Ξ	Ξ	Ξ	Ξ	î	
France at				_	_	_	=	_	14	
Germany	7-	Harri							13	
Holland	, 200	liver	em.			-	******	.,	10	
	-	-	-	-	-	-	-	-	i	
Portugal	-	_	-	-	-	-	-	-	2	
Russia	-	_	-	-	-	-	-	-		
Spain -	-	-	-	-	-	-	-	-	2	
Switzerla	ad	-	-	-	-	-	-	-	1	
Tunis -	-	-	-	-	-	-	-	**	2	
Turkey	-	-	-	-	-	-	-	-	3	
Tuscany	-	-	-	-	-	-	-	-	- 1	
United K	ing	ton	-	-	-	-	-	-	27	
	-								_	
									95	

Besides this number, Eight stearie-candle makers have also sent soap made with the olcic acid, derived as a secondary product from their mannfacture; these eight raise the number to One handred and three, but no special notice will be given of their productions in this portion of the Report.

LIST OF AWARDS.

ALLARD and CLAYE, Paris (France, No. 750, p. 1216). Prize Medal. A collection of fancy Toilet-soaps, in large blocks, marbled and otherwise ornamented; soap in cakes and balls; Potash-shaving-soap. These soaps are made in the ordinary manner, in the large boiler, and afterwards perfumed; they are most agreeable in use, giving very readily an abundant lather, and are free from an excess of alkali. Their perfumery is of various kinds, and very good.

and very good.

Armarus, H., Marseilles (France, No. 402, p. 1197).

Prize Medal. A very large collection of Marseilles
mottled (Casilie-scap), Yellow pain—oil, and Blesched
palm-oil-scaps. The yellow soaps are not so sightly as
those masunifectured in England, but are good. The

toose manumetureu in Enguado, ont are good, The motted Marseilles soap is, however, excellents, No. 36, p. 1434). Prize Medal. A very large collection of fancy soaps; Transparent-soaps, made up into eakes and balls; Transparent-shaving-paste; Hazel-unt-olsoop; husts of American savants. The soaps are well manufactured, fragrant and agreeable.

Besides the above, various spirituous perfumes are exhibited, which are not included in the award. BLEURE, H., Paris (France, No. 1091, p. 1230). Ho-

nonrable Mention. Soaps and perfumery. The soaps are manufactured by the "cold-process," and they give a tolerable lather, BURFORD, W. H. (Sonth Australia, p. 1061). Honour-

able Mention for well-mada Yellow-soap Bescu, P. A. (Frankfort, 5 Zellv., No. 2, p. 1121). Honourable Mention for Rectified Cognac-oil.

CADWELL, PAYSON, and Co. (United States, No. 510, p. 1467). Prize Medal. A soap called Excelsior-soap, not very sightly, but possessed of remarkable detergent properties, especially in very strong brine. In the trial made with this soap, it was found to possess the valuable property of readily removing tar even in salt water, which renders it peculiarly well adapted for a Marine-sonn. A comparative trial was made at the same time with scouring-scaps, selected from the best in the Exhibition; they

all answered as well as the Excelsior-soap, except in the removal of tar when washing with a solution of salt.

Much stress was laid on the low price (30s, per cwt.) at which this soap may be produced; but as on examination

it was found to contain earthy matters, with which any soap may be much reduced in cost, the lowness of the

soap may be much reflered in cost, the lowness of this price did not influence the Jarry in their Aurard. No. 43, Chriotza, C. L., and Sox, Frieste (Austria, No. 43, Chriotza, C. L., and Sox, Frieste (Austria, No. 43, Christian, P. 1998). Superfine Marcelles; Illne-amparated Flusting white Genes; Hard imitation English copy; white Card soap, for toilet purpose, also filter and Ret-markled; Cocco-aut-oil toilet-soap; besides various screted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited in the secreted soap; all of which affird an excedited soap and the secreted s and are, in every respect, carefully manufactured, and free from an excess of alkali

CLEAVER, F. S., 18, Red Lion Square (Class XXIX., 20, p. 790). Prize Medal, Mr. Cleaver is a soap perfumer and remelter; his large and varied collection comprises the following descriptions:—Honey-toilet-sonp; this soap contains no honey; it is perfumed with the essence of citronelle, and is a very agreeable toilet-sonp. May-hlossom-soap is a honey-soap containing cream of tartar. Peach-hlossom-soap is a composition flavoured tartar. Procurement of the composition of the composition with oil of bitter almonds, and made up into balls, which derives a peculiar peach-like partial stain from the addition solely of cream of tartar. Sonps marked by Dunn's process of lettering, which consists in stamping recesses of the shape of the letters, and filling them with sonp of a different colonr.

different colour.
All the scaps are of most excellent quality, very fragrant, and afford a copions inther.
grant, and afford a copions inther.
Homosarbie Mention. (The same, No. 101, p. 1219.)
Class II.) Artificial essence of Bitter-almonds; artificial
essence of Pine-apple. (See pages 1347 and 1348.)
Coxyst and Sox, Leghorn, (Tuucany, No. 23, p. 1293.)
Prize Modal. Olive-oli-song (white Marreilles); Olivedirections of the price of the same price of the oil-mottled-soap (Castile-soap); Tallow-curd-soap-most

excellent in quality. Cowan and Sors, 139 New Gravel Lanc, Shadwell, (Class XXIX., No. 19, p. 790). Prize Medal, Pale-yellnw-soap of very excellent quality; Curd-soap, most carefully prepared; Marine-soap, for washing in salt water. This collection, though comprising few varieties, is valu-able from its showing the degree of excellence attainable

able from its showing the aggree of executive missing in the art of sog-making.

Dr. Leon v. Rico, E., Madrid (Spain, No. 243, p. 1344), P. 1344, P. 1640, P. 1600 availab (Mexition. A very hard Office-oll-snap, made in twenty-frant hours, by the "cold-process." It affords a lather with some difficulty at first, but by the second day's use acquires a little moisture and then gives one more readily. This plan of making does not yield a soap equal to that of the "large-boiler-process," but the specimen is very good of its kind, and free from excess of alkali,

Doto Las, J. S., and Sons (Hamburg, No. 92, p. 1139), Prize Medal for toilet-soaps, under from cocon-nut-oil and soda, (probably by the "cold-process"); Marbled-soap, made from tallow; likewise the Floating or froth-soap; all of which are of good quality. This latter, in the true spirit of puffing, is alleged to be made according to a re-eipe which a friend transmitted from China, and which

erpe when a freed transmissed from Camas, and when the obtained by bribery, on peacerating into the Imperial Scap-Mannfactory of Canton. Eon and Co., 47 Lodgest Hill (Class XXIX., No. 18, p. 790). Honourable Mestion. For a case containing Perfuncty of various kinds. The imitation of the secat of flowers was found in many cases to be successful, FARINA, JOHN MARIA, 23 Rhein Strasse, Cologne, and 1 Salter's Hall, Cannon Street, London (Ciass XXIX., No.

21, p. 790). Honourable Mention. For a long period after the opening of the Exhibition, M. Farina distributed his fragrant Fau-de-Cologue, with great liberality, by means of a fountain. The specimens exhibited in bottles were of excellent

quality, evaporating perfectly without resinous residue.

Fastna, John Masta, Cologne (Prussia, No. 426, p. 1074). Honourable Mention. Very fragrant and agree able Ean-de-Cologne, evaporating perfectly without resinous residue.

FARINA, JOHN MARIA, opposite the Juliehs Place, Cologue (Prussia, No. 858, p. 1096). Prize Medal. Eaude-Cologne of most excellent quality, possessing in a high degree that fragrance and freedom from unpleasant resi dnary odour, for which this article of toilet is esteemed. dnary odour, for which this article of foolet is esterement.
Farina, Join Mania, opposite the New Market,
Cologne, and 62 Mark Lans, Loudon (Anstria, No. 748,
p. 1044). Ean-de-Cologne. Honourable Hention.—See
Introductory matter, Austria, p. 609.
FISHER, I.W., and CO., King's Head Court, Barblean
(Class XXIX., No. 22, p. 790). Honourable Mestion.
Three cases of perfumes, and a sauce known as Harrey's

sauce. The Jury accord an Hosourable Mention of the perfomery, which is fragrant and leaves no residuary unpleasant odour after evaporation.

GELE and Co., Paris (France, No. 845, p. 1220).

Prize Medal. For a very large collection of fancy Toiletsonps, made by the small boiler, or cold-process, and free from the defect of not giving a lather, which is usually the case with soaps made in this way. And also, for an

assortment of very agreeable performery.

Gings, D. and W., Milton Street (Class XXIX., No. 305a, p. 818). Prine Medal. These exhibitors are among the few British soap-boilers who also performe among the few British soan-bollers who also perfuse their samp for toll-epuryses. Their shape for mana-their samp for toll-epuryses. Their shape for mana-employed by woollen and silk mannfacturers for the more delicate goods; soap used by silk dyers to give bril-linary to their goods; and a Black-soft-soap made from the strick on Candles, page 619, it is chiefly used for scouring course wools and carpets, and is sold wholesale at 25 per lb. The bloosabelds aspect computer White-card of excellent quality; Mottled equally good; and very fine Pale-yellow-scaps. The Toilet-scaps exhibited are chiefly those ornamented with inlaid, embossed, and co-They are well perfumed, and give a good loured cameos. They are well perfumed, and give a good lather. The Shaving-tablet, contained in a gutta-percha case with a movemble bottom, is one of the vary best possible contrivances for that purpose.

Giro, Juan, Malaga (Spain, No. 344, p. 1344). Ho-nourable Mentiou. Three bars of Olive-oil-mottled or Castile-soap, made in the ordinary manner, in the large boiler. The alkali used in its formation is barilla, which, as before stated, was at one time the only source of carbo

as begive stated, was as one time the only source of carro-mate of softs, but it is almost entirely superseded in other parts of Europe by that prepared from sea-sult. Gnosestring, Johns, 99 Friday Street (Class XXIX., No. 13, p. 790). Prize Medal. The Jury award a Prize Medal to this Exhibitor of his Perfemecy and the mannafacture of Artificial-essences applicable to the flavouring of confectionary and other purposes; for instance Pine-apple, Jargonelle, Onion, Oil of-cognan; these artificial essential oils are generally used in the proportion of 1 os. to a gallon of spirit .- See pages 608, 609

HAUEL, JULES, Philadelphia (United States, No. 4, p. 1433). Prize Medal. Olive-oil-soap, Transparent toilet-soaps, very agreeable and well-manufactured. They afford a good lather.

The perfumery which is exhibited, is not included in the Award. the Award. HENDRIF, ROBERT, Tichborns Street (Class XXIX., No. 10, p. 780). Prize Medal. A collection of soaps amongst which are some curious matters. Brown-Windsorwoop; Amber-soap containing amber-oil; Wax-soap and to mix with colours for distemper-painting; Petroline-scap prepared with a mixture of 30 per cent. of Bar-badoes tar, and 70 per cent. of scap; this scap is intended

to be used as a remedy in cutaneous affections. Benzo-amygdalize-soap, which is a soap prepared with a mixture of almond-meal and gum-benzoin. M. Hendric exhibits likewise a large collection of very good Perfumery.

The Jury have not pretended to discuss the merits of the unusual compounds; but make their Award on the general excellence of Mr. Hendrie's Perfumery and Toilet-soaps.

Tolici-coaps.

KENDALL and Co., Dublin (Class XXIX., No. 25, p. 790). Prize Medal. These manufacturers have exhibited two cases containing twelve very large blocks of Marbled-soaps, besides skryt boxes of various Fancy-coaps. All the scops are made by the "cold-process," and consequently contain the glycerin resulting from the saponifi-cation of the fat. The materials used in their formation are lard, and a very pure soda-lye. Great cure has been bestowed by Messrs. Kendall and Co., in the manufacture of these sosps.

of these sospa. Kxtorr, Jork, 9 Old Gravel Lane, 8t. George's (Class XXIX., No. 8, p. 790). Prize Medal. Most excellent Primors or Paley-Plow-sosp, made with tallow, American rosin, and soda; Mottled tallow-sosp for household purposes, equally good; 50 of Possah-sosp, having the fig-lika appearance, which is much esteemed as an indication of careful manufacture.

Landon and Co., Paris (France, No. 1290, p. 1238). Honourable Mention for Aromatic-vinegar for toilet-purposes, very refreshing, and free from adhesive residue on cyaporation.

LANGDALE, EDWARD F., 83 Upper Thames Street (Class XXIX., No. 55, p. 792). Honourable Mention. A collection of Artificial-essences, now much used for A collection of Artificial-seacces, now much used for finevaring confectionary and beverages, consisting of the following:—Chi-of-Cogne, Chi-of-Cappels, Chi-of-Cappels, Chi-of-Cappels, Chi-of-Cappels, Humanumble Mestides to this Exhibiter; for the successful preparation of these various ethers applicable as a sub-stitute for natural rulus.—See pages 608, 609, Lxurvers, G. L., Paris (France, No. 908, p. 1223). Prize Medal. Excellent Arousaties or Tollet vinegar;

Creosote: Ean-de-Paris, a fragrant and agreeable perfume, resembling Ean-de-Cologue, but possessing a character-istic odont of its own.

LIPP, FREDERICK VAN. Düsseldorf (Prussis, No. 658, p. 1086). Honourable Mention. For an agreeable per-fume, called Düsseldorf water.

rame, cancel Disseldort water.

Martin, Maria Clerkeritz, Nun at Cologne (Prusia, No. 425, p. 1074). Prize Medal. Ean-de-Cologne of very superior quality, being that which was considered the most fragmant and agreeable in the Exhibition. The same odour was found to be persistent throughout the evaporation of a small portion, none of the essential oils becoming distinguishable, which is frequently the case with the inferior descriptions. Also Melisse Carmelite

spirit, or holy water (alcohol).

MELEZE, D., Hermannstadt (Austria, No. 44, p. 1009).

Hendourable Mention. The Jury accord an Honourable Mention to the Olive-oil-scop, Fancy-scops and Floatingsosp, which are of fair quality.

soap, which are of fair quality.

Millian, jun, Marseilles (France, No. 928, p. 1224),

Prize Medal. White Marseilles or Olive-oil soan. This
is a good specimen of the kind to which Marseilles gives
its name, and for which it is celebrated.

OGUR, J. L. M. (France, No. 139, p. 1225). Prize
Medal. Collection of Household and Tollet-soaps in barn

and cakes. The bousehold-sosps are excellent, and the soap, has a very peculiar jasper-like mottling, not seen in English soaps. The collection also comprises Plontingsoap; white Marseilles or olive-oil-soap; tallow or Curdsoap; rosin or Yellow-soap. This collection is very important, and highly interesting, and cousists entirely of

scaps of the very highest class. Palis, A., Berlin (Prussin, No. 263, p. 1063). Prize Medal. Palm-oil-scap and tallow Mottled-scap (with a peculiar wavy mottling), of excellent manufacture and great detergent power. Both the soaps are free from any efflorescence of peutral salts, although they have become

very dry. PEARS, A. and F., 91 Great Russell Street, Bloomsbury (Class XXIX., No. 24, p. 790). Honourable Mention, The Jury accord an Honourable Mention to Messrs, Pears for a small collection of Transparent-soaps, the mannfacture o; which they allege their father invented upwards The Jury tried one ball of the soan of forty years since. of forty years since. The Jury tried one out of the soap which was stated to be twenty-five years old, and found it, though much darker in colour, to be very good. The price of spirit of wine in this country has prevented Messrs, Pears from obtaining a very large sale for this sonn, but in America its manufacture is carried on to a

considerable extent. Pives, L. T., Paris (France, No. 1678, p. 1257). Prize Medal. Various kinds of Toilet-soap; spiritnous Per-fumery; perfumed Hair-oil and Pomatum; Transparentpotash-soap or Shaving-paste. Two soaps are especially deserving of notice, that called Lettuce-soap, and the Orange-flower-soap, as being perhaps even more agreeable than the others. All M. Piver's perfumes and soaps are

of the very highest class. RINNEL, E., 39 Gerrard Street, Soho, and Paris (Class XXIX., No. 3, p. 789). Honourable Mention, The Jury accord an Honourable Mention for the Perfumery exhibited, which is of good quality: Besides these there are Hair-dye, Perfumed-bouquets, Poma-

Sarre, H., jun., Berlin (Prussia, No. 255, p. 1063). Prize Medal, A block of Palm-oil-soap, and Tallow-curdsoan, well manufactured, of great detergent power, and

free from any efforescence.
STERR, H., Warsaw (Russia, No. 364, p. 1383). Prize
Medal for Brown Windsor-soap, Floating, and other Toilet-soaps, well manufactured and very agreeable.

It is curious to find that the name "brown Windsor."

It is carrous to find that the name "brown Windsor," should have been adopted even in so distant a locality as Warsaw. The soap, moreover, has a great resemblance to that manufactured in this country.

TATLON, H. P. and W. C., Pbiladelphia (United States, No. 392, p. 1453). Prize Medal. A very large collection of Transporent-soaps, some of which are quality arranged to form a window, in imitation of stained glass. They are very agreeable, and afford an excellent lather.

Taylon and Son, King's Road, Chelsen (Class XXIX., No. 5, p. 790). Prize Medal. These Exhibitors are perfumers of the soaps which they buy of the soap-boiler, and they have carried to great perfection the art of perfuming and mixing the various sorts of soap so as to running and mixing the various sorts at some so as to produce agreeable compounds for the toilet. The "Old Brown-Windsor-sonp" is particularly to be distinguished as one of great excellence. The other soaps are Almond, Otto-of-rose, Lavender, Honey, and Shaving. Besides scaps, Mesers. Taylor and Son exhibit spirituous and squeous Perfumes, of which they are the distillers, and which possess the fragrance of the respective flowers. The Rose-water, Elder-flower-water, and spiritnona Lavender-water, may be cited as examples of great execllence. The spirituous perfumes comprise "Pure Lavender-water," "Perfumed-lavender-water," Millefleurs and Water, "Permindent account water, Since are Rose-water, Honey-water, Peppermint-water, and Diliseed-water. Trollon, Grenoble (France, No. 1701, p. 1257). Ho-

nourable Mention. Concentrated essences for flavouring inquers: these are very numerous: some resemble the flavours of the fruits which they are intended to imitate, whilst others require a little imagination on the part of the epicure.

TOUCHE-GILLÉS, E., St. Laurent, Antwerp (Belgium, No. 434, p. 1164). Prize Medal, Excellent Toilet-soaps, affording a very shundant lather. The collection com-

scented Palm-oil-scap, which is most agreeable for the toilet; also a toilet scap called " Saron d'adoucissement"

emollient scap). BEY of TCAS (Tunis, Nos. 53 to 57, p. 1415). Prize Medal. A collection of a variety of Perfumed-waters (not spirituous). There are Ninety bottles of these perfumes, amongst which may be cited Rose-water, Quince-water, Apple-water, Musk-water, Jasmine-water, which is very fragrant; Millefleurs-water, composed of jasmine and other perfumes; White-rose-water, Aloe-water, Henzoin-water, Citron-water, Cinnamon-water, Carrawey-water, Orange-flower-water, water distilled with a mixture of benzoin and other perfumes, Cedar-wood water. Also perfumed tablets and necklaces worn by ladies: these are composed of a paste made of amber, musk, and aloe,

Likewise jasmine pomatum The greater portion of the perfumed waters are very fragrant; some few are peculiar, and to persons uneccus-

tomed to their use not agreeable WILLIAMS, JOHN, and Son, 28 Compton Street, Clerken-well (Class XXIX., No. 4, p. 790). Prize Medal. A collection of soups for manufacturing and household purposes, and also perfamed toilet soaps. These Exhibitors are soap-boilers, as well as soap-perfamers, a combination of two, generally, distinct branches. Their common soaps are exceedingly well manufactured, and are possessed of great detergent properties. The collection comprises, Olive-oil-soap, which is much used by the fine-cloth mannfacturers; White-curd (tallow) soap, used principally by the lace bleechers; Pale-yellow and Mottled-soap, for household purposes; Scouring-soap, containing designedly an excess of alkali, which effloresces on the surface: this soap is made chiefly for consumption at Leicester. It answered well for washing in a strong brine, and therefore

might be used on board ship.

The fancy-soaps are agreeably perfumed, and give readily an abundant lather. The principal description of toilet-soaps are Brown Windsor, Rose-soap, and the socalled Honey-soap

WUNDER, L., Liegnitz (Prussia, No. 250, p. 1063), Prize Medal, Tallow-soap, with a peculiar wavy mottling, very well mannfactured; Palm-oil-soap, of good quality, and excellent white Curd-scap; the Award is to the fore-Besides these, there is a toilet-soap called Ananas up, the perfume of which does not at all resemble that

soup, the pertume of which does not at all resemble that of the pine-apple, and is moreover very disagrecable. YARDLEY and STATHAM, Vine Street (Class XXIX, No. 2, p. 789). Honourable Mention. A soap called the "genuine Honey-soap," is very good, and gives an excellent lather, but it does not contain any honey. At one cellent lather, but it does not contain any honey. At one time honey was put into tollet-one, but was discontinued in consequence of the mais/bitly appearance it produced; the name, however, is still retained. The other soaps exhibited are, the "True Winter-soap," Heliotrope-soap, white and Brown Windsort-soap, which are equally good. Many of the Toilet-soaps are stated to have some culiar emollient and whitening effects on the skin; it is, however, to be hoped that the public will soon becom sufficiently enlightened to huy the soups for their real and not for their fabulous qualities,

II. CANDLES.

In tracing the little which is known respecting the early history of Candles, it is impossible to avoid the meution of Lamps also (although these were not amongst the articles submitted to the consideration of this Jury), as both are intimately connected not only in their history, hat also in their philosophical bearings; for however much candles and lamps may differ in other respects, they are identical in this, that both are contrivances in which, for the purposes of illimination, a wick of fibrous material is employed to effect the combustion of fatty bodies; which, for the most part, under ordinary circum-stances, could be ignited only with difficulty, and if ignited, would soon become catinguished. The chief the ejecute. Texturest, Autwerp (Beigium, Texturest), a planted, wouls soon necessarily make the first in the language of the client Texturest, planted, pla countries, especially in those where oil-yielding plants are not common, animal-fat is employed for feeding lamps; and it is even probable that the ancient Hebrews may likewise have used occasionally solid fats for the same purpose. The modern mortar night-light is also a lamp of this kind.

Frequent mention is made of the candle in the Old and New Testaments, in metaphorical as well as literal significations; but from the description of the candlestick of gold which Moses made by the command of God, it is more than probable that the Hebrew expression translated "canale" really means lamp, for in £zodas xxv., after the minute description of the form of the candlestick, with its six branches, it is said, at verse 37, " And thon shalt make the seven lamps thereof, that they may give light over against it." Again, in Leviticus xxiv., v. 4, the Lord directs that Aaron shall order the lamps noon the pure candlestick; and in verse 2 of the same chapter, the fuel used in the lamps is shown to bave been olive-oil

Torcbest may be regarded as a coarse description of Torebest may be regarded as a coarse description of candles, which indeed possibly originated from them. They are meutioned also in Holy Writ, in a passage, ermarkable as being the coly one in the New Testament where the lasters is spoken of 'John xviii, v. 3); " Judas then having received a band of men and officers from the chief priests and Pharisees, cometh there with lasterns

and terches and weapons.

The information respecting candles, mentioned in Pliny's Natural History, is very slight and ill-defined. That which is most to the present purpose is contained in book xiii, chap. 13, where in describing the books reported to have been found in a perfect state of preservation in the grave of Numa, 535 years after his interment, the anthor states that they lay near a quadrangular stone in a box which was bound all over with candles, and to that defence their preservation is ascribed. From this passage it would appear that candles were employed in the earliest ages of the Roman history; and, inferentially, that they resembled in some degree either our longest wax-tapers, or else match-lights made of pitched rope, for short candles could macon-ignus made of pitched rope, for short candles could not have been bound round any object. I not describing in book xvi., chap. 37, the "brittle rusbes" that grow in marshy districts, he says that they serve to thatch houses and make mats; and the pith of them, when the rind is peeled off, is used for making wicks for worto-candles and forment lights; to hore, by dead bodies while the pecete oft, is used for making wicks for isotro-consist and funeral-lights, to burn by dead bodies whilst they lie above ground. This description may be considered as referring to candles very similar to, if not identical with the modern rushlight; but as the fat used in their formation is not alluded to, nothing certain is known on the subject, 6 In book xix., chap, 1, when speaking of flax, Pliny remarks that the fibres nearest the rind are only fit for lamp and candle wicks; and in book xxxvii., chap. 3, that if the scrapings of amber are put into oil, they will burn and

* in Lane's Minners and Customs of the Modern Egyptisms there is a description of a folding lantern of waxed cloth, and tha lamp which is put into it. This, in Arabic, is called Chandee'l, with which our word candle may possibly have some connection; for it is more than likely that the same word was used to designate in former times either lamps or candles.

* British Gniana has contributed an interesting specimen of toreb-wood from the river Demorara, which, when beaten so as to separate the fibre, is used for torches by the indiana. It is supposed to be obtained from a species of Americ or

Icon.

The same story is also related by Livy, lib. xi., c. zo,
with the additional statesment that the books were bound
round in a package with hee candles, which seems to indicate that flux formed into torches with pitch or wax, were
made to hold the massucripts together. These employed, simply to hold the manuscripts together. These torches prohably somewhat resembled the tarred string used for the purposes of illumination in the present time by workmen engaged at night in laying down gas or water

of workamen engages as man is my to properly the property of the Irish candles in Feshrooke's 5 The description of the Irish candles in Feshrooke's Large, Ant., p. 240, however, throws much doubt upon this conclusion. It is there stated that they were formed, like those of other nations, of poetler trushes disped in butter or grosse, and placed in home of other nations, of poetler trushes disped in butter or grosse, and placed in home of oil. (Ledwich, Ireland, 1720, not). p. 225.)

maintain light both longer and more clear than wicks made of the best of flax: from which it would appear that, although the refuse flax was usually appropriated to lamp and candle wicks, the best flax was sometimes used for

As regards the fuel used in lamps, in addition to the mention of oil, Pliny, in book xxxvi., chap. 15, states farther that the inhabitants of Sicily barned a kind of bitumen, resembling an unctnous or oily liquor, in their lamps; and that they collected it from the surface of a spring in the territory of Agrigentum. Although in book xxi., cbap. 14, various kinds of bees wax are mentioned, and the method of wax-bleaching is miuntely described, which, it may be remarked, somewhat resembles the process employed in the present day,—no aliusion is made to the application of wax to the mannfacture of candles: nor in speaking of tallow and other animal fats, and their separation from the cellular tissue, is it stated that they

were employed for candles.

From Fosbrooke (Encyc. Antiq., p. 472, 4to Edit.), who copiously refers to most of the best authorities elucidating this subject, the principal of which have been carefully examined for this Report, we learn that wax was employed by the classical ancients for candles; the wick was made of rope and leaves of the papyrus, and such candles were carried by children at marriages, and were used at carried by cultures at marrages, and weve used it funerals. And the same authority (p. 403) adds that their illuminations were made not only with lamps, but also with links and wax-flambeaux." He states, moreover (p. 240), that the rich Romans naed lamps, and the poor employed candles. Beckmann has recorded a notice that employed candles. Beckmann has recorded a notice that the Emperor Coustantine, about the beginning of the fourth century, "caused the whole city of Constantinople to be filluminated with lamps and orax-candle on Christmas-Eve." (Hist. of Ise., Bohn's Edit, ii. p. 174.) Appleius distinguishes wax and tallow candles by the terms Cerei

and Sebacri In the middle-ages, continues Foshrooke, wax-candles were made of various sizes, some exceedingly small, and others weighing so much as 50 lbs.: they were made in moulds, the wicks being formed of twisted tow. He likewise states that they were made at home in gentle-men's houses. Whilst describing the architecture of the Britons, Anglo-Saxons, &c., be mentions that topera, ornamented with flowers, were used on high festivals to burn before particular images, and be borne in procession.

That wax-candles were not made in the Saxon period by That wax-candles were not made in the Saxon period by regular chandlers as now, appears from the description in Asser's Annala, translated for Bohn's Six Old English Chroacides, p. 84, of King Alfred's device for marking the hours of the day, by the consumption of wax-candles (six of which, lighted in succession, humed exactly twentyfour hours). It there appears that "he commanded his chaplains to supply wax in sufficient quantity, and he caused it to be weighed in such a manner that when there was so much of it in the scales as would equal the weight of seventy-two pence, he caused the chaplaius to make six candles thereof, each of equal length, so that each candle might have twelve divisious marked across it."

There can be no doubt, however, that the occupation of the wax-chandler existed in England at a very early period, as well for the mannfacture of tapers for religious rites, as for the preserving of the bodies of important personages in waxed cloths, which was called Cering Hence the nrt was probably practised chiefly, if them. Hence the net was probably practised chiefly, if non exclusively, in monasteries; the tenants of which paid several of the rents in kind, and one of these was delivered in wax, and called Cerage. The persons whose office it was to make this wax into paste and tapers were termed Ceragii and Ceraryi, and Decange shows them to have existed so early as a.n. 779. In 1397, John nf Gannt, have existed so early as a.n. 779. In 1397, John an Ganat,
Dake of Laneaster, directs by his will that bis body
should be carried direct to the Frian-Carmelites in Ficet Street, but that there should "be no cering or embalming of his corpse;" indicating that this operation was probably even then performed by ecclesiastics. In 1495, however,

Annal Tarit., iib. iii. e. 9. Edit. Lipr., p. 78, n. 21.
 Some examples of wax-candles, ornamented in this manner, are exhibited in the Russian Department.

a contemporaneous authority states that the Princess Elizabeth, daughter of Henry VII., "was cered by the Ducange shows that Casdelarii, or perwax-chandler." sons who made and sold candles, were known in the

middle of the thirteenth century.

By the sixteenth century the trade of wax-chandler was probably extensively established in England. In Brand's Popular Astiquities (vol. i. p. 29, Edit, Knight), is an extract from the chirchwarden's accounts of St. Martin Ontwich, London, under the year 1510:—"Paid to Randulf Merchaunt, wax-chandiler, for the Pascall, the Tapers affore the Rode, the Cross candelles, and Judas rapers arrore the Rode, the Cross candelles, ix, hijf. In the Memoirs of the last Theo Years of the Reign of Charles I., by Sir Thomas Herbert and others (p. 128), is described the night-light used in his chamber as "a cake of wax set in a silver basin, that then, as at other times, burned all night;" this description referring to the years 1646-1649 closely agrees with some of the forms of the modern mortar night-lights. Long coiled Wax-Tapers were manufactured in the 17th century in Venice, and the invention appears to have been brought to Paris about the middle of the same century by Pierre Blesimare, of that city,

In the year 1775, the Rev. Gilbert White, in his Natural History of Selbourne, pp. 198 and 199, 4to edit, describes the method of making Kushlights then practised by the cottagers of Hampshire, from which it might be by the cottagers of managainer, arom waters it might be inferred that they must have closely resembled those made by the nucleuts. A full abstract will be found in Tonalismon's Cyclopweita, p. 290, whence the following passage is taken:—"A pound of rushes (jacus), containing 1,600 individuals, was conted with 5 pounds. tallow, so that 228 lights weighed one pound, and cost a little over 5d. The rashes were peeled on three sides for the best lights, and on two only for watch lights, which were not required to give so much light, and which, Gilbert White says, 'it is true only shed a dismal one— 'darkness visible.'" Of the other kind he says, that "a good one, which measured 2 feet 44 inches in langth, hnrned 57 minntes;" and that he was assured by experienced old housekeeper that 11 lb. of rushes, after experienced on nonexeceper than 1 ½ in of transes, sitter having been coated with tallow, completely supplied his family for a year. The cost of lighting with rashes he estimated at one farthing for 5½ hours, whilst abalipenay candle in the "blowing" open rooms of the poorer cottagers only lasted 2 hours.

In the year 1799, William Bolts took out a patent in England for improving the form, quality, and use of the candle, the specification of which probably contains the first account of an attempt at the improvement of the quality of candles made from tallow and other animal fats, by subjecting the material to a considerable pressure during the act of cooling, and which, in effect, is the preparation of the so-called Stearine from fats. He likewise describes a solid candle with a short wick, which is placed in a bolder, and kept pressed on the end of the candle by a spring, or else the candle is placed in a tube and pressed against the wick by a spiral spring; as well as other contrivances, some of which have been revived

and successfully carried out in our own days.

The object of the preceding notices, incomplete as they are, is merely to enable the reader to form some idea of what may be gleaned relating to the various means of producing light at different periods, and especially regarding the construction and materials of the candle. Great interest, indeed, would be attached to a complete history of Domestic Illumination, tracing its gradual development from the solitary watch-lantern graven an the Pyramid, through the graceful hat very imperfect lamps of the Greek and Roman period, as exhibited in our museums, and the elumsy contrivances of the middleages, up to the productions of modern times, satisfying the demands both of taste and science. In such a narrative might be shown the progress of light, in the literal signification of the word, by a careful examination of the various forms in which it has been at different times employed, as lamp, lantern, torch, flambeau, faint or employed, as lamp, lantern, torch, flambeau, ramt or cresset, candle, and gas; whether for the celebration of religious ceremonies, for increasing domestic comfort,

adding to the scenrity of the streets of towns, or forming n beacon to guide the marine at night.* It would be, at in beacon to game the surror at night." A woman re, as the same time, a history glancing at the advancement which the improvements in illumination have given to the social condition of mankind; and at the advantages which science has derived from the study of this subject, Nor would entertainment or interest be wanting, in the recital of the many superstitions connected with the burning of lamps and candles; the shape of whose flame trembling in the moving air, and whose wick, bending or spreading under the influence of heat, has been suggestive to human imagination from the time of Pliny up to the enlightened days of our own century. Such an inquiry however, even were it possible with the time and the materials which are at the disposal of the Reporters, would far exceed the limits assigned to this Report. same restriction as to space prevents them from following step by step all the various mechanical contrivances which have been invented in recent times to facilitate both the manufacture and combination of candles. The Reporters cannot, however, refrain from entering into some details regarding the remarkable chemical improvements which have occurred within the last thirty years; especially since they possess the additional interest of being the result of investigations of a purely scientific character undertaken without any view to their ultimate practical application. In the present day it is too much the custom to require an instantaneous practical result, much to the detriment of the persevering prosecution of abstract science: the numerous, brilliant, and continually occurring oofs of that most important truth are too often overlooked, that all truly scientific studies tend to increase, sooner or later, not only the intellectual, but also the physical wealth of nations; and materially benefit the world at large.

(a.) Tallow-Candles.

The ordinary tallow-candle labours under many disadvantages, which are so well known that they scarcely require to be specified. It has an analessant odonr, which becomes more marked whilst burning; and the attempts at sapplying it with a self-consuming wick have been only partially successful on account of the law fusing-point of the tallow. The slightest draught, from the same reason, causes the tallow to melt in larger quantity than can be consumed by the burning wick, and it therefore gutters down; this renders the tallow-candle ill adapted for being carried about a house, as grease spots are apt to be pro-duced which are very difficult of removal; t to which we may add that it cannot be handled without soiling the

fingers.
The disagreeable smell of tallow-candles arises chiefly from the tallow being imperfectly purified; for if it contain a portion of the cellular tissue of the fat from which it is obtained, this putrifies and communicates the process of decomposition, like a ferment, to the fatty matter, which becomes rancid and evolves a most unpleasant odour. This is always the case with tallow as it occurs in commerce, which, although fit for the sospboiler, is too impare to be employed by the candle-maker without clarification. The first step towards the improve-ment of tallow-candles was made in the recognition of this fact; more attention was in consequence bestowed upon the manner of purifying or "Rendering" the tallow, as it is called. In England the "rendering" is effected by melting the tallow in an open copper pan exposed to the direct action of the fire. After it has remained in a fused urres account of the are. After it has remained in a fused state for some time, the water which the fleshy particles contain evaporates, and they then rise to the surface and are skimmed off and pressed. The pressed cake is called "greaves," or "eracklings," and is used for feeding dogs. Of the continues the surface of the pressed cake is a called On the Continent, however, D'Arcet's method is now naiversally employed, which has also been adopted in Ireland; it consists in treating the raw tallow melted by

* For a history of the "Lighting of Streets," the reader is referred to Beckman's Hist. Inc. (Bohn, vol. 11., p. 172.) † Common ether is one of the best vehicles for the dissolution and removal of oil or grease spots,

steam-heat with very diluted sulphurie acid, for the purpose of destroying the cellular tissue. This method, besides being much safer, yields three per cent, more tallow than the older process; and though it does not entirely remove the smell, essentially improves it. The purification of the tailow, at the same time, induces an melioration in the flame of the candle, more particularly in point of uniformity in the development of light; as the cause of the frequent obstruction of the wick during combustion by less combustible nitrogenous substances is

removed. Less success has attended the attempts to supersede sauffers, which still continue a necessary appendage to a candlestick with a tallow-candle. The plaited wick which, as we shall see farther on, followed in the wake of stearic candles, is not applicable to the tallow-candle without some special contrivance, as in carling over outside the flame (by which it becomes consumed) it causes the tallow to melt in such large quantities that a con-siderable guttering is the consequence. It is therefore necessary to protect the candle if a self-snuffing wick be employed; this is effected in Palmer's lamp. Here the candle is enclosed in a vertical metallic cylinder with a cap whose orifice is smaller than the candle; as the candle is consumed a spiral spring presses it upwards against the cap. This contrivance much resembles the plan prosave say. And contrivance much resemmes the plan pro-posed by W. Bolts in 1799, and to which allusion has already been made.

The next improvement in the tallow candle was effected by a reduction of the fusibility of the materials employed. This was first done by the same inventor, W. Bolts, but received farther development from Chevreul's researches. The observations of this celebrated chemist, to which we have already alluded in our article on soap, showed that all varieties of solid fats might be split into a solid ystalline fat (stearin and margarin) and an oily liquid erystatine intracectin mon imagazin; and an erystatine (olein); in his laboratory experiments this separation was effected by means of solvents; but subsequently it was found that by attending to the temperature of the fat, it might for all practical purposes be produced equally well by pressure. Common tallow melts at hetween 37"-40° C. (99"-104" F.) The melting-point of stearin is 62" C. (144" F.) By removing a considerable portion of the olein from the tallow, its fusing-point was conscof the orem town use taken, its manag-point was conse-quently raised, and thus a great evil removed. Candles have been repeatedly made of pressed tallow; they fairly deserve to be called stearin-candles, while those that now go by that mame actually do not merit the appellation.

To prepare stearin, tallow is melted and allowed to cool as gradually as possible, with constant agitation, so that

the stearin and margarin may erystallize; nt 35 to 38 °C, (95 to 100° F.) the mass becomes pasty, and is subjected to slow pressure in cloths. By repeating the operation, the stearin is obtained gradually of greater pority. Cocon-nat-stearin is very largely employed in England to mix with stearic acid, to form composite candles, the neutral fat appearing to be better adapted for this purpose than the fat acids which may be prepared from it; but on the Continent it is but little used

As regards the employment of tallow-stearin, many obstacles have stood in the way of its development which might, there is little doubt, have been removed by per-severing investigations, had not the more careful re-searches into the nature of the process of saponification of fats, and the separation of solid acids from the fatty bodies, the result of these researches, directed the inqui into a new channel. When it was found that stearie seid nato a new enament. When it was round that stearie assist fasing at 70° C. (138° F.) could be obtained from stearin fusing at 52° C. (144° F.), and margarie acid with a melt-ing-point of 60° C. (140° F.) from margarin fusing at 47° C. (107° F.), while the oleic acid remained as fluid as the olein from which it was derived, it became evident that the difference in the fusing-points of the solid and liquid acids being so much greater, the separation of the

* The American Section contains several specimens of olelo obtained by pressing lard, which, under the com-mercial name of lard-oil, is exhibited at Nos. 18, 19, 208, 562 former from the latter might be effected without difficulty. Thus the transition of the tallow-candle to the stearic candle was effected, Tallow-candles are of two kinds, "dips" and "moulds."

Dips are made by dipping the wick repeatedly in melted tallow; allowing a sufficient time to elapse between every operation, in order that each coat may consolidate.

Monid-candles are usually made in pewter moulds, although glass moulds have been lately introduced. The atthough glass moulds have been lately introduced. The mould cousies of two parts, a cylinder and a conical cap, which is perforated to allow a passage for the wick. Several of these moulds are fixed in a wooden frame, the upper part being formed like a trough in which the open end of the mould is inserted, the capped end pointing downwards. To insert the wick, the frame is lad on its side and a long wire with a book at one end is passed through the hole in the cap; the wick is then attached to the hook by means of a loop which is formed in it; on pulling back the hook the wick is drawn with it. A wire is now inserted across the top of the mould and through a loop at the other end of the wick; lastly, the wick is drawn tight through the cap, and a small wedge of wood is inserted to keep it in its place. The moulds are filled by running the melted tallow into the trough, sod are then allowed to cool until the next day.

There have been several improvements of late years in the mechanical arrangements for the manufacture of tallow-easiles, which it would be difficult to describe clearly without engravings; these have tended moch to lessen their cost, and consequently the consumption con-tinnes very considerable; still it may be expected, notwithstanding their moderate price, that they will be gradually superseded by the more elegant and harder candles of stearic acid, or of compounds of stearic acid with solid neutral fats, which have the advantage of being self-snuffing. As yet the general introduction of steario candles is impeded by their price, but we may confidently hope that the progress of science will soon afford us the ans of still farther reducing their cost of production and thus render the use of the tallow-candle less frequent in the dwellings of the poorer classes of society, as it has already disappeared from the homes of the middle

It is remarkable that the ordinary tallow-dip candle is not exhibited by any nation whatever, although there must exist far more makers of this kind than of any

ADSTRA

This is the only foreign country which has contributed tallow mould-candles. They are sold at 19 kreazers per Austrias, or 54d, per English pound; which is a half-penny more than far superior candles may be bought for in Ireland.

BRITISH COLONIES.

Two colonies, namely Nova Scotia and Van Diemen's Land, have sent monld-candles, in which there is, however, nothing remarkable.

UNITED KINGDOM.

The manufacture of tallow-candles in the United King-The manameture of fallow-candles in the United King-dom still continues to be a most extensive trade, not-withstanding the increasing consumption of gas, and the introduction of stearle and composite candles. Prior to 1831, when the day on candles was repealed, they yielded an important revenue in Great Bristian, as may be seen from the following statement (eep. p. 619). The day, It may be remarked, was first imposed in 1803, and continued at the same rates from that period until 1831, viz., 1d. per pound on tallow, and 3\frac{1}{2}d. per pound on wax or spermaceti candles. It did not extend to

In 1830 the number of candle-makers in Great Britain was 2,695, who paid 500,0481, 14s. 1d. duty; since the repeal of the duty no record has been kept of their number, but judging from the tallow imported, it cannot be less than in 1830.

M' Celloch's Dictionary of Commerce, p. 228,

Years. Tallow.		Duty, per lb.	Wax.	Duty, per 1h.	Spermaceti.	Duty. per lb.	Net Rev	rane	
	lte.		lbs.		Iba.		4.	4.	4
1820	88,352,461	14.	692,705	344.	193,463	34d.	373,455	14	5
1821	93,816,346	11	697, 196	11	165,647	11	395,911	8	7
1822	98,311,801	,,	682,241		179,208	7.0	415,609		3
1823	102,461,879		694, 194		180,401	11	433,537	15	8
1824	109,810,900		759,751		179,454		466,042		1
1825	114,187,550	**	851,370	***	208,377	**	485,014	8	9
1826	110, 102, 643		705,615		201,790		467,069	12	1
1827	114,939,578		713,655	**	226,277	7.7	487,318	3	4
1828	117,342,157	**	748,293	**	270,263	. ,,	497,770	2	9
1829	115,156,808	**	746,052	**	303,683	**	489,059	1	9

Quantity of tallow entered for home consumption in the United Kingdom in the last ten years:-

Years.	Cuts.	Years.	Cuts.	
1841 1842 1843 1844	1,241,278 1,030,960 1,174,945 1,081,039	1846 1847 1848 1849	1,183,834 1,069,301 1,406,725 1,412,484	
1845	1,191,896	1850	1,219,101	

Detailed report of the imports of tallow into the United Kingdom in 1850:—

	Cwts.	Duty pold.	
Tallow imported from-		٤.	
Russia - British Settlements in Australia	803,697 179,567	60,278 752	
United States of America	32,523	2,439	
South America	184,321	13,824	
Other parts	18,953	977	
Total	1,219,101	78,270	

Of tallow-caudies only 1,067 lbs, were imported in the same year. In 1830 the quantity of tallow imported into the United Kingdom was 1,073,833 ewts.

Kingdom was 1,073,933 ewts.

There are Four Exhibitors of montle-caudies, two Eaglish and two from Dublin. The Irish candles only are deserving of notice, and may be regarded as the perfection of tailow-candles; indeed it appears that the makers of Dublin have acquired a high reputation for mouth-

candles, by bestowing great care on the purification of their tallow and on the moulding.

The price of tallow-mould-candles is 5d, per lh.; those with waxed wicks, 54d.; and the composite candles, formed of tallow and cocon-unt-stearin, 8d, per lb.

(b.) Stearic Candles,

With this term we designate the casalise made from the instant self after passed in contradictation to those the instant self after passed in contradictation to the commerce both are called "stearine casidis." The manufacture of instant-scaledies to not be decrease, and concentrated (occin) in, however, still prepared in concinitation and the contradictation of the contradictation

	Coron aut-Oil Imported into the United kingdom in 1850.
Cocos-unt-oil imported from-	Cuts.
British Possessions in India -	85,096
British Settlements in Australia	6,315
Other Parts	6,628
Total	98,039 Duty free.

The foundation pow which the manufacture of stearies calculate is noted in the appointment on first, and the calculation of the

he vanishable, is notice to frustry is parity to establic germ.

The first steps in the numericare of stavoies anothes were surrounded by difficulties of all kinds which from the complex districts of the complex districts. The control of the complex districts of the complex districts of the complex districts of making enables from the inside farty seeds do not appear to know been mattered until strategies of the complex districts of appropriate discoveries to the prescribed purposes to the complex districts of appropriate discoveries to the prescribed purposes to the complex discoveries of the prescribed purposes to the complex discoveries to the prescribed purposes to the complex discoveries of the complex discoveries of the prescribed purposes to the complex discoveries of the prescribed purposes that the complex discoveries of the prescribed purposes and the complex discoveries of the prescri

voting, as ericeizing a remarkable anguelty on the parts of the Search be parasetten intelligent the progress of the Search be parasetten intelligent the progress of the Search of industry; they call it is all all the agent which have only the paraset is the said of stram, which has only teen brought into practical operations within the has only teen brought into practical operations within the conjuctor is remarked to extend the proceedings of the conjuctor recentled to colorly the proceedings of the conjuctor recentled to colorly the proceedings of the conjuctor of the confusion of the conjuctor of the conjuc

the perfect parification of the stearo-margaric acid. If

we compare this proceeding with the present practice, we perceive that it had yet to pass through various ordeals, A formidable and unforeseco difficulty presented itself in the fact that the new stearic candles would not hurn with the ordinary wick; a long series of experiments were necessary in order to construct a wick which would not spatter the fat during its combastion. Chevreal and Gay-Lusuc succeeded in doing this in the course of 1825, and indeed the plan was specified in the English patent before spoken of; they endeavoured to seenre their invention in France by a rider to their patent, but this was not done until another inventor had taken out a patent for a

similar contrivance. A discovery like the separation of the fatty acids necessarily excited in many minds the desire for its practical npplication. Almost immediately after the publication of Chevreul's work, Cambacérès, an Ingriseur des Pouts et Chausses, appears to have directed his attention to the utilization of Chevreul's investigations; at all events he took out a bravet for the improvement of the wicks of stearic candles in February 1825, which was prior to the date of the rider to Chevreul and Gny-Lussac's patent in France, and that of Gay-Lussac's in England: the value of the patents of these chemists was therefore consider-ably reduced. Cambacérès' first plan was a hollow wick, but in Mny of the same year he patented the plaited and twisted wicks, hy which snuffers were rendered superfluons. The tension of the separate threads of the plaited wick caoses the portion which rises from the candle to euri outwards, so that its point projects beyond the flame, and is rapidly consumed in the air that plays freely around it.

Cambacérès had observed that the wicks soon becan elogged in the stearic candles, although this did not happen if they were used in ordinary tallow-candles; he ascribed this phenomenon to the formation of soaps produced by the action of the fatty acids on the carbonated alkali resulting from the combustion of the wick. Whatever may be the cause, he succeeded in removing the difficulty by treating the wick with dilute salphuric acid; he supposed that the presence of this acid prevented the formation of soaps by combining with the alkalics in the

Another essential improvement in this branch of indostry was brought about hy the introduction of the chesper material, lime, as a suponifying agent, followed np hy the decomposition of the lime-scap by dilute sulphurie neid. The merit of having successfully introduced pharie neid. The merit of having seccessfuty introunces, the saponification by Jime (asponification cellcuire) belongs to De Milly, who has carroed great praise by his contribu-tions to the stearic manufacture. His plan formed part of the original patent of Chevrenl and Gay-Lussee, and it redounds much to his credit that the brought a plan to bear which had failed in the hands of his illustrious pre decessors. The saponification by lime, in an industrial

sense, dates from 1831. scence, dates from 1831.

As the wicks were frequently corroded by the salphuric acid naed according to Cambacérés' preparation, De Milly, in 1836, took out a patent for employing the boxis, phosphate, or sulphate of anmonia, for the same perpose, These improvements, and the endeavours of De Milly to promote the introduction of the new branch of industry in other countries, gradually caused its extension.

Nevertheless numerous difficulties still remained to be

overcome. The limits of the present sketch will not permit us to do more than give the main features of the development of the stearie manufacture: we are unable consequently to trace year by year all the little improve-ments which have taken place; but we cannot avoid a short notice of the numerous experiments necessary to prevent the crystallization of the stearic acid during the monding of the candles. The first attempt made was to introduce another acid; and though successful in its immenuse ougest, the closese (areamona soci) was an anhappy | never worked.

Nearly faitness years later, on the 22nd August 1841, youthfol ast. It is true that this detections substance | Duberafinat lostation | a patient in England, and about the was added in very mininte quantities, yet it was entirely a sme time likewise one in France, for the particulation of incomposite with nearly, and as none prohibited in the first young and their desiribation. The plan groupes of the controlled by analomy, and in England you quality pore.

M. Duberafinat was to see the commone of the bullet. mediate object, the choice (arsenious acid) was an unhappy

erful public opinion. Here commenced all the manufacturer's troubles anew; in all directions he sought a substitute, and yet found none; at last, after innumerable experiments, and when almost driven to despair, he hit on two expedients—very simple when once found out— which answered as perfectly as the discarded plan. The means now employed are—the addition of a very minute quantity of wax to the stearic acid: a still more common plan is to allow the melted acid to cool down almost to the point of congelation before it is poured into the monlds, which are warmed to the same temperature as the fatty acids. The refrigeration and occasional stirring of the liquid fat produces a sort of liquid pulp, which congeals in the moulds without crystallization

Sulpharic suponification (Suponification sulfurique).—
While the steeric manufacture was gaining ground extensively, as we have indicated, a new art sprang np during the last ten years, having the same objects, and being based on the same foundations, but seeking the attainment of the goal by entirely different means—we speak of the saponification of fat by means of concentrated sulphurie acid, and subsequent distillation of the

resulting fatty acids. The urigin of this proceeding must undoubtedly be sought in Chevreul's work; still E. Frémy deserves the credit of having, in an important paper, perspicuously exhibited the relations of fats to sulphuric acid. He deexministed the reasons or tasts of suppliers cate. It ele-monstrated, in a treatise which he published in 1836, that the action of powerful acids on fatty substances has a close analogy to that of the alkalies. Both re-agents decompose the fat, but while the alkalies combine with the fats, and act the glycerin free, the sulphoric acid combines both with the acids and the glycerin; thus we combines both with the actos and the glycerin; lunk we obtain conjugate sulpho-acids, sulpho-tearin; sulpho-margaric, and sulpholeic acids, on the one hand, and on the other sulpho-glyceric acid. The first three are of a very ephemeral character; water decomposes them into slightly modified fatty acids insoluble in water, and sulphurfe acid, which, with the sulpho-glyceric acid, dissolves

in the water.

To George Gwynne is due the merit of having first described a method of obtaining fatty acids by the sulphinric saponification of neutral fats, and subsequent distillation of the resulting products. In a patent obtained in March 1840, he describes very fully his proposed plan for effecting this object, which consisted in distilling in ruces, by means of an apparatus similar to that employed in sngar refining; the difficulty of sustaining a good vacuum on the large scale was, however, found to present so many obstacles that the plan was subsequently abandoned. Mr. Gwynne proposed also to distil, in the same manner, fatty seeds obtained by means of lime-saponification, and even to obtain fatty acids by

in the water.

me distillation of neutral fats.

George Clark also directed his attention to the practical application of Frény's experiments. On the 5th November 1840, he took out a patent for nillining this property of sniphuric acid in decomposing fats, but without having recourse to their anhancement distillation. having recourse to their subsequent distillation: the difficulty in cost, however, of perifying the fat after decomposition rendered the attempt unsuccessful, ontwithstanding that the quantity of sulphonic acid proposed withstanding that the quantity of supports each proposed to be used was only one-fourth the weight of the fat, whilst Frémy employed, in his laboratory experiments, double this quantity. Farther experiments were still necessary to establish, on a firm footing, saponification by means of sulphoric acid, which ultimately again led to

the adoption of an improved system of distillation.

In the patent before mentioned, which Gay-Lussac took out in England, and which is distinguished by its comprehensive treatment of the question, the distillation of fatty matters is spoken of, and the remark incidentally made that the process is much accelerated by the presence of moisture; this part of the specification was, however, never worked.

temperature, and to pass steam through them, hy which means their disagreeable odorous principle was intended to be removed. The distillation of fatty bodies was also claimed by Dubrunfaut, but the chief object of his patent was evidently the purification of common oils. By decomposing the neutral fatty bodies in this way, acrolein is produced, the vapour of which is so pungent and irritat-ing, both to the eyes and the throat, that no workman can be found to endure it; hence this patent was not successfully worked, yet it contained a germ, which in the hands of Jones, Wilson, and Gwynne, was elaborated into the

of Jones, Wilson, and twynne, was emborance must use art now precision.

In an English patent, dated the 8th December 1842, and granted to William Coley Jones and George Wilson, we find the first application of the combined process of sulpburic saponification and aroma-distillation. They decompose fam with sulpburic sacid, sided by heat, and distillation of the compose fam with the process of the compose fam with the compose fam wi the fat thus decomposed by means of steam, which passes in minute streams out of a perforated coil fixed in the bottom of the still.

This combination of the sulphuric saponification and subsequent distillation solved the fundamental conditions of success; nevertheless a whole series of improvements followed, which essentially contributed to establish the present extension of this system of manufacture. Patents taken out by Gwynne and Wilson, on the 16th

November 1843, and on the 28th December of the same year, secured to them farther improvements in this process; in the latter a method is described of reducing the quantity of sulphuric acid employed for decomposing the fats to from 10 lbs. to 6 lbs. for every 112 lbs. of fat, that is, to one-sixth, and even to one-tenth of the quantity emplayed by Frémy in his investigations. This saving was effected by heating the fat to 177° C. (350° F.) Another improvement was the heating of the steam in a series of pipes after it had left the boiler, instead of depending on the temperature of the fat to effect it.

Their last patent on the subject is that of the 30th Oc-Their last patent on the subject is that of the 30th Oc-tober 1844, in which they propose to nee a jet of super-saturated steam* to heat the fats previous to sniphuric seponification. These patents embody all the plans which, since July 1844, have been in operation at the works of Price's Candde Company at Vauxhall and Battersea, of which Mr. Wilson is the managing director. Similar manufactories, though not of such magnitud

Summar manunctories, using not or such magnitude, here been established in other countries; the principal are those of Masse and Tribouillet, at Neallly, near Paris, Motard in Berlin, Bert at Gjoin (Spain), and of the Milly Candle Society in Vienna.

There can be that little doult, after inspection of the candles in the Exhibition, that the process just described in applicable to the production of the higher class of

candle, white, inodorous, and dry to the touch; but this is not the only part which it has filled up to the present time, it is in the treatment of palm-oil and chesp fatty bodies that it renders most valuable service. By its aid fats the most fortid and impure furnish candles of the finest quality; and thus it utilizes the waste of the ginemaker, and oily residues derived from the waste lyes of woollen and other manufactories, We now proceed to describe the practical processes of the workshop, the various stages of which will be followed

without difficulty after what has been said in the article on soap, and in the foregoing sketch respecting the constitution of fats and their decomposition.

(c.) Description of the Lime Process as practised at Messrs.
Ogloby and Co.'s Works at Lambeth.

Saponification.- Into a large wooden vat, containing a coil of steam-pipes, pierced with small holes, ten tons of when turned on, issues through the holes into the water, raises its temperature, and melts the tallow; as soon as the water has entered into brisk chullition, a quantity of lime, in the state of thin cream, is added, and the chullition continued for six hours, or until complete saponi

. Steam heated to a higher temperature, after it has left Team nearest to a more compensate, have it has re-the boiler, than it can soquire if kept in contact with the water from which it is generated at any given pressure.

fication is effected. From 10 to 15 parts of dry quick-lime are added for every 100 parts of tallow. The lime decomposes the tallow and combines with the resulting stearic, margaric, and oleic acids, forming a lime-scap (rock-soap), and sets the oxide of glyceryl at liberty in its hydrated state as glycerin, which dissolves in the water. The whole is allowed to cool in the vessel in which the boiling is effected, and the solution of glycerin run off.*

The rock-soap, when cold, is reduced to a coarse powder by a mill, consisting of a pair of finted rollers, over which an axis is placed, carrying tiger-like claws, which revolve between a series of horizontal prongs. The claws, by an axis is placed, carrying tiger-like claws, which revolve between a series of horizontal prongs. The claws, by passing between the prongs, tear the large lumps into small pieces, which are then crushed by the fluted rollets. Decomposition of the Line-scope by Acid.—The ground lime-scop is now placed in lead-lined vair, supplied with

a perforated copper steam-coil, each vat being capable of a permitted copper steam-con, each van teng capanie or holding from eight to ten tons. When the temperature has reached the boiling-point, sulphuric soid, previously diluted, is added in the proportion of about 25 parts to every 100 parts of railow employed. The sulphuric soid combines with the line, forming an insoluble sulphate of lime, and liberates the oily acids which float at the top, and are then termed "yellow matter," This yellow and are then termed "yenow minur. Ans yenow matter is run off by cocks, placed at the proper level, into large sponted vessels, called "lacks," and poured from these into flat tin-moulds, in which it is allowed to cool and crystallize.

The sulphate of lime, after being well washed with boiling acidulated water to remove the adhering fat, is sold as manure.

Pressing the Fatty Acids to resove the Oleic Acid.— The cakes of yellow matter are interleaved with cocon-nut mats (without being sliced and enlosed in bags, as was formerly the case), and subjected between iron-plates to a pressure of 600 tons in a vertical hydraulic press.
A great portion of the oleic acid is thus removed, and the mixture of steario and margaric acids rendered much Refining.-The cold-pressed acids are then melted by

steam in a lead-lined wooden vat, with a little dilute sulphuric acid, to remove any oxide of iron, or other impurity; poured into flat tin trays, and again allowed to cool and crystallize. Hot-pressing.-The cakes of stearic acid, when cold

re put separately into a linen-bag, interleaved with cocon-nut matting and iron-plates, previously heated by steam, placed in the trongh of a horizontal hydraulie press, which is likewise heated by steam, and then subjected to great pressure for some time. By this operation the remainder of the oleic acid, holding a little of the solid acid in solution, is removed. The pressed cakes retain a small quantity of oleic acid at the edges; these are seraped off, melted, and again pressed. Second Refising.—This process is simply a repetition

of the first process of refining. Monlding .- In the mann facture of the best description of stearic candles, the moulding is generally performed by hand. The moulds are of pewier, several being fixed in a wooden frame; these moulds are heated to a

temperature approaching the fusing-point of the steeric acid, and are rapidly wicked, in the manner already described in speaking of tallow mould candles, The wicks are all previously prepared by immersion in a solution of boracic acid, or the ammonia-salts of this and other acids, the preparation varying with the ex-perience of different manufacturers. This preparation, called flux, serves to fuse the ashes of the wick into

minote globules, which are frequently seen on the ex-tremity of the wick, and which are readily dispersed, and also prevents the formation of earthy and alkaline scaps.

The melted material having been allowed to congcal to

* Until within the last four years the glycerin was a vabuckets predont; its utilisation is due to Mr. Thomas Da La Rue, who, heing engaged in experimenta on its applica-tion in the arts, happened to observe its property of allevi-ating any irritation of the skin, and suggested to a medical friend its use in the treatment of cutaneous affections.

a great extent, is run into the moulds. After cooling, the candles sbrink sufficiently to be removed with a few light

taps on the frame.

The fusing-points of stearic candles are remarkably aniform, though manufactured by various makers in different countries; for example, those taken from Mesers Ogleby's case congested at \$5°*25 C. (131'.5 F.), and one from De Milly's at \$5'*50 C. (132' F.) This coincidence is very remarkable. Stearie acid fuses at 70 °C. (158 °F.) Margarie acid at 60 °C. (140 °F.) So that from the mixture of the two a compound is formed which fuses at a lower degree than either of the componeots, for it is almost impossible to assume that the solid acid should still contain a sufficient quantity of oleic acid to reduce its fusing-point to such an extent,

(d.) Description of the Sulphuric Saponification and Distillation Process employed at the Works of Price's Patent Cardle Company.

Sulphuric Suporification.—About 20 tons of fat, say aim oil, are placed in a large lead-liced vat, and fused by a steam-jet. The fluid mass, after being allowed to settle, has now to be exposed to the combined action of concentrated sulphuris acid and heat, and for this pur-pose is pumped up into the acidifying vessel, in which its temperature is raised to 177° C. (350° F.) The means of heating is a jet of low-pressure steam, which, in its course from the boiler, passes through a series of iron course from the bouter, passes through a seriest of iron pipes heated in a farance. The quantity of acid used is in the proportion of 6 lbs. for 112 lbs. of palm-oil. Ju this operation the palm-oil is decomposed and becomes much blackeued. Withdrawn at that period it is seen that an important change has been effected by the action of the acid, as the mass now readily crystallizes to a tolerably solid fat. The fat is now drawu off from the acid and transferred to the washing tank, where it is boiled up with water hy means of a steam-jet, Distillation,-Afer one or two washings the blackened

fat is withdrawn and pumped up to the supply tank, which commands the stills. The stills, which are made of copper, are heated by an open grate; each still is capable of holding five tons of fat. When charged, the temperature is raised to 293° 5 C. (500° F.), and low-pressore steam passed through the mass; this steam is

previously heated by passing through a system of iron pipes placed in a furnace.

The correct of steam carries with it the vapour of the fatty acids, and thus facilitates the process. vapours of fatty acids and water pass together to a series of vertical pipes, which retain a temperature abova 100° C. (212° F.), where the fats only condense while the steam passes to a second refrigerator, cooled by a corrent of water; here it is condensed along with the minute quantity of fat curried over hy it. A separating tank, from which the water escapes at the bottom, whilst the fats float on the top, serves to recover this small

quantity.

Distillation of the Residue—After continuing the distillation for a certain period, the residue in the still is transferred to another still formed of iron pipes, set in a furuace, and there submitted to a much higher tempera-ture, and a jet of steam more strongly heated. The residue left in these iron stills is a sort of pitch, and is applied to the same uses as ordinary pitch; by this means an additional quantity of fatty acids is obtained.

The fatty acids, as they run from the still, are used to a great extent for the manufacture of candles without pressing, and form what are called Composite candles. which possess all the advantages of being self-snuffing, hat are more fusible and softer than the pressed steuric

acid candles. A large proportino of the distilled fats, however, is pressed to make n better sort of candle, and for this pur-

Press to high a bresses are employed.

Cold-Pressing.—The fats are spread by logenous machinery on woven mats, and submitted to powerful cold pressure, between iron plates; the oleic, or metoleic acid, runs out, and is collected, and chiefly exported to ermany, where it is employed in soap-making distilling palm oil, if

subjected to hot pressure, in hydraulic presses, confined in a chamber heated by steam. The pressed cakes, after the removal of the edges, are melted in contact with a little diluted sulphuric acid, and run into blocks. When the Reporters visited the works, the Company were distilling at the rate of 130 tons of palm-oil per week.

Moulding.—The moulding of the cheaper descriptions of candles is effected by ingenious machinery invented by Mr. Morgan, of Manchester, and improved by the engineer of the Company. By this machine 18 candles are moulded at one time; the wicks, 60 yards long, are wound on 18 separate reels, one for each mould. As one set of candles is pushed out by a series of plungers, they draw with them into the moulds the wicks for the next lot; these wicks being held temporarily with one clip, whilst the candles are held with another, are cut of close to the candies by a traversing circular cutter. Compound forceps, having 18 bolders, now seize the wicks at the open end of the moulds, and hold them in their places; the plungers then return and draw the wick tight, moulds, which during the operation have remained in a horizontal position, are now turned in a vertical direction, the small end downwards, and are then passed on a railto the proper temperature by their transit through a bot closet. They are then passed to other parallel railways and left to cool: after remaining a sufficient time to allow of the solidification of the candles, the moulds are brought back in succession by means of turn-tables to their first position. The forceps (which during the moulding have remained in site) are now removed, and the frame of moulds again turned in a borizontal position, the trams or moulds again turied in a normontal position. Eighteen plangers or pistons are made to press forward the loose bottoms of the moulds which correspond to the small end of the candle, in pushing these forward the candles are pressed out, and thus the cycle of operations is completed. It must be added that the return-troke of the piston brings back the bottoms of the moulds against shoulders provided to keep them from falling out.

Pressed cocca-nut oil is largely employed to mix with the pressed acids of palm-oil to make the best composite

Price's Candle Company (Class IV., 83, p. 201*) is the most colossal establishment in the world in this branch of chemical manufacture; possessed of five distinct manufactories, besides plantations of eocoa-nut trees in Ceylon, of a capital but little short of half a million sterling. or a capital our uses hord or nair is mannes serrang, and employing, nowthist-anding the best arrangementa for economising labour, 800 weakpeople; it is not sur-prising that they divide annually in profits a sum equal to the gross returns of some of the largest continenal weeks (between 40,000, and 50,0001).

werss (tetween 40,0004, and 50,0004).
The finsing-point of Price's Candic Company's candles of pressed dataliled flats obtained by distilling palm-oil is 51°-3. C. (124° F.); those prepared from the pressed flat obtained by distilling Chinese tallow (derived from the Stillingia subjects), seconding to a patent taken out on the 20th of December 1845, by Wilson, Gwymne, and Wilson, fast or 57°-7 C. (1086).

In the Austrian Department there are Four Exhibitors In the Austrian Department there are real Exhibitions of stearic caselles, whose productions are generally of the highest character. The two principal are, firstly, the Arollo Corlarny (39, p. 1009), which is the largest establishment in that country; having two manufactories, and employing about 600 workmen. These works producing the control of the country is the country of the country is not only the country of the country is not only the country in the country of the country is not only the country of the co duce about 1,000 tons of stearie enodles, and 1,500 tons of duce anout i, out one of recent endesor this Company are soon, annually. The stearie candles of this Company are the whitest in the Austrian section. Secondly, the MILLY CANDLE SOCIETY (40, p. 1009), which was established in 1837, with the aid of M. de Milly, who instructed his brother in the cur, and sent him to Vienne for that pur-pose. They have two manufactories, giving work to pose. They have two manufactories, giving work to 200 people; they also employ machinery for moulding. In the one they produce, by the lime-process, 500 tons of candics, and 450 toes of soap, annually; in the other, they employ the distillation-process, and produce, by distilling palm oil, 300 tons of eandles: in all, 600 tons

According to Mr. Buschek, the total annual value of the stearie mannfactures in Austria is between 5,000,000 and 6,000,000 florins (428,572/, to 514,286/,); this inelindes the soap made as a secondary product from the oleie acid. Tallow costs 29a. per English ewt., and is reckoned to produce 45 per cent. of steario acid, and 45 per cent. of oleie acid. Stearic acid sells at 66a, 3d. per cwt., and the manufactured candles at 112s, per cwt., which is an extraordinary advance on the price of the acid. Oleic acid sells at 18s. per cwt., and oleic acidsoda soap at 25s. per ewt.

BELOTUM.

The manufacture of stearie candles was introduced into this country by De Milly, in 1833, and has since

attained a high state of excellence.

The mannfactory of C. and J. QUANONNE (431, p. 1164), (who exhibit) was established with his aid; and they have adopted his name, of Bospies de l'Eule, for their cardiar. They have a They have six hydraulie presses, and produce annually about 240 tons of stearic candles, 70 tons of

annually about 240 tons of stearic candles, 70 tons of which are exportable. Exhibitory of enable from Belginn, via: —Discretaric transfer and Exportable (1997), 1167), who compley 17 workness, and produce 80 tons of stearic candies, 50 tons of which are caported; and Cirazzov xx was only established in April 1809; they nevertheless have sent the finest speciment. At present they are producing at the rate of about 50 tons per names.

The wholesale price of stearic candles is from 10d, to le. per lb.

CANADA.

The stearie candle manufacture has extended to Canada; which contributes the productions of a single mannfactory: from what has been sent it is fair to anticipate that this art will soon be perfected.

There is only one exhibitor of stearic candles in the Danish Department; his productions are very high in price (1s. +)d. per lh.), a natural consequence of the high rotective duty of 27s. 6d, per ewt. on candles imported. At present Mr. Holmblad's works (27, p. 1357) are on a vary small scale, producing only 20 tons of candles per There are, however, two other manufactories established near Copenhagen.

As the steario manufacture was originated in this country, it was to be expected that there would be many Exhibitors representing this art, and that their produc-tions would be of the finest quality, an anticipation which is confirmed by the result, for there are six Exhibitors of stearic candles by the lime process, and one of stearie candles by the sulphuric process, most of whom have been rewarded. There is likewise one Exhibitor of ornamented candles, which are, however, unimportant. M. De Milly (644, p. 1209), who was the first to apply the lime pro-cess successfully, established his manufactory of stearic candles in Paris in 1831, and gave the same of Bosyies de l'Etoile to his products, because it was situated near the Barrière bearing that name; his manufactory now produces, on the average, 2 tons of candles per day. Since that period many other makers have sprung up in France; and there are now in Paris and its environs six makers besides De Milly, who collectively produce, at the least, 10 tons per day by the lime process. Besides the least, 10 tons per cay ny toe lime process. Denues which there are in the French provinces seventeen other manufacturers, who make collectively about 17 tons per day. These figures must only be taken as approximations; but they show, that in France alone, at least 7,400 tons of stearic candles are produced by the lime-asponishment of the process of the produced by the lime-asponishment of the produced by the produced by the lime-asponishment of the produced by the lime-asponishment of the produced by the produced by the lime-asponishment of the produced by the produced by the lime-asponishment of the produced by the produced by the produced by the lime-asponishment of the produced by the produc

costs or scarre cames are pronounced by the imme-saponing-cation process. Besides these, Masses and Trainoviller, who employ the processes of sulphurie saponification and distillation, are mounted to distil about four tons of fat per day. They have exhibited a series of most

interesting products, which are described in the List of

According to a statement furnished by Masse and TRIBOULLET (1346, p. 1240), the whulesale prices of the various stearie manufactures are as follow:-The best steario candles, 11d. per lh.; second quality, 10d.; third quality, 9d.; candles made from unpressed distilled fat quarty, 9d.; candles made from unpressed distilled fat acids (composite candles) 7da, 8d., and 8d. per lh., ac-cording to quality; grease recovered from waste sads, 2d. per lh.; and, satly, paraffin-candles, i.e. 8d. per lh.; hat it does not appear that they have yet been supplied in the way of trade. Candles exported from France in 1850:-

Fallow-candles		15a. 1,133,590 1,777,086 3,923 113,227 10,418	valued at	28,792 84,000 256 10,334 1,006
	-	-	,,	
All kinds -	-	3,038,246		124,478

HOLLAND.

Mr. Brandon (70, p. 1145), who has sent very beau-tiful productions, established his works in 1839; he employs two steam-engines, five hydraulic presses, and about 100 workpeople.

Excellent steario candles are sent from Cossypore (p. 922). Ceylos (p. 937) has contributed specimens of cocoa-ant stearin and olein.

M. Motard (Zollverein, 262, p. 1063) was selected as the only exhibitor to represent Germany in stearie ma-nnfactures; and his articles fully justify the choice of the local authorities. M. Motard exhibits candles made the local authorities. M. Motard exhibits candles made by distillation as well as by lime saponification. The wholesale price of steario candles in Berlin is 1s, 04d, per pound avoirdupois: of stearie acid, 1t 4d, per lb.; of candles made from the napressed distilled acids of palmoil (composite candles) 8d, per lb.; and of the amenical callet. 3d over

the unpressed acids, 7d, per lh. In 1846 there were sixty-nine manufactories of scap eandles, and oils, giving employment to three hundred and fifty-five artizans; also five establishments for waxhleaching and wax-candle making, employing thirty-two

workmen.

Preses. There are Five Exhibitors of stearic candles in the Russian Department, whose productions are most ere-

Russia possessed, in 1842, sixty-two candle-manufac-tories, which produced annually goods valued at 142,800 L; and two hundred and sixty-six tallow-melting establish-

ments, which yielded tallow valued at 1,578,000/, The price of stearie candles in Russia varies from 10d. to 101d, per English pound.

SAUDINTA

There is One Exhibitor of sterrie candles from Sar-

SPAIN.

In 1839, while the effects of the civil war which paralysed Spain for some years were still severely felt, M Julian Bear (246, p. 1344), nided by M. de Milly, had the courage to establish a manufactory of steario caudles the corrage to extend a manta-cory of stearre custures in Spain. The difficulties of in ducing capitalists to join in forming a company being over crome, M. Bert had still to contend with formidable obstacles, from the discontinuance, at that time in Spain, of several collateral branches of industry. He was obliged to erect leaden chambers, and manufacture his sulphuric acid; also to establish a cooperage and a boils -making shop. In spite of these obstacles, his efforts were so successful, that, since that period, his Company have established still more extended works at Gijon, where saponification and distillation are both practised; as well as soap-making on a very large scale. The distillation furnishes 3,500 lbs. of vegetable futly acids per day. One hundred and fifteen workpeople are employed in the two establishments; they are all Spaniards, and were instructed at the works, There are two other manufactories of stearic candles, one at Barcelona, the other at Hernani. The wholesale prices of tallow and palm stenric candles are both 1s. 3d. per pound avoirdupois,

SWEDEN AND NORWAY.

Some of the finest stearic manufactures in the Exhihition are sent by J. Johansson, of Stockholm (98, p. 1354). The beauty of these productions arises chiefly from the employment of newly-invented machinery, which this Exhibitor obtained from J. and C. G. Boli der, engineers in the same town. Several candle-moulds exhibited which are remarkable for their internal polish. They are made by simply dipping a cold highly-polished steel-rod into a melted alloy, chiefly composed of tin. In this way two workmen can produce from 100 to 110 moulds per hour. M. Johansson enploys a steam-engine of twelve-horse power to work the hydranlic presses, slicing and mixing machines, and also a polishing machine, to which the great lustre of his candles is partly

TURKEY.

Moldavia contributed some very good specimens of stearic candles from its only manufactory, which pos-sesses a steam-boiler and two hydranlic presses; and produces about twenty tons of candles per annum,

UNITED KINGDOM. In 1832 a manufactory of stearic candles was esta-hlished in London, with the co-operation of M. de Milly;

nud in 1833, M. Burjot introduced them into the market under the name of moulded wax. In 1834, W. S. Hale (p. 796) commenced working, and has from this period gradually extended his works, until he has become one of the largest makers of stearie anti ne ma neconar one of the interprocess. His aim beiler the manufacture of a commercial article in large quantities, the productions which he contributes have not the whiteness and high degree of finish of those of some

other Exhibitors. It was likewise in 1834 that C. Outenv and Co. (p. 797) commenced working. They have since devoted them-selves almost exclusively to the highest articles, and their stearie acid and candles are the whitest in the World's Show.

Soon afterwards J. C. and J. FIELD (p. 205*) commenced the manufacture, and have likewise directed their attention successfully to the best class productions.

The manufactory of M. Burjot is no longer in existence, but has supplied the foremen employed in the first

instance in the works of the three Euglish exhibitors. instance in the works of the three English exhibitor. The wholesale price of stearic cashids in England is 10d. per th., and that of stearic said 3d. per the Besides those just named, PRICE'S CANDER COMPANY (p. 2017) exhibit interesting products obtained from the distillation of flus; and Mr. Hauwers, the flat scide reco-

vered from waste lyes. The wholesale price of palm steerie candles in 91d, per

th., and that of composite candles 54d, per lb.
Imports of palm oil into the United Kingdom in 1850;—

In 1850, 4,672 lbs. of stearie candles were imported into the United Kingdom, and paid 24l. duty. This quantity is very insignificant compared with the annual consumption, and arises in a great measure from the chespness of production in England: another cause, however, is the preference shown by the British public for candies coloured yellow to resemble wax, which descrip-

tion is not manufactured in other countries. It is much to be regretted that this tendency to imitate one material by another should prevail to the extent it does, as it un-doubtedly frequently retards the development of each in its own particular sphere. Many instances might be cited in illustration: the imitation of a caroct or marble payement by oil-cloth, and chintz and silk by paper-hangings, immediately occur; to which we may add, as more im-mediately connected with the subject under discussion, gas hurners made to imitate oil lamps and candles, as if a tube conveying gas could not be arranged in an orna-mental form. But to lower the beautiful white of the are stearic candle by any contamination appears absurd, pure stearic candle by any contamination appears anount, after bestowing so much skill in obtaining it free from colour. Our French neighbours, who, in matters of taste, are at least our equals, have long since discarded the less luminous wax candle, and invariably use those of pure white stearie acid for their grand fittes. The Jurors lately witnessed a brilliant illustration of this fact in the gorgeous illumination of the Hotel de Ville at

WURTENBURG.

Although the name of one manufacturer is given in the Illustrated Catalogue, no stearic candles are exhibited in the Wurtemburg department,

We now come to the consideration of candles made from wax and apermaceti, These substances, though differing from fats properly so called, present some analogy; they are even more closely allied than the fats themselves to the class of bodies called compound-ethers, inasmuch as they are actually combinations of certain fatty acids with the oxides of various alcohol-radicals; for, whilst oxide of glyceryl is common to all the fats and oils before spoken of, the waxes and spermaceti have their own peculiar bases, which, when liberated, are (nullke glyceria) insoluble in water; moreover, waxes are (nullke glycerin) insoluble in water; moreover, waxes are only partially acted upon by weak solutions of alka-lies, and spermaceti not at all under ordinary circum-stances; and although they may be split up into their proximate components by fusion with the solid hydrated slakalies, or boullition with their very concentrated solutions, they must be considered as non-suponifiable in the ordinary acceptation of the term. The individual differences of wax and spermaceti will be farther elucidated as we proceed.

(e.) Wax-Candles,

Under the name of wax are included substances of various origin and of very different composition. wax employed in the manufacture of caudles is secreted wax empoyed in the manufacture of calcules is secreted by the honey bee, which has the power of producing this substance from its food (angar). At one time it was thought that the bee collected the wax ready formed from plants, until Liebig advanced the contrary opinion, which was subsequently corroborated by the experiments of MM. Dumas and Milne Edwards.

A wax known as Chinese wax, and resembling s maceti in appearance, was formerly supposed to be a vegetable wax; but the researches of Sir George Stanatou and M. Stanislaus Julien, have demonstrated that it is the secretion of a male insect, the Cocus ceriferus. which deposits it on the trees on which it feeds, particularly the Rhus succedaneum. t Wc owe to Mr. Brodie, a knowledge of the true chemical composition of wax.

• The attention of the reader is directed to the following specimens of wax obtained from different sources, and which are hut little known. Two examples (275 and 295) of beer -wax from Tanmania, in the section of ion Dienare's Land; berry-wax and beer -wax from Sad Agries; vegetable wax from S. Domingo; and is the Chance section a so-called vegetable, wax produced in Sacchallen, and also white and yellow bees'-wax.

† For much valuable information respecting the so-called

1 common variance information respecting the so-tailed vegetable waxes of China, as well as the other products of that wast ampire, the reader is referred to the Etnak Pratique du Commerce d'Expertation de la Chine, by our colleague, M. Natalis Rondot, Paris, 1819. Guillaumin.

This clemint, by his recent claborate researches, how show that Chaines was in composed for peculiar farty scale (creative) and the oxide of an adoubte radical scale of the control of the control of the control of the control of the creative and the control of the control of the creative and the control of the control which is nearly insoluble in adoubt, and which has been usually called myrich, he has show to be a composal which is nearly insoluble in adoubt, and which has been usually called myrich, he has show to be a composal condision, the control of the control of the control of missipal, that is, pulmation of control on emissipal. He has like view been able to prepare from wax two new saids and insulate to pranting.

Paraffin would be much too costly to be converted into candles if made from wax, as its preparation entails a considerable loss of material; it is, nevertheless, desirable that it should be obtained cheaply from some source, as it is much better adapted than any other substance for illuminating purposes, from its containing no element besides carbon and hydrogen, which are united in equal equivalents; it is, therefore, exactly of the same com-position in a hundred parts as olefant gas, which gives to ordinary coal and oil-gases their illuminating power. Examples of paraffin-candles are exhibited by Masse and Tainouiller in the French Section, which were made from paraffin obtained by distilling hituminous schist: but far more interesting specimens are sent by JAMES YOUNG, Class II., No. 74, which seem to realize the great problem which the rare sugacity of Liebig* pointed out as far back as ten years ago. "It would certainly be as far back as ten years ago. esteemed one of the greatest discoveries of the age. says he, "if may one could succeed in condensing coalgas into a white, dry, solid, odourless sobstance, portable, gas into a winte, try, total, sucurress somastice, portaine, and capable of being placed upon a candlestick or burned in a lamp. Now this wery problem Mr. Young appears to have accomplished by distilling coal at a comparatively low temperature, whereby he obtains, instead of gas—the product of intense leat—a mixture of liquid and solid substances, the former capable of being harned in lamps like sperm-oil, or of being used for lubricating to tamps are spermen, or a comparation mould-candle as solid and white as any prepared from paralliu from other sources. The Reporters have not, as yet, been able to obtain a fuller account of the economical hearings of Mr. Young's process,† which will most likely be considered in the Report upon another Class, but they confidently hope that this truly beautiful discovery will not meet with similar difficulties as the plan prope some years ago for making paraffin-eardles out of If coal-paraffin can actually be obtained in sufficient quantity and at moderate cost, we may witness another revolution in the processes of illumination; and the brilliant discoveries of Chevreal, but Intely threatened by the spleadour of the electric light, may be celipsed by the general adoption of solidified coal-gas candles. In most countries wax intended to be made into enables

is periously blenched by a process personally to be decribed. That this, however, in and always the case, we reduced. That this, however, in the always the case, we reduced to the control of the control of the control Control. The enables in the latter, which we may late vax. "Jup", and have a very usually appearance. The remaining control of the control of the primitive method usually adopted for their material terms contains under the control of the control of the control of the deed in the province of Kirwan, and the primitive method usually adopted for their materials the primitive method usually adopted for their materials are control in the small mode, the wax is sometimes blenched, and of the usual mode, the wax is sometimes blenched, and of the manufacture of caselles, although sterie cannilles of Competing annual terms of the control of the deep control of the control Wax is more valuable when hleached, not only on account of the greater heauty, but also from the removal by this operation of impurities which would eliog the wick during combustion. It may be bleached by chlorine, but the process is of no value, because its constituents remin a portion in combination, and hence hydrochloric acid is given off in harming.

The method of bleaching employed is very simple, although tedious; the following, with some trilling varia-

tions, is the plan adopted in most countries.

War Blacching.—The war is cut up into numal pieces
and placed in a var, into which steam is made to pass
and placed in a var, into which steam is made to pass
very dilute subjuriar said being added, in the proportion
of one pint measure of strong subjuriar said (ed) of
one on time. This sublition of subjuriar said
for some time. This sublition of subjuriar said
said to some time. This sublition of subjuriar said fail in
addition of magnitum which adulated said.

As soon as, by subsidience, the wark has become bright, it is required into a result, with the less in the distinant in the result of the second properties second properties of the second properti

quires also frequent turning, so as to present every portion to the bleaching agency of santight.

The fusing-point of wax is raised by bleaching, for yellow wax fuses between 62° and 63° C. (144° and 146° F.), and bleached wax between 64° and 65° C. (147° and 149° F.).

(All most few as a condition of the cond

Notwithstanding the difficulty with which Gambia wax is blenched, and its linking to become of a rusty brown, that country furnishes the greater part of the wax which is imported into Great Britain. Large quantities are likewise imported from Megadore, the East Indies, particularly Ceylon and Singapore, and North America; the Mogadore wax is frequently largely adulterated with file.

been seen that it carious wax has been imported, the product of a black bee, which hives under ground. It is soft, and exceedingly remotious, and of a dark mahagan; and of the careful product of the careful

be imported, but no use has sey et been found for it.

The English wax is the most esteemed of all, but the small quantity produced is absorbed for various purposes without blenching, on account of its fine quality and its brightness and fragrancy.

In 1850 the quantity of bees'-wax imported for home consumption in Great Britain was 10,761 cwt., besides a small quantity of vegetable wax amounting to only 5 cwt. There is no duty on wax.

"The attempt to bleach war by meson of childrine, although meson fall in a practical point of view, has been very fertile in the state of the state of the war between the state of the state of the besiling views in chemistry, the so-called theory of substitution, derived its origin from Gay-Lusses' observation, that war, when exposed to the action of chiorian, also rised this element into its composition, relevaning an equivalent quantity of hydrogen in the form of hydrones are the state of the

^{*} Familiar Letters on Chemistry, 3rd edition; Letter XII.,

[†] According to a statement furnished to the Reporters, 100 parts of cannel-coal, from Bathgate, yielded 40 parts of oil, and 10 parts of paraffin.

1,067 lbs, of wax candles were also imported and paid 9l. duty.

Wax is not well adapted for monkling on account of its tendency to adhere to the mould, and its great contraction in cooling; and though these difficulties may be overcome, yet it is found more advantageous to make wax-candles in the manner about to be described, as they are found to hum much better.

The first process consists in warming the wicks in a stove, and then suspending them to a hoop placed over a vessel of melted wax. The workman pours the melted wax with a ladle on to each wick in succession, and at the same time causes the wick to revolve on its axis by the motion of the fiagers; when the candles are about one-third made, they are allowed to cool for a time, and the operation of pouriog repeated until the eandles are about half made, which is ascertained by the eye or by weighing. Whilst still warm, they are removed from the books and subjected to a process of rolling between two murble slabs, so as to render them uniform in thickness. The upper end of each candle is now formed by cutting down the wax to a metal tag which covered one end of the wick. The camiles are then again sespended to the hoops, the end which had previously hung downwards being now apwards; and the operations of basting and rolling repeated as often as necessary. Lastly, the lower ends of the candles are cut off to make them of

equal length.
The wicks of wax-candles are always made in twisted unbloached Turkey cotton, the fiftee of which appears better to resist the temperature of the highly beated wax during combustion. Platted wiels are not adapted for awax-candler, as the platting, by thininishing the equilibry and the platting of the pl

of soot. The large wax-endles, used in churelwe, are formed by laying the wick on to a slah of wax, which is there are large wax-endles, which is the Long wax supers are made by wisoling the wirk un a drum, and then leading it under a geinler-roller, placed in a trough of melded wax; from this it passes through a critic of holes, progressively mailler, that a drum are large with the state of
wax pliable enough to wiod,
Wax candles are coloured with the following ma-

Hlue - Artificial ultramarine.

Green - Mixture of verdigris and emerald green, or verdigris only.

Yellow - Chrome-yellow.

Red - - Vermilion.
Pink - - Madder-lake.

Wax mortar-lights, which are used as night-lights, have wicks of flax, as cotton is not found to be so well adapted to resist the long-continued action of the high temperature, and is not so noiferm in its capillary

nction.

The larger mortar-lights have plaited wicks, and are used principally for warming dishes.

CHINA-

The Chinese employ beed-wax, the insect-wax before reports of an disto vegetable tallow (chained from the property of the contract from the property of the contract from the contract from the contract from the manufecture of casalles. The insect-wax is particle by fitteration through moint free, and is then, for the propose of manifectuality, mixed with one-homborist part page of the contract from the Discourance of the Contract from the Bosourable East India Contract (p. 220), who called none cannot for the contract from the Bosourable East India Contract (p. 220), who called none cannot for wax-toper from the contract from the Bosourable East India Contract (p. 220), who called none cannot for wax-toper from the contract from the Bosourable East India Contract (p. 220), who called none cannot for wax-toper from the contract from the Bosourable East India Contract (p. 220), who called none cannot for the contract from the Bosourable East India Contract (p. 220), who called none cannot for the contract from the Bosourable East India Contract (p. 220), who called none cannot for the contract from the Contract fr

EGYPT

From Egypt are contributed a few specimens of waxcandles, some of unbleached and others of bleached wax, which must be characterised as crude manufactures.

INDIA.

The Indian Department contains some well-made short caudles of bleeched wax, six and nine inches in length, which are manufactured at Pstua. They are desiranted

eamphorated wax.

The most important contribution of that country in V, Sartzata's (200, p. 1307), which consists chiefy of wax lights, phin and ornamented, for the use of cluurches, though there are several for household use. Most of the other collections are small, and consist in some cases only of wax-twisted tapers. Two Exhibitors have seuf fancybaskets made of waxed wicks. In 1842 the wax produced in Itsusia was valued at 92,000!

Tunes.

This department contributes the most ungainly candles in the Exhibition.

TURKEY.

The Turkish Department contains specimens of very well-made and well-blenched wax-candles, and twisted tapers. The Jury have included these in their Award to Ilis Humanss the Suktan, as in common with most of the articles exhibited, they were bought in the bazzars, and no individual Exhibitor's name was given.

UNITED KINODOM.

The most remarkable collection of wax-candles, and specimens to illustrate wax-bleshing, is that of RascLav and Sox, wax-bleschers (Chen IV., 24, p. 194°, who cabilit in the Soxth-Wort Gibbert, The mundratures exhibit in the Soxth-Wort Gibbert, The mundratures the caselle, and especially the very careful attention between the wick, the value of which was only to be accertained by herning. The night-lights have the control of the control

f. Ornamented Candles

The collection of orasmented wax-enadles for weldings and fee days is in fair proportion. France, Portroat, * Russta, and Westersmund furnish specimens. Some decorated wax-enadles for Catholic churches are also contributed by Toxica and Co. to the Mediaval Court (Class XXVI., 356, p. 762).

The only three objects till to be noticed are candles made in the control of a greenih colour, and prohably from the way of the Mgrica cerifera. The others, from New Bureswicz, G.S., p. 603, are dark green. Lastly, there are hake candles made from hituminous shale of the Binney Quarry, Scottand, exhibited in the North Gallery (4), p. 793).

g. Spermaceti.

Spermaced is a white extualline body, fusing at 40° C. (190° Y.) In its chemical relation is in cheety allied to wax, and, according to the experiments of Mr. Laurence and the control of
DESCRIPTION OF THE PROCESS OF SPERMACETI REFINING AT MISSES. OGLERT AND CO.'S WORKS, LAMBETH.

Bagging.—To separate the crystallized sperasceti, the sperm-oil is filtered through long cylinders of bagging,

* There is a manufactory of stearie candles in Lisbon, but it has not contributed any of its productions. lined with linen, these are at one end tied on to the rozzles of a feed-pinc communicating with a tank elevated thout 6 feet, whilst the other end of the epithedr is feed up with a string. The oil being pressed upon by its own column, readily passes through the bugs, which retain the spermaceti. This operation is called bagging, and is performed on a very large scale in the atturnm and

winter.

The spermaceti is of a dingy-brownish colour; and is readily removed from the bags, which are open at both ends; in this state it is called "bagged sperm,"

Pressing.—The bagged sperm is then placed in hempen sacks, and subjected to a pressure of about 80 tons in an hydraulic press, which removes the greater portion of the adhering oil.

autering of princips.—The pressed sperm is now melted, and crystallized by slow cooling, and after being ground then subjected to the action of a much larger by drault pross, engable of exerting a force of six hundred tons. The oil which runs from this press contains a small quantity of spermaceti, and is, therefore, returned to the logs to be filter.

Application. The spermacett is next melted in a large frost record, and boiled for some time with a solution of curactic soda, which readily asposities the sperms-oil still adhering to the spermacetic, whilst it has scarcely any action on the spermaceti itself. By this means the sperms-oil is removed in the form of soap.

Hot-pressing.—The purified spermaceti is removed from the boiler, and run into flat tin-monids to crystalline. It is then ground again to powder, and placed in linen bags, interleaved with horse-lair mats, and previously-bented iron plates, and pressed in a borizontal hydraulic hot-press, heated by steam.

"Scood Reference," The hot-pressed spermaceti is then removed and boiled with a strong alkaline lye, the temperature reaching 113 °C (255 °F). By this fluid operation it becomes as colonrless as water, and has only to be cast into blocks for the coversione of storing.

The wholesale price of spermaceti at present is 1s. 16d, per pound in Fagland. Spermaceti-candles are moulded in the usual manner, about 3 per cent. of wax being added to prevent eysnalization. Spermaget-candles are often coloned vellow

with gamboge, and are then known by the name of transparent wax.

The wick of the spermaceti-candle is of plaited bleached cotton, and requires no previous preparation.

UNITED KINGDOM.

There are remarkably fine specimens of spermaceti and spermaceti-candles in the English Department, contribated by Four Exhibitors.

There are also specimens from the UNITEN STATES and Naw SOUTH WALES, of a less important character. It will be seen, from the subjoined account of Imports into the United Kingdom, that very little spermaceti is brought in as such, and that the major part is obtained by refining sperm-oil.

There are Sixty-four Exhibitors of candles of all nations; of these there are:-

I Holder of a Council Medal. 20 Holders of a Prize Medal. 10 Who obtained Honourable Meation. 33 Unrewarded.

64

The number of Exhibitors from the various enuntries is as follows:---

America	-	-	-	-	-	-	1	
Austria	-	-	-	-	-	-	6	
Belgium	-	-	-	-	_	-	3	
British C	olon	ies	-	-	-	-	- 8	
China -	-	-	_	-	_	-	i	
Deumark	_	_	-	-	-	-	i	
Egypt	_	_	_	_	_	-	- i	
France	-	-	_	-	_	=	8	
Great Bri	dain	nu.	100	form!	_	-	14	
Holland							·ï.	
					-			
Portugal	-	-	-	-	-	-	- 1	
Prussia	-	-	_	-	-	-	9	
Russin	-	-	-	-	-	-	8	
Sertinia	Ξ		-	_	_	-		
Sonin -	-	-	_	-	-	-	7	
Eweden a	od Y	Corn	25	_	-	-	- i	
St Demin	200	-	~_	-	-	-	i	
Tunis -	1,0	_			-		- î	
Turkey	-	-	Ξ	-	Ξ		2	
Wartemb	urg	-	-	-	-	-	t	

The Sixty-four Exhibitions of cualles admit of classification according to the description of coulter they chiefly exhibit, for only two lave contribated in more than one of the clases into which they may be subdivided. Thus, there are Sexus hillow-sendle-makers, Twenty-one waxcoundle-makers and wax-dustrebers, From spermaceit, could be made and wax-dustrebers, From spermaceit, startize and mad steative-canalle manufacturers. Nine of the latter exhibit way, but only as a secondary product of their startie manufacture; it has not, therefore, been taken into consideration under the lead of soop and pertakes into consideration under the lead of soop and per-

Before specifying the contributions of each Exhibitor who has received the award either of a Council Medal, Prize Medal, or Honourable Mention, a few words may be said to illustrate the point of view from which their merits have been judged. From our introductory re-marks respecting the different varieties of caudles, it is evident that tallow, stearie acid, composite, wax, and sper-usceti candles cannot be judged by the same standard, as the various products serve different purposes, and on account of the difference in their cost can scarcely be said to compete one with the other. The physicist may determine their relative illuminating power by experi-ment, and can, by comparing the price of similar quantities of different materials, ascertain the relative illuminating value of each variety. If carefully executed, such experiments may yield very positive results as to the purely economic question of the money cost of a given quantity of light, but are of no avail in estimating tho advantages offered by the different articles in point of eleanliness, purity, or presentability: how, for example, can the relative purity of stearic seid, wax, or spermaceti be estimated? how can the blue white of stearic acid, the brightness of wax, the transparency of spermaceti, be measured by such means; and bow the convenience of the self-soutling candle?

If photometric experiments on the different illuminating powers of flames are to be of any value, they must be instituted with extreme care and accuracy, Hitherto the results obtained by different physicists buve been marked by great discrepancies; this is to be explained by the difficulties which present themselves in the method of We need scarcely determination at present pursued. We need scarcely remark that we have not instituted experiments of this kind for the purpose of comparing the different varieties of candles exhibited. The amount of material submitted to the Jurors was so extensive, as to compel them to confine themselves to judging of the quality of the produc-tions by their external appearance and the manner in which they burned. On account of the great difference in the fiscal relations of the countries contributing, and the great variation in the price of the raw material, it was not even possible to take into consideration the question of price which was given in some instances.

question of price which was given in some instances,
A little practice, however, soon enabled the Jurors to
separate the different articles into the three classes of
Excellent, Good, and Mediocre. The characters by

which these were fixed were -colour, density, and fusingpoint of the caudies, brilliancy and steadiness of the flame, continuous consumption of the wick, and less or greater tendency to gutter in a current of air.

LOT OF AWARDS.

Apollo Stearin Company, Vicina (Austria, 39, p. 1009). Prize Medal, for an interesting display of stearic neid in blocks, and stearic enodles; this is one of the largest, while, at the same time, it is one of the best in the Exhibition. The great excellence of these candles manufactured by the process of lime-saponification, their hardness and whiteness, are evidences of a thorough knowledge of this chemico-mechanical art, and of a minute nttention to all the details of the various processes, without which no such articles could be produced.

Banckav and Son, Regent Street, Londoo (Class IV. 24, p. 196°). Prize Medal. A very large collection, illustrative of the processes of wax-blesching and waxcandle-making. Also wax night-lights, and wax mortarlights for warming dishes on the dinner-table,

The Medal is awarded to these Exhibitors, chiefly on account of the excellence of the above-named products; but as they exhibit likewise remarkably good stearie and spermaceti enadles, these latter are included in the

Award.

Bauwens, L. F., Grease-Works, Wakefield (Class IV., No. 26, p. 197*), Prize Medal. The Award to this Exhibitor is for the recovery of fatty acids, applicable to soap-making and to the manufacture of candles, from the waste lyes and suds of the woollen, silk, and cotton manufactories. The quantity of soap used by the various branches of manufactures in favour of which the soap-doty is remitted, amounted in the year 1850 to 22,858,382 lbs., which may be estimated as containing on the average about 30 per cent, of fats, or 11,429,191 lbs., or in round numbers 5,000 tons. The importance, therefore, of econo-mining this otherwise waste product will be fully appre-ciated if it be taken into consideration, that the manufacture of wool cutails moreover the employment of a large quantity of oil, which is afterwards removed by washing, The quantity of oil employed for this purpose in Great Britain may be estimated at about 6,000 tras, contained in the sads in addition to the fat contained in the soap, making together about 11,000 tons. But supposing that from unavoidable sources of waste only 5,000 tous were annually recoverable, and estimating it to produce 15f.

per ton, the value would still amount to 75,0000.

Bear, J. J. and Co., Madrid sud Gijon (Spaio, 245 and 246, µ. 134). Prize Medal. The Jury award to M. Bert In Prize Medal for products of the highest class from the two manufactories he bas established in Spain. From that of Madrid, in which sapooification by lime only is practised, he sends beautiful steario acid and stearic candles; from that of Gijon, in which he has lately creeted a distilling apparatus to include the most recent improvements of England and France, he sends palmitic acid equal to any in the Exhibitino, together with candles made of it. These latter candles are allowed by the Catholic clergy of Spain to be used in the churches

Brandon, N. D., Amsterdam (Holland, 70, p. 1145), rize Medal. The candles exhibited by Mr. Brandon are Prize Medal. a proof that io Holland the stearie maonfacture has reached its highest state of perfection; his candles are all that can be desired in hardness and careful moulding. The long stearie candles, which in Holland are allowed by the clergy to be used to charebes, are very beautiful specimens of manufacture. The interest in the collection of this exhibitor is enhanced by the intermediate products which be has sent to illustrate the various stages of the

BRIES, C., Dublin (90, p. 794). Hononrable Mention.

In the year 1830, 278,022 bales of foreign wool, each containing on the average 220 lbs, were imported into London, Javerpool, Hull, and Leith, so that about 31,000 tous were imported in that year; and as about 20 lbs. of oil are consumed in "working" or scrubbing every 112 lbs. of wool, there must have been upwards of \$5.00 tous used for wool, there must have been upwards of \$5.00 tous used for the foreign wool only,

Mr. Brien exhibits very well-manufactured tallow mouldcandles, which are white and hard. CAMPENHOUDT, CHARLES VAN, and Co., Heusden, Flan

ders (Belgium, 436, p. 1164). Prize Medal. The productious of these makers, whilst they are the finest in the Belgian division, may vie with most to the Exhi-bition for whiteness and hardness. Their candles oamed "Bongies de l'Etoile" are beautifully moolded, and have

a high degree of polish

DELACRETAZ and FOURCADE, Vangirard, near Paris (France, 13s, p. 117s). Honourable Mentiou, Messrs, Delacretaz and Co, are extensive contributors to the Exhibition, having sent some very large blocks of stearie acid, which is hard, but not of the highest degree of whiteness; the Jury, therefore, though they cannot award a Prize Medal to them, accord an Honourable Mention for their productions, which are very good, and which it appears they manufacture on a very extensive

senle. Dixon, George, Dublin (91, p. 795). Honourable Benion. The Jury make Honourable Mention of the clarified tallow mould-chadles of great whiteness, hard-ness, and exterior polish, made of a mixture of purified tallow and stearic acid; also of the composite candles and the yellow scap exhibited by Mr. Dixon, which is likewise well manufactured.

DONNEAUO and Co., Paris (France, 478, p. 1200), Honourable Mention. The Jury accord an Honourable Mention to Messrs. Donneaud and Co. for their stearie scid, and stearic caudles, called "Bougies du Phare though not possessing that whiteness though not possessing that whiteness for which the stearie acid of many exhibitors is remarkable, still their products are very ereditable, the candles being well moulded.

DEMONTER and Co., Lyons (France, 1593, p. 1253). Prize Medal, for most excellent white and bard stearie andles, well polished and carefully moulded.

FIELD, J. C. and J., Wignsore Street (Class IV., 130, p. 205*). Prize Medal, for the very fine blocks of white and hord stearic acids which they exhibit, and which evince a thorough knowledge of the stearic manu-FREEMAN, E., Wigmore Street (Class IV., 25, p. 197*).

Prize Medal, for very excellent spermaceti candles, called "transparent wax." The spermaceti candle (containing "transparent was. The sperimeces cannot communicate a small quantity of wax, to prevent crystallization) is in many cases preferred to wax, on account of its greater transparency, and brilliancy of flame. The peculiar tint of the wax is imitated in these candles by the addition of gamboge

HALE, W. S., Queeo Street (99, p. 796). Honoorable ection. The productions which Mr. Hale exhibits Hopograble Mention though very creditable, are not of the highest class, and seem more especially confined to the cheaper description seem more especially confined to the cheaper description of stearic candle, and those very economical, though not so presentable, sources of light, the so-called "Composite candles," which possess the property of being self-snaffing, and are much cheaper than the cheapest stearic candle, though, from their low fasiing point, they are oot so well adapted for use is hot climates.

Holnielab, L. P., Copenhageo (Denmark, 27, p. 1357). Honourable Mention, for a small collection of stearing eandles, exhibited io connection with other articles by M. Holmblad. They are white and hard, but extremely high io price.

night to price.

Jaillon, Moinier, and Co., La Villette, near Paris (France, 273, p. 1199). Prize Medal. The stearic seid mannificutred by these exhibitors is ambae according to a recently patented plan, which coosiate in passing a rapid current of sulphineous seld into the line-stat during the process of saponification, by which they state that they are able to produce a much greater quantity of solid fars than if they operated without the introduction of sul-phurous ocid; besides which, that they are enabled to use the commonest tallow, and produce white inodorous candles. The Jury could not enter into ao experimental investigation of the merits of this new plan, and, there-

^{*} The chemist cannot halp thinking of the conversion of the liquid oleic acid into the solid claids acid.

fore, wish it to be understood that the novelty or the supposed or real advantage of the process did not in the least influence the award of the Prize Medal, which is given solely on the merits of the products exhibited. The stearie acid and candles are, without doubt, amongst the best in the Exhibition, whilst they are the whitest in the French department made by the process of limesaponification.

Johansson, J., Stockholm (Sweden and Norway, 17, p. 1350). Prize Medal. The stearic acid contributed by this exhibitor is eminently pure, white, and hard, and is, with one single exception, the whitest in the Exhibition. It is most creditable to M. Johansson to have stood the test of comparison with so many veterats in the art, and to have come off with such high honours. The candles exhibited are most beautifully polished, more highly so thau any others, and in other respects well moulded; the polish is due to a peculiar mould, which is exhibited, and which is produced by a peculiar method already

described in the introductory notice (p. 624).

Masse, Tainoriller, and Co., Neuilly (France, 1346, p. 1240). Prize Medal. Messrs. Masse, Tribouillet, and Co. are amongst the largest exhibitors in this department, having contributed no less than thirty-five samples, illustrative of several very important branches of are connected with the manufacture of candles. Seven samples relate to that important industry in an economical point of view, the recovery of fats from waste suds and other refuse matter; as, for example, the parings of skin, and animal intestines. The candles manufactured from the distilled and pressed fats are very beautiful, hard, and white. There are seven also which show the progress of the manufacture of palmitic candles by the process of distillation, and include candles made with the unpressed fat acids, likewise very hard and white pressed palmitic acid candles, also candles made with a thin shell of hard polamitic soid, the centre being filled with the unpressed futty acids.* Three are the products of the recovery of fats from the waste sads of the wool-washers, and are similar to the first uamed. Four relate to the mannfacture of candles from regetable wax. There are also three specimens of the products of distillation from hituminous schist, including paraffin-caudles and candles govered with lithographic transfers, which it appears are used in France, but they have a very common appears Besides these, there are specimens of oleic acid, olein, from pressed tallow, and oleic acid-sods soap. The Jury award the Prize Medal to Messrs. Masse and Tribouillet for their very beautiful candles, manufactured from various fatty acids produced by the process of distillation, and their extensive and interesting collection of products

MATISEN, A., and Co., St. Petershurg (Rassia, 305, 1376). Prize Medal, for very beautiful stearic acid, of which MN. Matisen have sent seven blocks, and stearie candles, of excellent manufacture. These productions candles, of execlient manufacture. have a great degree of hardness, and are very carefully moulded

relating thereto.

moulded,
MILLER, T. J., Dorset Wharf, Westminster (Class IV.,
29, p. 197*). Prize Medal. An interesting collection
in the South-West Gallery, showing the progress of
spermaceti-refining: also an enormous and beautifully
crystallized hollow block, or grotto of spermaceti, in the - Western Nave. The Jury award the Prize Medal to this manufacturer on account of the very high degree of excellence to which he has brought the process of spermaceti-refining, as evinced by the absence of colour and impurity in the large mass he has exhibited; to produce which, no less a quantity than 3 tons, or 6,720 lbs., were fused at one time. After being allowed to remain at rest for n week, the spermaceti had cooled sufficiently round the circumference of the cask to be tapped, when about one half was ran out; so that the shell which is exhibited.

at 1s. 10d. per lh., is worth 30sl. MILLY, LOUIS ADOLPHE DE, Paris (France, 644, p. 1259).
Council Medal. M. de Milly exhibits stearie candles, called hy him "Bougies de l'Etoile," a name which, with that of Milly (stearin), is applied all over Europe to

* See page 626, China,

similar products. He has sent, likewise, lime-soop, the mixture of far acids resulting from the decomposition of this soap, pressed stearie neid, and oleie neid, so as to illustrate the various steps in the process; and besides these, oleie neid, potash or soft, and soda or hard soaps, made with the oleic acid. In consideration of M. de Milly being the first to solve the manufacturing problem of applying M. Chevreul's beautiful theoretical discoveries tu the production of candles, the application of boracic acid for the preparation of caudle-wicks, and the aid he has always rendered in establishing this chemical art in other countries, the Jury recommended M. de Milly to the Council of Chairmen as worthy of the Medal in their

MILLY STEARIN-CANDLE COMPANY, Victor (Austrin, 40, p. 1000). Prize Medal, for a very splendid display of the stearic acid manufacture, both by the process of distillation and the older one of lime-sapanification. This society have, in compliment to the Exhibition, sent three large and well-executed stearic acid Medallions; one of ange and well-executed secure field menions; one of the Emperor of Austria, one of Her Majesty Queen Vic-toria, and one of Prince Albert. Their candles, made by the process of lime-supunification, are very hard, white, and well moulded, and their night-lights, or evillenses, carefully manufactured. They have also exhibited the so-called "Composite" candles made with the unpressed products of the distillation of palm-oil.

MOTARD, A., Berlin (Prussin, 262, p. 1063.) Prize Medal. Very excellent stearic earniles manufactured by the process of lime-suponification, exhibited in connecti with the stearo-margaric acid of which they are made; with the stearce-margaric acts of which they are more, ulso, stearce candles made of the napressed and pressed fatty acids derived from palm-oil, by the process of disti-lation. The stearce candles from the hot-pressed fatty acids of palm-oil are very beantiful; those made with the acids, as they run from the still, are an excellent and cheap substitute for the tallow candle. The collection is well arranged, and illustrates both processes very satis-

OGLERY, CHARLES, and Co., Lambeth (139, p. 797). Prize Medal. The stearie candles contributed by this firm are the whitest in the Exhibition, and were used by the Jury as a standard of excellence, with which the production of other exhibitors were compared. The so-called "Transparent wax" capdles, made with a mixture of stearic[noid and wax, are very beautiful, and harn with a remarkably dry cup. The spermeeti, in block, also ex-hibited, is of the greatest whiteness, and most beautifully The spermaceti-capdles, and those made of erystallized. a mixture of spermaceti and wax, are exceedingly well manufactured. The Prize Medal is awarded by the Jury for the spermaceti and stenric manufactures, either us which would have entitled these exhibitors to the award. PITANSIER, Odessa (Russia, 307, p. 1376). Prize Medal, The piece of hot-pressed stearic acid exhibited by M. Pitansier is prepared from mutton-tallow. It is extremely hard and sonorous, and beautifully white; the stearie

candles are the whitest and best in the Russian Section. and occupy a first rank in the Exhibition, Poissar Uncle) and Co. (France, 1399, p. 1243). Ho-nournale Mention. The Jary make Honournale Mention of a few small pieces of stearic acid, exhibited with other articles by MM. Poissat and Co.; and which, from their diminutive size, had almost escaped observation. stearic acid was very white and hard.

Parce's Parkny Canner Company, Belmont Works, Vauxhall (Class IV., 83, p. 2012). Prize Medal, for the invention of improved methods of distilling fatty bodies, illustrated by the following articles: very beautiful white and hard candles manufactured from the distilled and pressed stearie acid of palm-oil; candles equally hard and white, made from distilled animal fatty acids recovered from the refuse of the glue-maker, and which possess an additional interest in being obtained from a waste product; and candles made from the distilled vegetable tallow obtained from the Stillingia sebifera. Besides these, they exhibit the unpressed distilled futty seids of palm-oil, in the state in which they are largely employed for the manufacture of the so-called composite candles, which appear to be destined to supersede the ordinary

tallow candle. (See the Prefatory Notice respecting the recommendation for the award of the Council Medal.)
QUANONS, C. and J. Careghen, Brabant (Belgium, 431, p. 1335). Prize Medal. The manufactory of these exhibitors, which was the first established in Belginm, is one of the oth-hoots of that of De Milly, in hence they adopt the name for their candles which was given to steare candles by their instructor, namely, "Hongies de l' Etoile," As regards colour and hardness, their stearic acid leaves nothing to desire; but their candles are not quite so carefully moulded as they might be, and have not that high degree of polish which is expected in candles of first-class manufacture in other respects Rosst and Scutarraneta, Turiu (Sardinis, 6, p. 1302).

Honourable Mention. Though the Jury did not find the stearic manufactures of these exhibitors quite equal to the best examples, they consider the stearie acid and catelles to be carefully made, and therefore accord them an Honourable Mention.

SAINTE and Co., Consypere (India, p. 922). Honour-able Meution. The Jury have much satisfaction in unking an Honourable Mention of the very good stearie candles manufactured in India by Mesers, Sainte and Co. local manufacture of stearie candles deserves every encouragement, as they are peculiarly saimble to hot cli-mates, on account of their high fusing-point, and as there must be a large quantity of fats of little value, which would answer well for their production, SAFELKIN, V., Moscow (Russia, 309, p. 1376).

nourable Mention. The Jury accord to M. Sapelkin an Honourable Mention, in consideration of the great care bestowed on the manufacture of wax-enodies for churchservice; many of these are tastefully ornamented with a simple spiral of gold, and have a very elegant appearance. The equality in size of the undles, as compared with one another, and likewise of their diameter throughout their whole length, are points deserving commendation. It appears that in the Greek Catholic Churches only wax or vegetable oil is allowed to be burned.

III, PROTEAN STONE, OR ARTIFICIAL IVORY.

Under this title there are exhibited, in Class XXIX., a number of articles, such as door-handles, finger-plates, inkstands, and letter-weights. These very beautiful objects are composed of a new material, derived from gypsum (native bi-hydrated sulphate of lime), which, by numerous variations in the method of treating it, is made to resemble ivory, granite, and various kinds of marble. From the specimens exhibited it appears to be very hard, and capable of taking the highest polish, which, it is said, is perpetuated by uso. It is translucent and brilliant in colour, and, being tinted throughout the mass, the ma bling and mottling are not liable to be rubbed off. It appears to be applicable to many purposes for which ivory and marble are at present used; but it is not fitted to be made into kuife-handles, on account of its brittleness.

In order to illustrate this very ingenious manufacture, we must recal to the recollection of the reader the very familiar phenomenon of the solidification of a mixture of plaster of Paris (de-hydrated sulphate of lime) and water, which arises from the circumstance that the graydrous sulphate of lime recombines with water equivalent in quantity to that of which gypsum is deprived by heat in the formation of plaster: hat, as mader the conditions of this solidification the plaster is diluted with far more water than it can recombine with, it results that a portion must be left in a free state in the interstices of the mass, which is consequently opaque, and, on drying, becomes porous; and although it is the same in chemical composition, it differs greatly in its physical aspect and properties from the native compound gypsum or alabaster, which is

erystalline and translucent In reflecting on the cause of this difference, It occurred

to Mr. Cheverton that if the combination of water and anhydrous sulphate of lime could be slowly effected, whilst the latter was in a state of compression, an artificial stone might be produced, compact and crystalline in texture, and translacent in appearance. This view was

The process by which these results are obtained is described in the specification of Mr. Cheverton's patent, obtained in June 1850, as consisting in the de-hydration and subsequent re-hydration of native bi-hydrated sulphate of lime, either in a compact form, as alabaster, or in the state of a fine powder. In the first instance the alabaster is wrought into the required form; and in the second, the material, in the state of a very fine powder, is compressed into a mould of the proper shape

In either case, after the object has been fashioned, it is exposed for 48 hours to a temperature of from 121' to 177 C. (250' to 350' F.), by which means the water originally combined with the sulphate of lime is driven The substance thus becomes very friable, but still retains the form into which it has been wrought. Sometimes placter-of-Paris itself is compressed into monlds, but the article so formed is still subjected to the operation just described, notwithstanding the previous baking of

the gypsum.

If a translacent appearance is required to be given to the surface of the figure, it is, before re-hydratioo, immersed into "white hard varnish," olive-oil, or other "oleaginous matter," until the surface is saturated; but if an opaque surface is desired, then this operation is

To effect the hardening, the object is plunged for an instant only into water hented to a temperature of from 38 to 651 C. (100 to 150 F.). This operation is repeated at intervals of from 10 to 15 minutes, until the sulphate of lime is completely saturated. The mass then becomes erystalline and much harder than alabaster; a circumstance which induces a belief that the new sub-stance contains a quantity of water in combination different from that in the native body; or, in other words, that it is a new hydrate of sulphate of time. The successof this part of the process depends in a great measure on the very gradual manner in which the combination with water is managed; for without due care the material deerepitates, and the article is then destroyed. The colouring is effected by dissolving the requisite

colours in water, and either sprinkling the object here and there with the coloured solution, so as to produce a mottled appearance, or else by immersing it altogether in the dye, which produces an uniform stain. This operation is performed previous to that of dipping in oil or

To the only exhibitors of this branch of manufacture D. STAIGHT and Sons (252, p. 802), a Prize Medal is

IV. BLACKING.

Although the compound which we now call blacking Freuch, Cirage) is, in all probability, of very recent invention, nevertheless it appears to have been customary to imbae shoes with an oily mixture before the time of Pliny, since it is stated by him that Cato recommended the dregs of the olive (after the expression of the oil) to be used fur anointing bridle-reins, leather-thongs, and shoes, in order to reader them supple." It must, howsomewhat similar to ever, be remarked, that a mixture modern blacking is also described by the same author, and it appears quite natural to infer the occasional use of it for renovating the black colour which we are also io formed was given by shoemakers to leather, by means of vitriol: two kinds of substances of this name being known, namely, blue-vitriol (sulphate of copper) and

green-vitriol (copperas, or sulphate of iron).

The mixture alluded to was chiefly used for ink, whence it was commonly called atramentum. It was composed of was commonay canrel atramentum. It was composed of hamp-black, gun, and vinegar, and would, therefore, only have required the addition of oil and boney to make it into a tolerable blacking. This inference is rendered the more probable from the discovery of the remains of leather found in the Roman gravel-pit discovered in digging the foundation for the New Royal Exchange, which appears to have been covered with a sort of black-

Not. Hist., Book xv. chap. viil.
 † Ibid., Book xxxv., chap. i.
 † Ibid., Book xxxiv., chap. xil.

ing. They are thus described by Mr. Tite, the architect.*
"The fragments, in general, are of black leather, similar to that of the other articles; but there are some pieces which may possibly have been ouec of another colour. It is most probable that the upper surface was almost always abluing, and several instances may be noticed where it still retains a dull gloss, which appears usually

to have protected that particular side."

The French word "Cirage," however, renders it extremely probable that modern blacking was originally composed chiefly of wax and tallow, and probably lampblack; and somewhat similar, therefore, to harness-black-ing. That ordinary liquid-blacking was first imported into France from Eugland, is probable, from the circumstance that blacking was termed Cirage Anglass, at all events to the year 1830, and it may still be known by that name.

When or how the English mixture now employed was When or how the Enginea mixture now supproject was first discovered, the Reporters cannot pretent to decide; hut, according to the statement of Mr. William C. Day (nephew of Mr. Charles Day), the recipe for its prepara-tion was communicated to Mr. Richard Martin whilst let was travelling on the Continent. Mr. Martin afterwards became associated with the late Mr. Charles Day; and in 1801 they commenced the manufacture of blacking. Mr. Martin having retired in 1808, the Insiness was still carried on under the names of Day and Martin, by Mr. Day, until his death, in 1836, by which period he had acquired a colossal fortune.

To give some idea of the extent of the operations still carried ou at "Day and Martin's," it may be stated, that on the average 150 casks, containing a quantity of blacking equal to 900 dozen piut bottles, are sent out per day. The price of the stoneware bottles, for containing the blacking. varies with their size, the usual sizes costing 6s. 9d. and 12s. per gross; and the corks (bungs) costing 1s. 4d. per gross. There is also a large outlay required for labels and scaling-wax.

Besides the establishment of Mesers. Day and Martin. there are, in Loudon, two other very important blackingmanufactories. One of these was founded by Mr. Robert Warren, who commenced about the same time as the firm already noticed, and retired some years back; but the business is still carried on by his successors; and the other was founded, at a subsequent period, by Mr. Everett, who commenced business in King's Head Court, Holborn, and afterwords transferred his mannfactory to Fetter Lane, where it still exists; Mr. Everett died in 1840, not, however, before he ind realised a considerable fortune. the last-named of these large blacking-works contributes to the Exhibition, and unfortunately its manufactures were not brought under the notice of the Jury,

Blacking, it may be remarked, consists essentially of two principal components, namely, a black colouring-matter and certain substances which will acquire a gloss by friction. Each maker has, of course, proportions and methods of mixing peculiar to himself, but the chief materials used are the same in most cases. In England? they generally consist of : - Bone-black, sugar or molasses, they generally consist of :— Bone-black, sugar or molasses, sperm-oil, sulphuric seid (oil of vitriol), and strong vinegar. These, according to Mr. W. C. Day, are mixed in the following order: :—The bone-black, in the state of a very fine powder, and the sperm-oil are first thoroughly incorporated; the sagar or molasses, mixed with a small control of the strong with the same of the strong with the same of the strong with the same of t proportion of vinegar, is now added and well stirred with the mass; strong sulphurie acid (oil of vitriol) is then gradually poured into the vessel. Much heat is generated at this stage of the process, and an effervescence ensues, owing to the action of the acid on the carbonate of lime

 Antiquities of the Regal Exchange, 1848, p. 56.
 According to the Information which Baron Lighig has kindly fernished to the Reporters, it appears that, in many, blacking is made in the following manner: powdered bone-black is mixed with half its weight of molasses, and one-eighth of its weight of olive-oil; to which are after-wards added one-eighth of its weight of hydrochloric acid (muriatic acid), and one-fourth of its weight of strong sul-phoric acid. The whole is then mixed up with water to sort of unctuous paste.

contained in the bone-black. The object of the sulphuric acid (which should not be in excess) is to cause the sens (which should not be in excess) is to cause the decomposition of the tri-basic phosphate (and the car-bonate) of lime, contained in the bone-black, so as to produce on the our hand sulphate of lime, and on the other a soluble seld phosphate. Sulphate of lime, when produced under such circumstances, gives rise to a very tenacious paste, by mixing with the finely divided car-bonneous matter of bone-black disintegrated by the same reaction; which paste (or lake) is capable, when sprend out, of assuming a very smooth surface. To this the reaction; which proceed states to expand out, of assuming a very smooth surface. To this the sugar and the oil impart the property, us touly of adhering to the leather, but also of taking a high degree of lustre ander the frictional (or barnishing) action of the brish; the oil is moreover very useful in rendering the leather

The mixture, after the action of the acid has ceased, is diluted with an additional quantity of vinegar, and is bottled whilst it is still warm. By bottling the liquid in this state, and corking and scaling it immediately, a rare-fled space is formed; and there is no liability afterwards that the blacking (if it wet the cork) will exude by the expansion of the air contained in the bottle, as it is not likely to become again heated to the same temperature

intery to become again measure to the same temperature mother the influence of any climate to which it may be subjected. The vinegar employed should not be too weak, otherwise the hlacking will not keep. Paste-blacking is now made in precisely the same way as Liquid-blacking, excepting that the last portion of vinegar is not added. The employment of such blacking appears to have preceded that of fejuid-blacking. It was usually stock on to a small shovel-shaped board, having a very short handle; and it was wetted with water (or saliva) as required. The old Cake-blacking differed in composition from that of the present day, and appears to have contained lamp-black, trencle, and oil,

AMERICA Two exhibitors send both Liquid and Paste-blacking,

the former being contained in glass bottles and not sto the former being commined in graces bottless and not seon-ware as in England. The blacking was found to be nearly of the same quality from both; hat not so good as that commonly used in England. The contributors are— E. Sternik (290, p. 1453), W. B. Bakzin (401, p. 1462), T. Tuanen (425, p. 1463) sends Edge-blacking per T. Tuanen (425, p. 1463). shoemakers.

BAITISH COLONIES.

C. WARD (Van Diemen's Land, 186, p. 995) contributes a specimen of Blacking, but it calls for no especial

FRANCE

In 1847 there were, in Paris, One hundred and thirtyseven manufacturers of blacking and varnish for shoes, who employed 140 workpeople, and produced goods to the value of 38,800 f.; France is, however, represented by only one exhibitor in this trade, M. Hérsen (869, p. 1221), who sends a specimen of varnish for boots and shoes, which was not submitted to the Jury of Class XXIX.

Pattesta

The only contribution is from C. TEICHMANN (p. 1088); it consists of Paste-blacking, which, though of fair quality, is not equal to the English blacking. SARDINIA

B. Bouroots (75, p. 1305) exhibits specimens of Pasteblacking for shoes, and paste Harness-blacking, which call for no particular comment,

UNITED KINGDOM.

The contributions of Two Exhibitors only were brought The contributions of Two Exhibitors only were brought under the notice of the Jury of Class XXIX., namely, 272 and 281 [p. 815]: of these the best is that of S. B. Alcock and Co., of Dublin (272, p. 816), whose productions are here favourably noticed, although no Award was made. The wholesale prices of their usual size bottles of liquid-blacking are 3s, 6d, and 9s, per dozen,

The manufactures of the other exhibitors who contribute to Classes:—11., 22, p. 190; IV., 70, p. 200°; XVI., 39 and 322, pp. 519, 534; were not observed by the Reporters

until the duties of the Jury were completed. The number of Exhibitors from all parts is Thirteen. There were no Awards. The classification according to the various countries is

V. CHEMICAL MATCHES.

The manufacturers of chemical matches are placed in un anonaslous position with regard to the other contri-butors in the Great Exhibition, inasmuch as that they were not permitted to send their actual produce, on account of the precantions deemed advisable to be taken for the security of the Exhibition Building against fire. Hence they were compelled to rest satisfied with contributing nuinflammable imitations of their articles; and ander such circumstances it is evident that it was quite impossible for the Jury to make any equitable Awards in this branch of industry. This result is the more to be regretted as the manufacture of chemical matches, although comparatively a very recent art, has been of late years developed in a most remarkable manner; and notwithstanding the high degree of perfection to which it has already attained, it is still undergoing further improvements consequent on the ranid progress of chemical science. Had it been possible to have foreseen and provided against all contingencies, an out-building might have been constructed for the an out-toroung might have reconstituted for the reception of these goods, which would have afforded a secure as well as a most valuable opportunity of comparing the relative merits of the matches prepared in various

In another part of this Report will be found some descriptive notices of several conveniences for travellers and others contained in the hollow heads of walkingsticks. One of these consisted of an apparatus for procuring instantaneous light, and the contrivance appears almost to realize the fable of Prometheus, who concealed the fire which he stole from Jupiter in his norther, ferula, or stem of fennel, on which he leaned in travelling.

44 I am he who sought the source of fire, Enclosing it hid in my narthex-staff; And it hath shown itself a friend to man, And teacher of all Arts." This invention, however, was in reality only the means

of preserving fire unextinguished, somewhat like the German tinder of the present time, and not of causing instantaneous ignition. The giant fennel, of which the ordinary ancient walking-sticks were made, sheds its seeds about September, when the stem decays, and becomes a substance so easily ignited as to be employed in Sicily for tinder. The pith of the plant also is stated by Proclus to be an excellent preserver of flame, to which Pliny adds his testimony, that it makes excellent matches, the Exprtian sort being the best. t

There is, however, another form in which a staff may be metaphorically said to conceal fire, since one of the most primitive means of producing it was by the friction of two pieces of wood against each other until sparks were emitted, and flame was then easily communicated to dry leaves or decayed vegetable matter. This method of procuring fire has been found generally in use in several savage nations, though with some difference in the process; and St. Pierre describes one of the most common, as practised by the West Indian negroes:-"With the sharp edge of a stone," says his narrative, " Paul made a small

hole in the branch of a tree that was sufficiently dry, which he fixed firmly between his feet, and he then employed the stone to shape into a point another piece of wood, equally dry, but of a kind different from the former. He next placed the pointed wood in the hole which he had provided, and made it to turn rapidly between his hands like a chocolate-mill, and in a few moments he saw smoke and sparks issuing from the place of contact, and then collecting dry plants and sticks, he lighted a fire at the foot of the palm tree." It appears that the same process was in ordinary use

with the Romans down to a late period, even when the flint and steel were well known. "This experience, says Pliny, "was first discovered in camps and by shepherds, when a fire was wanted and a fitting stone was not at hand; for they rubbed together wood upon wood, hy which attrition sparks were engendered, and theu collecting any dry matter of leaves or fungi, they casily took fire. For this purpose nothing is better than to ruh the wood of the lvy with that of the laurel, and a wild vine, different from the labrusca, which grows upon trees in the manner of ivy, has been also proved to be good."† The wood fit for kindling a light, denominates them igniuria, or those trees out of which fire may be produced. Pwridicula Igniaria appears to have been the usual name of a Roman tinder-box, but Solinus calls the fire-box Ionitabulum, and assigns its invention to Pyropolis, in the island of Delos.2 In those receptacles the apparatus probably consisted as well of a small iron bar and a fragment of flint consisted as well of a second state of the control bestowed on man at the commencement of the reign of Jupiter; and pyrites are described by Pliny as being well known and esteemed for producing sparks. "Certain of them," he says, "have much fire in them, whence we call them living, and they are very heavy. They are sought for because they are most valuable in camps; for when they are struck hard with an irou spike (clauss), or another stone, they will emit sparks, which being taken by sulphur or dry fungus or leaves, will cause them to catch fire even with the rapidity of speech."

There does not appear to be any information extant relating to the material anciently employed for tinder, unless it may be presumed to be indicated in that passage of the Prophet Isaiah (chap, i., v. 3t) which declares that " the strong shall be as tow und the maker of it a spark, and they shall both burn together, and none shall quench them." It is probable that a very small degree of experience would suggest the thought that flax or the linen wicks used for lamps would easily receive sparks and become ignited, but of this there has not been any certain

information preserved.

For many centuries the apparatus of a stone struck against a piece of iran continued, with but little improvement, to be the only means of procuring light. By the Saxons the flint or the pyrites was used under the general name of fyr-stan; and any piece of iron that was suffi-ciently substantial was the substitute for the modern A writing-stylus is known to have been used for the purpose by the Abbot Bertin in Burgundy, early in the seventh century; an instrument, however, which should be at once more substantial and more convenient aboutd he at once more intosantia may more convenient for striking, must have been soon required, and was pro-bably as speedily invented in the form of the feath, a thick rhounboilds piece of steel, having the faces cut into many angles. This was in use at a very carry period of the Middle Ages, when it is frequently to be found mentioned under a variety of names, all of them being mentioned under a variety of mannes, an of them being derived from the same original. In 1429 Philip the Good, Duke of Bargundy, established the Order of the Godden Fleece, in the collar of which the fiint and steel of the time formed the principal device. The latter was

Esch., Prometh. Vinct., 110. † Proclus, Comment, in Hesiod, Opera et Dies, 1. 52. Plinil, Hut. Nat., xiii, 22.

Suite des Etudes de la Nature : Paul et Virginie,

Hist. Nat., xvl. 40. Polyhistor, c. xl. Georg., l. 135. Hist. Nat., xxxvi. 19.

therein represented as a short and stont fusil, sharpened to a pointed edge on one side, and on the other laving two small curved handles, with a vacaut space between them for the hand; and a modification of this shape for the steel continued to exist to the close of the history of

the old-fashioned tinder-box,*

It was not smill after the middle of the seventeends and tendency of phosphores indicated a content that the discovery of phosphores in discover and the second of the content of the cont

After these notices of the older apparatus derived for procuring light, it will be an interesting inquiry briefly to glance at the history of chemical matches. And the procuring the process of the process of the protes of the process of the process of the process of the the tinder-low, with in fifth and steel, to the elegant friction-match, was not so simple as a superficial consideration of the supplex might lead one to finer. In the preverging efforts which are always necessary to reder available the discovering of the experimental philosopher, and take but little heed of birs whose disinterested holours when the process of the process of the process of the but includable stores of nature.

den but inextinaisable stores of nature.

The perfecting of chemical matches has been accomplished chiefly during the last thirty years, for before 1820 scarcely any other method of producing fire was em-

ployed than that of the well-known trio before alluded to, with which the ordinary sulpbur match was inseparably

anotistics. On the profes Devolveriner made the removalness of the profession of the profession of the profession of the another complete of Indianting a microw of hydrogen as another complete of Indianting a microw of hydrogen as plantium the investion of the Instituteson Light Apparatus, first howeve by the sunce of Develveriner's hydrogen and the profession of the Indiantial Confession of the recent properties of the Indiantial Confession of the Indiantial Confession of the recent properties of the Indiantial Confession of the Indiantial Confession of the Profession of the Indiantial Confession of the Indiantial Articles of the Indiantial Confession of Indiantial

A method of preducing ignition, responsed about the same period, has nerve been generally adopted. Het-pends upon the property wheth certain compounds of phosphorans and sulphur possess of inflantings when slightly robbed, in contact with the atmosphere. For the purpose about equal quantities of phosphoran and been purpose about equal quantities of phosphoran about the propers about the property of th

on the cork used to close the phial. This apparatus, bowever, has become almost entirely obsolete.

The first important said permanent improvement in the measure of channing light consistent in covering the sulmount of channing light consistent in covering the sulchiforate of possish; which being defingerised by inmovine into concertant enhance and communicated the inflammation to the molecular properties of possisitating and the subsequence of the concentration substitute acids, which was usually fixed in a paper or this loss intaling and the substance of the concertaint embeddering acids, which was usually fixed in a paper or the loss acids, which was usually fixed in a paper or the loss acids, which was seasily fixed in a paper or the loss acids, which was seasily fixed in a paper or the loss acids, which was seasily fixed in a paper or the loss acids, which was acids and the paper of the loss of the content of the loss of the loss of the loss of the international properties of the loss of the loss of the decidence Capacidans **a amongst the expotance of the loss of the versal part of the loss of

Exactly the same principle was involved in the presents of the machine breated by Ny, Jone, of the manner of "Promocheme," but which do not appear in mose of "Promocheme," but which do not appear in property of the Confinence. These were been small and the confinence of the property of the Confinence of the property of the confinence of the property of the propert

tion-match.

The first true friction-matches, or congreves, made their appearance about the year 1837. They had a coating of a mixture of two parts of subplike of audinouy and one part of chhorate of potabs, made into a paste with no parts of the parts

The Reporters have not succeeded in learning with certainty by whom the substitution of physichrose for the tailty by whom the substitution of physichrose for the complete of the substitution of postal required so much pressure to produce the ignition that it was frequently palled off from the match, and this substitution was matches to leafters appear indeed to have been introduced contemporaneously in different constricts about the large scale in the Grand Dudy of Hees, and especially in Darmatati, where Dr. Moddenhauer, in particular, contributed much to the improvement of this breach of

From Darmstadt the manufacture was gradually extended throughout Germany is let its progress was at facely replaced to the progress was at facely replaced to the progress was at facely replaced to the progress of the pro

Du Frence, Giossarium, 1758, vi. col. 563, voce Sol. 3, † To those who would repeat the experiment, we would remark, that the fusion should be performed with great caution, loasamech as the mixture frequently defonates at the moment when the components enter lato chemical combination.

^{*} Third Edition, 1808, p. 563.
† Detonating mixtures of chlorate of potasb with either sulphide of antimony or phosphorus, are described in Parke's Ciemical Caterhian, 10th Edit, published to 1822; and the latter in the 3rd Edition (1808).

(to whom the Reporters take this apportunity of expressing their thanks for most of the satisficial and other information respecting the progress of the art in Germany, there are in the province of Narkenlarg, Grand Duchy of Hesse Darmstath, no less than cight manufactories, producing weekly about Synovino boxe of manufactories, producing weekly about Synovino boxe of manufactories, producing weekly about Synovino boxe of manufactories, producing the state of the state of the state of which, are valided at South Indian (2012), by the Germal the production of utrificial) chemical matches,

In Austria, the manufacture of chemical matches has been of late developed to so great an extent, that it supplies not only what is required for home consumption, but also enough to form an important arricle of exportation; indeed it uppears that the most important item of Austrian commerce with Chili consists of matches.

The matches manufactured in Austria amounted in 1849 to 50,000 cut., of which four-fifths were consumed in the country, not one-fifth was exported. From Trieste 3,787 cut. were shipped, viz., to

That the export trade of Austria in matches is rapidly increasing, appears from the following statement of the quantities shipped on the Eibe during the last three years:—

As matches are not always specified in the Official Report on Commerce, it is not possible to give a detailed statement of all the quantities exported,

It is estimated that of the total production of matches in astrain, one-third in manufactured in likelensia, and twothirds in the factories of Vienna and its vicinity. The number of factories in Boltenia is ten; of these there are not assume that the sum of the state Teplitz, one at Tusu, one at Techemoschin, one at Schinthal, one at Nation-time, and one at Hebrenber. These exhabilishment give employment to about 1,000 work-

In Austria Proper there are twenty-two factories, manely, sixteen at Vienna, two of which exhibit, three at Funfauss, one at Schärding, one at Thile, and one at an exhibit, three Pottenstrie; there is also one in Moravia, which likewise exhibits. The number of workpeople employed is about 2,000.

In illustration of the quantities of the different numerials employed, it may be stated that a Bohemian manufactory employing 100 workpeople produces annually about 200,000 boxes, each containing 2,000 matches. It consumes annually 22 ext. of nitre, 64 ext. of phosphorns and 300 ext. of subplar. Calculating on these data the total amount of materials consumed in all Austria, the following numbers are obtained.

The quantity of soft wood consumed ansembly amount to 5,000 Melffers or fathoms; and it is worthy of notice that a large portion of it is manufactured into splints in Budweis, and thence sent to Vienna. About 5,000 millions of single matches are produced annually in Austrian. These are made with automiting papility, in consequent Pose are made with automiting papility, and present and the supplies of the production of the

From other parts of Germany there are Four Exhibitions, nancely, one from Prusia, two from Warriemburg, and one from Mecklenburg-schwerin; the Reporters, however, lawe no been able to accentain how far they represent the manufacture in all those places; but they are caushed to state that there were twenty-one manufactories, employing five hundred and sixty-one workpeople, in Prussa in 1146.

According to a statement of N. Pyren, the quantity of phosphorus common in France for inferiorizations of phosphorus common in France for inferiorizations of the phosphorus common in the phosphorus of the phosp

into the United Kingdom, as chemical matches are entered in the Costum returns under the general head of "Goods non-enumerated."
Formerly large quantities of phosphoras were imported into the United Kingdom for the purpose of chemical-match making; but it will be seen by the following miles, that this substance must now be made within the Piritish domainon in sufficient quantity to sneply the

VALUE of the IMPORTS of PROSPRORES into the United Kingdom.

From 9th July.	From Denmark,	From the Hanoratic Towns.	From tioliand.	From Prance.	all Pare
	£.	£.	£.	£.	£.
18421	1 1	45	14	1,102	1,162
1843		1	20	2,319	2,370
1844		_	83	2,481	2,567
1845	-	=	25	1,474	1,499
1846	- 1	12	_	619	631
1847	- 1	22	52	495	572
1848	=	16	15	149	180
1849	- 1	29	60	53	122
1850		9		1.	3

Although Incifer-matches are made to some extent in the United States, there is no exhibitor of them in the American Section.

In continuing the nurrative of the progress of this manufacturity, we any not observe that, as in extended, someon, the prices of the articles produced new lower, we are this the only improvements, for whole series were all the prices of the articles produced new lower, and the produced produced new lower, and the prices of the match could be to a great extent, or even other prices of the match could be to a great extent, or even other prices of the prices of

* Pravious to 1850, phosphorus was comprised among the
"Provisis Chimipurs,"
† Previous to the 9th of July 1842, the imports of phos-

7 revious to the 2th of July 1842, the imports of phosphorus were cotered under the general head of "Goods non-caumerMed."

The match having reached this point of perfection, some attention was given to the embellishment of the boxes by the various manufacturers, who tried to excel cash other in the clegance, convenience, and security of the case, for which various materials were employed—for instance, card-board, wood, and metal—the latter being usually ornamented with coloured lacquere, and engine

turning.

With regard to the composition for the matches aow
in use, Dr. Ure, in the Supplement to his Dictionary of
Arts and Manufactures, p. 153, gives the following recipe
of Dr. R. Boettger:

The giue is to be converted into a rmooth jelly with a little water, and put into a warm moriar to liquefy; the phosphorus is then to be rabbed down with the gelatine, at a temperature of from 60° to 63½. C. (40° to 130° F.), after which the nitre is to be added, then the red powder, and, lastly, the smalt, the whole being earchilly mixed until it becomes an uniform

Lucifer wood-matches that inflame without sulphar are prepared, according to Dr. Live, by the ends being rubbed against a red-hot iron plate, and then dipped for a moment into melted white wax, contained in a shallow

flat-hottomed pan.

In Morch 1842, Mr. Reulen Partridge obtained a patent for forming wooden splints by prossing, with assimble mediurer, a flower for was against a steel plate perforated with holes, placed, together as closely as possible. The wood is thus forced horough the perforation with the production of the place of the plate of plate of plate of the plate of the plate of p

Index doubt glittle abort Arch of the manufacture of chemical matterlas, the Bepreters with to fave a circulate chemical matterlas, the Bepreters with to fave a circulate chemical matterlas in the Bepreters of the arch of the sometimes given tries. Dr. Lorinet, of Vicana, In 18x4, for called the stateston of most of circum and the public form of the Bepreters of the Bepreters of the Bepreters of the number of the Bepreters of the Bepreters of the Bepreters of the number of the Bepreters of the Bepreters of the Bepreters of the number of the Bepreters of the Bepreters of the Bepreters of the number of the Bepreters of the Bepreters of the Bepreters of the number of the Bepreters of the Bepreters of the Bepreters of the state of the Bepreters of the Bepreters of the Bepreters of the Bepreters of the the Bepreters of the Bepreters of the Bepreters of the Bepreters of the the Bepreters of the Bepre

Erlangen, 1847, The disease has been observed principally in Germany, but it is also met with elsewhere, and especially in England." The Reporters had the opportunity of obtaining some information on the subject from Dr. Sieveking, who has examined the disease with much care as it occurs in the London manufactories. According to his observations, the affection assumes the same character as it has done in Germany, and attacks those only who are engaged in dipping the untches into the inflammable compound, and who are, therefore, more immediately exposed to the phosphorus vapour. Dr. Sieveking saw several of these workmen (dippers) who had lost almost the entire lower jaw. After these painful statements, it is important and consolntory to know that the same physician has not found the disease to be equally prevalent in all manufac-tories; and that if cleanliness be enforced, and the dictary of the workpeople well atteaded to, and especially if a complete and continuous ventilation of the workshop be kept up, no evil consequences ensue. Dr. Sieveking met with parties who had been engaged in dipping matches

for more than ten years, without exhibiting the slightest

tendency to the complaint.

The importance of attending to the precantions indicated by these investigations can scoreely be sufficiently impressed upon the ununfacturer. Much has been already done by several firms, especially in regard to ventilation, but much remains to be accomplished if this frightful scourge is to be entirely removed. For this reason manufacturers should direct their attention to an important discovery made by science, in the shape of the su-called red or unorphous phosphorus. Some few years ago Professor Schrötter, of Vienna, observed the curious fact, that if ordinary phosphorus he exposed during a certain period to a temperature of from 250 to 260 (482 to 500 F.), it is converted into a red modification which no longer possesses the main characteristics of phosphorus, viz.,-volatility, fusibility, and inflatama-hility at comparatively low temperatures. The posonous qualities have also entirely disappeared in this modified condition of the substance. The nuorphous modification of phosphorus, which but a few years ago was a mere curiosity in chemical laboratories, can now, however, be manufactured, according to a method proposed by Schrötter, in large quantities, and is likely to become an important article of commerce. The Chemical section of the Exhibition (Class II., 119, p. 199) contained a fine specimea of this substance, sent in by J. E. STUBLE, of Birmingham. The red phosphorus being perfectly innocuous when handled, and not giving off finnes in the atmosphere, whilst it is as well adapted to the manufacture of matches as the ordinary phosphorus, it is fair to assume that its general adoption by ineifermatch makers will prove a further guarantee against the disease of the workpeople. It is right also to mention that Dixon, Son, and Co. have exhibited matches made with Schrötter's phosphorus (Class 11., 126, p. 190). These manufacturers state that they are as cheaply and as easily made as the common matches, and are not so liable to fire in the making.

The number of exhibitors of imitation matches and other means of obtaining light is fourteen. The classification according to the several countries is as follows:—

LIST OF EXHIBITORS.

Bell and Black, Bow Lone (Class XXIX., 243, p. 802). Imitation vestas, congreves, and wax-matches; camphorated round wood congreves. Dr. Majo, S., Triesch (Austria, 50, p. 1009). Imita-

Dr. Maro, S., Triesch (Austria, 50, p. 1009). Imitation lueifer-matches in great variety. Drxon, Sox, and Co., Manchester (Class II., 126, p. 199). Matches made with Professor A. Schrötter's phosphorns.

Feavil, B., Schütten hofen and Goldenkron (Austria, 46, p. 1009). A large display of imitation Inelfer-matches, in a variety of loxes. Harrass, P., Suhl (Prassin, 798, p. 1094). Imitation

Incifer-matches,
Hoffmantches,
Gand G., Wisoczan, near Prague
(Austria, 49, p. 1099). Imitation lucifer-matches,
Kutin, J., Ulm (Wartemburg, 102, p. 1119). A variety

of imitation lucifer-matebes.

Leffaxcots, —, Paris (France, 301, p. 1191). Sliding boxes for lucifer matches, and taper-stands for lucifer-matebes, and amadou, in great variety.

soxes for increase materies, and upper-smoot for increasements of an amadous, in great variety.

Mayker, W., Warnemunde (Mecklenburg-Schwerin, 6, p. 1134). Splints for lucifer-matches.

Pollar, A. M., Vienna (Austria, 47, p. 1009). Imitation lucifers of several kinds.

PRESCREE, F. and Co., Vicana (Austria, 48, p. 1009). Various descriptions of imitation lucifers.

British and Foreign Medico-Chirargical Review, vol. 1., p. 446 et seq.

RAJAH OF JESSELMERE (India, Class XXII., p. 919). Several steels for striking light, which are interesting as connecting the present with the past in the art of obtain-

NANDELL, E., Putney (Class XXIX., 97, p. 796). Odoriferous lighters made of embossed card. Suronics, C. F., Gmind (Wartemburg, 100, p. 1119). Lucifer-matches without the combestible material.

VI. CONFECTIONARY,

The articles belonging to this species of preparations submitted to the Jury of Class XXIX, consisted firstly, of fruits preserved with sugar; and secondly, of confections, comprising sweetmean made both from sugar and from chocolate. Of preserved fruits, the Exhibition contained many examples: including some which had been prepared with sugar and subsequently dried, and others preserved and kept in syrup.

In the most ancient times, honey constituted the principal and nearly the only sweet substance used for those purposes for which sugar is now almost universally employed; and the Egyptian department in the Exhibition furnishes evidence that its use for the preservation of fruit is still continued in the valley of the Nile. Many interesting specimens of the most simple forms of conserves are also contained in the Turkish and Tunisian collections, consisting of the desiceated pulp of prunes or juice of the grape. It is possible that the former pre-paration may somewhat resemble the "cakes of figs" of the ancient Hebrews, which, from the two passages of Scripture wherein they are mentioned (1 Samuel, xxv 18, xxx. 12), were evidently regarded as agreeable and nutritions food. That the Jews had some kind of artificial sweet preparation at a very early period of their history, is indicated by the statement that the taste of the mauna "was like wafers made with honey" (Exodes, xvi. 31), though the parallel passage in Numbers, xi. 8, expresses it to have been like "freshoil." The word Confection, and the term Confectionaries, as they occur on the Scriptures, have two distinct significations in con-nection with this particular subject. In the first instance, the strict original sense of the expression as derived from cou and facere, to make up together, is intended; as in the words " thou shalt make it a perfume, a confection and holy," Ecodes, xxx. 35. When, however, Samuel says to the elders of Israel concerning their king, that he would take their " danghters to be confectionaries, and to be cooks and to be bakers" (1 Samuel, viii, 13), there is a special and a distinct employment of the makers of some kind of conserves or sweet preparations referred to, of which no decided information is extant. From two wellknown remarkable passages in the Prophets, there can be little doubt that the Hebrews were acquainted with the existence of the sugar-cane, probably as it was found in China.* They both prove, however, that it was a very costly rarity; and the three words which in the Scriptures denote sweet substances, are all rendered honey in the Authorized Translation, though possibly they indicated several kinds of it. The passages which are supposed to refer to sugar are very different from these. "Thou hast bought me no sweet-case with money," says the remon-strance in Issiah, xliii. 24; and "To what purpose cometh there to me incense from Sheba, and the sweet-case from a far country?" is the complaint in Jerminh. vi. 20. In both these places the allusion is to an offering vi. 20. In both these places the allusion is to an offering to the Almighty, which, precented in a right spirit, would not have been rejected. This, therefore, could not have been loney, because in Zentificss, ii. 11, the positive command is given, "v shall burn no leaven, nor any boney, in any offering of the Lord made by fire." The substance referred to must therefore have been either the sugarcane, or the aromatic sweet-rush. The word rendered Calamus in Erodus xxx. 23, in the direction for making

the anointing-oil for the furniture of the tabernacle, is also Kench Bosen, or sweet-cane, in the original; but this is generally supposed to mean the Indian Calamus Aro-

Although the cane-sugar of Asia must have been well known to the classical ancients, yet they seem to have recarded it as a kind of factitious honey. In this form Herodotus* appears to refer to it, when he says that the Gyzantes have bees "which make a great quantity of ney, and it is said that confectioners make much more, The original words of the historian in this place have the general signification of compounders, or workers, for the people.† From the context, however, it is evident that the terms are to be understood as implying preparers of confections, as they are also in another passage of the same author, wherein it is stated that the confectioners of the city of Calletabus "make honey with tamarisk and wheat." It may be observed farther, that the same word is likewise used in the title of the fragment of an epigram attributed to Menander relating to the making of a bride-cake. It consists of a short conversation, in which the operator represents that he has watched the preparation all night, but that there is yet much to be done. Such a person as this, who understood the art of confectiouary as retained by the wealthy Romans, was called Pistor Dulciarius, or a baker of sweet things; and several of the brouse moulds which the pastrycooks of the time employed for the making of their sweetments, representing hearts, striated shells, animals, and a variety of elegant devices, have been discovered at Herenlaneum. About the same period, also, Apicias, Columella, and Pliny prove that some fruits at least were preserved in The last author recommends that quinces should syrup. The last author recomments that quinces should be belied in honey, and directs that other sorts should be enclosed in wax. The latter process Beckmann states enclosed in wax. to have been likewise employed for preserving the apples carried every year from the southern districts of Russia into the northern parts of Siberia. But though the value of augur as a Inxury was not

unknown to the ancients, it was, from its first introduc-tion to a comparatively late period, more commonly conployed by physicians for the disguising of disagreeable medicines, and in the pharmaceutical preparation of syrups, electuaries, and confections. This practice ap-pears to have led to the intimate connection which so long existed between the preparation of conserves and the compounding of drugs. Actuarius, who is considered to have flourished between the twelfth and fourteenth centuries, is said to have been the first physician who substituted sngar for honey in medicinal compositions; about which time niso it was frequently used in cooking in England. Dioscorides, in the first century, is the earliest aothor by whom it is mentioned by name, and he also notices its medicinal properties.

The nrt of making sweet compositions being thus early associated with the occupation of the apothecary, and his productions being known under the general title of con-fections, the same name appears, for a time at least, to have been used for the preparers both of sweetments and of medicine. In the thirteenth and fourteenth centuries there were certain officers, called apothecaries, retained by princes and great personages, who prepared various preserves for the table, especially fruit encrusted with sugar; but it is quite possible that these individuals were sometimes ecclesiastics, who also possessed the knowledge of medicine and pharmacy. Beckmann has recorded many curious notices illustrative of the connection existing between the professions of the apothecary and the confectioner, as they were publicly established in Germany from the middle of the fifteenth century. From these statements it is evident that the term ap-thecarius was then understood to signify the keeper of a storehouse or magazine for articles belonging to the Materia-medica.

^{*} The earliest records of China make mention of the eniture of the sugar-cane and the extraction of the sugar ; the application of which as food appears to have been known in the most remote ages of Chinese history.

Melpomene, exciv., cited in Pereira's Elements of the Materia Medica, 2nd cells, ii., p. 8th. Herodosus, a mer translation, by the Rev. II. (Tury, 1948.
 Apparatyvir Eless. Abest beampys, Polymoio, xxxi.
 The Forms of Cury celted by the Rev. S. Pegge, p.

confections and cooling liquors prepared for the sick, These establishments were becased by authority, and the persons who kept them endued with exclusive rights and municipal privileges; in return for which they were sometimes required to supply the court or the towncouncil with confectiouary or sugar, as well as to vend

their medicines at appointed rates, It is probable that in such a stipulation of furnishing confectious and sugar to public authorities, ariginated the practice which became common in England in the sixteenth century, of presenting rich boxes of sweetments or losenges to great personages on their journeys, or at certain seasons; or pastry of elaborate ornament as royal new year's gifts.* Many curious instances of the latter custom will be found in the lists of new year's gifts made to Queen Elizabeth, of which the two following may here be adduced in illustration, as they include sweetments, preserved-fruits, and pastry:—" 1562. By Revell, surveiour ut the works, a marchpane, with the modell of Powle's churche and steeple in paste. By John Hemingway, policary; a pott of oringe-condytt, a box of pyue-com-fytts, musked, a box of manus-christi, and lozenges."

Before this period the practice of the confectionary art had ceased to be confined solely to the compounders of medicine, and its productions had long since been regarded as belonging rather to festivals and banquets than to the dictaries of the sick. The delicacy and rarity of the articles used in confections, and the neat dexterity required in preparing them, probably suggested it as a most graceful female employment; hence we find that, in the seventeenth century, the art of making sweetments became established as a fishionable feminine accomplishment, and was publicly taught both in France and England.

Manufacture of Comfits and other Bonbons,

The following is a description of the processes employed at the numufactory of Mr. Schooling (114, p. 796), one of the Exhibitors, of Bethnal-green, the workmen being chiefly French.

Smooth-Confits.—The preparation of comfits is very

simple. If seeds, such as almonds or carraway-seeds, are to be made into comfits, they are placed together with a eream made of sngar-syrup and starch, into a flat ellip-soidal copper pan, suspended by chains over a charcoal fire. By tilting the pan up and down, and at the same time giving it a circular swinging motion, the seeds are made to roll one over the other, and thus gather the pasty mixture as it dries. This operation is repeated as often as may be required for the seeds to accumulate a sufficient thickness. The form of the seed governs that of the comfit.

Peurled-Comfite. - Cinnamo coriander-seed. rearres-compile. — Cinnamon, corrander-seed, and celery-seed are usually "pearled" by placing the mixture of syrup and starch into a copper funuel, suspended over the pan containing the comfits or seeds. This found is, in shape, like the small half of an egg, and has a round hole in the bottom, which is more or less closed by a long conical stick, suspended to the handle of the funnel, and passing through a guide to keep it central. By allowing the plug to descend safficiently, it may be made to close the hole. The aperture is regulated in such a manner as to allow the mixture merely to fall in drops; at the same time a short jerking motion is given to the pan. The poste, as it dries, gathers on the comfits in little knobs, called pearls.

Machinery for making Comfits.-Mr. Schooling employs the fullowing simple contrivance. An endless band, formed of strips of iron hoop riveted on two leather strips, traverses over four rollers, so placed that their axes, when seen on end, form an irregular square; the top roller at that end towards which the band travels being much higher than the top roller at the opposite

where also medicines might be properly cumpounded, and in order that it may form a sort of bag to contain the materials, by drooping between the top rollers; the frame of the machine forming the ends of the bag. A coil of steam-pipes, following the curve of the band, serves to dry the comfits, which are gathered with a rolling motion up towards the highest side, and then rolled over in n

contrary direction. Another Exhibitor, Mr. WOTHERSPOON, of Edinburgh, 106, p. 796), employs an apparatus consisting of a steam pan, open at one end, and revolving in a vertical direcion on a hollow axis, through which the steam passes in, and the condensed water passes out. This pan is in shape like an orange, supposing a horizontal axis to be placed in the eye, and a disc of about a third part of the diameter of the orange to be eut out of the rind at the side opposite to the axis; and in order to complete the simile, supposing the rind to be hollow so as to contain steam. The seeds and symp are placed at the open end, and by the slow revolution of the copper-pan are gathered up and rolled over in the same manner as on the

endless band Messys, Oudard, Son, and Boucherot, of Paris (1374, p. 1242), also manufacture comfits by steam-machine and have done so since 1841: before this period a skilful workman could make from 45 lbs. to 55 lbs. per day, but at present he superintends six pans, each of which produces 112 lbs., so that in a day he manufactures 6 cs t., or twelve times as much as he could produce by hand. This machinery having been adopted by other Parisian

confectioners, has caused a reduction of 30 per cent. in the price of comfits in France. Sugar-Pastilles are made of a paste of powdered sugar and syrup, combined with such flavouring and culouring matter as may be required. A small quantity of this paste is heated over a charcoal-fire, and then placed in a sponted ladle. By inclining the ladle a small quantity onzes out at the spout, and is cut off with a wire; the drop, as it falls on a tin-plate, forms a flattened semiellipsoid; as soon as the tin plate is covered it is removed to the drying-stove. A single workman, in this way, can

make three ur four hundred-weight of pastilles in a day.

Jujubes are composed of a mixture of gum-mucilage and syrup, which is run into flat tin trays, and consolidated by evaporation in a chamber heated by steam. As soon as the cake has been sufficiently dried, it is allowed to cool, and is then cut into long strips by passing it through a pair of rollers, the bottom one being a plain cylinder, and the top one composed of a number of discs placed on an axis and kept apart at the required distance by collars; the strips are afterwards out transversely with

Motto or Surprise-ants are made by drilling out the

thick end of the nut with a rose-cutter running in a

lathe; the kernel is then removed, and the shell filled with mottos and comfits, and lastly stopped up with cho-colate. Many tons are made annually by Mr. Schooling. Liqueur-Bostons.—The manner of making liqueurbonhons is nearly the same, whatever may be their shape. A syrup is made with water and sugar, and is then taken a little at a time by the workman, who evaporates it to the proper consistence, and adds alcohol or some alcoholic In the mean time his assistants have prepared several moolds, by filling shallow trays with powdered stareh, and impressing plaster-of-Paris models of the required furm into it, so as to produce corresponding depressions. Several models are fastened on a rod, and thus a number of matrices are made at one operation. The workman then takes a portion of symp, and runs it into the moulds either from the egg-shaped funnel, before spoken of, or from ladles having several sponts, according to the nature of his work; the latter being used for small drops, the former for large boubons. The cohesion of the syrup being greater than its attraction for the starch, it runs away from the latter as water does from an oily sur-face; and the upper surface thus takes a spheroidal form-A little stareh is now sifted over the surface of the mould, and it is then set aside in a warm closet. Crystallization commences on the outside of the bonbon, and forms a erust which encloses the syrup: this gradually yields more and more of its sugar, and becomes itself more dilute.

^{*} This custom is still kept up in France, as regards the presentation of boacs of sweetmeats on the first day of the new year; and will be noticed in speaking of the contributious from that country.

of boubons per day. Liqueur-Atmonds, - Almond-shaped liqueur-bonbons, which contain a syrup, are enveloped with the white mixture in the same way as smooth-comfits; but in order that they may not be destroyed in the operation, they are first covered with gum-mucilage, and then thrown lote a mixture of gum-arabic and sugar reduced to a fine powder: they are afterwards dried, and again submitted to the same operation as often as is necessary to produce a coat-

ing of the desired thickness. Solid Swear-Boolous are cast in the same way, but with a much stronger syrup.

633

Gem-Drops. - Gum raspherries are made of syrap and on-mucilage; they are cust in the same manner, and dried to an elastic solid.

Fondants, which melt like ice in the mouth, are likewise run into starch-moulds; they are composed of a syrup, which is first evaporated to a certain point of concontration, and then beaten until it forms a frothy paste. Crystallized Bosboas. - All the different kinds of sweet-meats hitherto described are sometimes covered with a

crystalline coating of sugar, by putting them into a strong syrup contained in shallow trays placed on shelves in a drying-chamber heated by steam. A piece of linen is laid on the surface of the syrup to prevent its forming a crust; and by lifting this linen from time to time, the progress of the operation is ascertained; this usually occupies from one to two days. The excess of syrup is drained off in the same room, as soon as the sweetments are sufficiently covered with erystals of sugar; they are then removed and air-dried.

Florers, Piping.-All piped ornaments are composed of a mixture of white of egg and sugar, which is called For the modelling of flowers the workman "clazing." uses a series of supports which, at the upper part, are of the flower; a depression being made in the summit to snit the shape of the calyx. The modelling-tools consist of a series of small funnel-ends not much bigger than a thimble, with openings of various shapes; as for example, narrow sits of different breadths, and round and other shaped holes of various sizes. These funnel-ends are snaped holes of various sizes. These funnel-ends are fastened with gam to the bottom of paper funnels, into which the workman places the glazing, and then closes the funnel by doubling over the paper. By pressing the paper funnel with the thumb, he squeezes out just what he requires; and hy desterous manipulation. he requires; and hy dexterous manipulation, curls and twists it into any form he chooses. This operation is called piping, and is much employed in ornamenting

bride-cnkes. Painted Bosbour .- Boubons intended to be painted are overed with a layer of glazing, and are thea ornamented ith colonned piping. The last fluish is given by paintwith coloured piping. The last fluish is given by point-ing them with body-colours, mixed with gum inucilage and syrap. The nature of the colours will be described hereafter in speaking of the contributions from France.

Manufacture of Chocolate-Confectionary. The following is the method practised by the Pants Chocolate Confasy (France, 873, p. 1221), who in Class VI. have exhibited their machinery, which was made by M. G. Hermann, of No. 92 Rue de Charenton,

Paris. The cocon or eacao-nuts, are first screened to remove any dust, and are then reasted in a cylindrical or globular vessel, which revolves over a fire; the operation of roast-

ing being one requiring much care and attention. After roasting, the husk is beaten off by means of a winnowingmachine. The roasted nnts are now placed in a tritu-rating or mortar-mill, encased with an outer lacket, and heated to 50° C. (122° F.) by means of steam; by the action of this machine they are reduced to a thic paste, on account of the large quantity of oil which they contain Sugar previously separately ground in a similar, but cold, mill, is now added, and the action of the hot-mill conthough until it is well mixed with the cocon paste; vanilla is also added if the chocolate is to be flavoured with it. The thick paste of sugar and cocon is then levigated to the utmost degree of fineness, by means of a mill formed

of three rollers working in a horizontal plane; the second cylinder revolving at twice the speed of the first, and the third at twice the speed of the second. The chocolate-paste is put into a long framel or "hopper," fixed over the two first rollers, which draw down a certain quantity on their surfaces, and by their mutual pressure, and dif-ference of speed, spread it into a thin and even conting. The third roller, by working at a still quicker speed, produces a farther grinding of the paste, which is scraped off by a ductor-knife and returned once or twice to the mill. A coil of steam-pipes placed noder the machine prevents the cooling of the paste during the operation.

The manipulations of chocolate for confectionary are

very similar to that already described for sugar-confectionary,

UNITED STATES OF AMERICA.

The preservation of soft fruits in brandy is an art of some importance in the United States, and one which every year is becoming better understood. The peach is the favourite conserve, large quantities of which are annually prepared, chiefly for home-consumption; but from the experience which the Exhibition has afforded of the possibility of sending them to England in a state of perfeet preservation, there is but little doubt that they will soon traverse the Atlantic. The white Heath-peach is that descreedly most esteemed. Two American Exhibitors have sent Brandy-penches,

BRITISH COLONIES.

Canada sends an nuimportant contribution of confectionary, consisting of Horehound-eardy, reputed in Canada to be a most excellent specific for a cold; a merit which an experiment did not confirm : and also another of Raspberry-vinegar,

From the Cape of Good Hope there is a collection of yeral kinds of conserved Fruits, which for the most part were found to be in a good state of preservation. Some are in syrup, and others partially dried. Van Diemen's Land has contributed Raspberry and Current-jam, Green gooseberry-jam, Red gooseberry-jam, and Quince-jam.

Curva

The only description of confectionary in the Chinese section is the Fioger-citron (Citrus surcodaetylus) preserved n syrup. Large quantities of sugar conserves of various kinds are, however, made in China, and it would have been interesting to compare them with those from other countries: jams, jellies, dry-conserves and syrups, are such as most resemble those of Europe; but besides these, are preserved seeds, as the Millet seed; roots, for example, the root of the Nelminium, and the young tender shoots of various plants, as the bamboo,

The trade in these preparations is very extensive, both at Canton and Ningpo; and from the town of Foo-teheon 44,000 lbs, were exported during the first half of the year 1846.

The contributions from Egypt are very interesting, as representing not only the confectioner's art in Egypt at the present time, but also as offering to our view conserves probably identical with those of ancient history: they consist of Dates preserved in honey, from Two Exhibitors: one description is a preserve in chrifted white, the other in dark-coloured honey. Besides these, there is a small quantity of Sugar-candy.

PRANCE.

The preservation of fruit in sugar, and the manufacture of sugar- and chocolate-confectionary, are highly important branches of industry in France; important, not only from the number of workpeople immediately employed in these manufactures, but also on account of several tributary arts connected with them, which occopy even a far greater number. The artist, the lithographer, the eolourer, the varnisher, the paper-maker, the pasteboard-maker, the die-sinker, the embosser, the fancy-braid-maker,

Etude Pratique du Commerce d'Exportation de la Chine, par Natalis Hondat, pp. 69, 70.

the gold-and-silver-beater, and even the silk-weaver, are all more or less dependent on the demand for fancy boxes and "cornets" to contain bonbons and fruit; indeed, the trade of fancy-box making owes its existence to the wants of the confectioner, who is still its chief patron. Other trades, appreciating the convenience and attractiveness of a pleasing envelope, have adopted boxes for most of their small wares; and "Cartonage" has now become quite gigantic in its development, employing upwards of two thousand artisans, both male and female. Paris is the chief centre of the manufactories, which, for many months towards the close of each year, are all husily employed in preparing the enormous quantities of boxes, mostly distributed in a single day, the first of the new year, to the ladies of France. Many of these boxes cost the confectioner from 12s, to 40s, each, and when filled with confectionary, sell at enormous prices. The greater part, however, cost from 2d. to 2s, 6d. The preservation of whole fruits in sugar is carried on chiefly in the southern parts of France, by small collectors, who forward their produce to their correspondents in Paris, The Parisian confectioners then re-select them, cutting some into ribands, rings, and other fanciful forms, and arrange them in boxes for sale. Paris. on the other hand, supplies boxes to the departmental collectors, who not up in them their fruits for exportation. It is mainly owing to the great taste which the French display, not only in the boxes, but also in the arrangement of the fruit, that they have gained almost a monopoly in supplying the world with conserves: the selection of the fruit and its perfect preservation, however, are points which are carefully attended to, so as to perpetoate the reputation of the goods which an attractive exterior first brings into notice. Eight Exhibitors have sent fruits preserved in sugar, chiefly in syrup.

Chocolate Confectionary is entirely of French invention,

Checkutz Copicionery is unitryly of French invention, and in the kind of revolution most externed in Praces, and in the kind of revolution most externed in Praces, and give employment to about four hundred workpeepis, and give employment to about four hundred workpeepis, and give employment to about four hundred workpeepis, because the contract of the machinery one proposed of the present polycome in the presen

Super-Conference is manufactured in France cents to a much greater extent than checother-conference, and of this branch of indisorting, extend to the conference of the branch of industry, employs seven handlers where the conference of the confere

in the French section.

tastefully to introduce a looking-glass. No house enjoys a higher reputation in Paris than its single representative of this art in the Great Exhibition. In 1850, the exports from France, of syrups, sweetments, marmalades, jellies, and fruits preserved in sugar amounted to 98,3350lbs, in value 36,000.

The Freuch confectioner is not permitted to employ any substance he chooses, either in the manufacture of his sweets or the colour he uses to adoru them; the Minister of Agriculture and Commerce very properly interfering. He directs that the Prefect of each town shall carry or in a proper manner, the instructions which have been laid down hy scientific men; not only as to the materials employed, hat also as to the coloured-papers used to envelope the sweets. These regulations, it will be observed, are very similar to those which were established for the government of the Apothecary-Confectioners of Germany in the fifteenth century; and it would be well if England took a lesson in this respect, and appointed a competent staff of chemists to examine from time to time the sweetmeats which are exposed for sale in the retail-shops. The following list of colours, allowed by the French

The following list of colours, allowed by the French authorities to be used by confectioners, may be found of service to makers of sweetments in other countries:— Blues.—Iodigo dissolved in sulphuric acid; Prussianhlue; to which may be added Ultramarine, as preferable

to Pressian-hlue.

Reds.—Cochineal, Carmine, Carmine-lake (provided it contains no vermilion), Brazil-wood lake.

Vellors.—Satfron, French-berries, Persian-berries, Quer-

Pellows.—Satiron, rener-berries, Persan-berries, Quereitron, Turmeric, Fustic, and the aluminous lakes of these substances.

Green is produced of different shades by mixing the

various yellows and blues; but no kind of emerald-green must ever be employed, as it is a virulent poison. Violet.—Logwood alone or mixed with hronne-blue (Chinese blue), in various proportions, Panay-colour.—Carmine and Prassian blue; or Carmine

and Utramarine mixed in various proportions.

Colours for Liqueurs.—Curaçon is coloured with Brazil
wood; blues are made with indigo prepared by adding
alcohol to the sulphuric solution of indigo; and absinthe
(wormwood) is inted with a mixture of saffron and alcoholic indigo.

INDIA.

India sends a few Preserved-fruits, amongst them some pine-apples; but they have not arrived in good condition.

Poervoa.

Poervoa.

Spatial of Courre de frei list de Montage au au my Exhibites of Courre de frei list de Montage au au cui au fait de l'entre le seu condig to desire is their proparation; le tot de l'entre sont de la courre de l'entre de l'

PRUSSIA. One Exhibitor sends most excellent Preserves in Syrup

These conserves are an evidence that the art is perfectly understood in Prussia, and carefully practised. There is, like wise, an Exhibitor of Chocolate-confectionary, whose productions, however, are far behind those of France.

RUSSIA.

From this country there has been sent a small collection of various Crystallized fruits and marmadades, prepared in the government of Stoolensky. The collection comprises oranges, green-gaces, apples, cherricks bergamottepears, pine-apples, and marmalates of different kinds, which had come what suffered, here was sufficient evidence of their having been so well preserved as to warmat a frocumble notice being given of them in this Report.

SARDINIA.

From the Duchy of Genoa, several preserved Fruits in Syrup, crystallized sugar conserves, and a small quantity of Dengles, are sent by One Exhibitor, G. ROMANESSO (Sardinia, 82, p. 1395); but, nafortunately, the bottles were so insecurely packed that the syrup had oazed ont, which left the fruits in a bad condition; the fruits in hoxes are, however, excellent. The comfits are well made, hut not count to those exhibited in the French department. The conserves of the Sardinian States are much esteemed, and form an important and increasing article of commerce. In the Duchy of Genon there were, in 1843, 34 confectioners, who employed 146 workpeople, and pr duced 637,190 lbs. of sugar conserves, valued at 34,400/,; in 1846, 34 confectioners, who employed 150 workpeople, and produced 661,457 lbs. of sugar conserves, valued at 36,000...; in 1847, the value of the conserves was 48,000... in 1848, the value of the conserves was 46,8001. In 1843 there were also twelve establishments for preserving fruits in the province of Nice.

SAXONT.

The contribution from this country consists only of a very large collection of Choculate-figures, modelled with very large concession of common and control skill; several of the common subjects are, however, of rather questionable propriety. The quality of the chocolate of which they were composed did not warrant an Award in favour of the Exhibitor, thungh he had made considerable exertions to produce a good display.

Several kinds of Fruit, preserved with sugar and dried, and others in syrup, are sent from Spain by Two Exhibitors. These conserves are partly prepared in the convents, and partly in private manufactories. The quality of the fruit is unexceptionable; bot in Spain, as in Porturnl, there is felt the want of uruamental boxes, in order to set it off to the best advantage,

SWITZERLAND.

One Exhibitor sends a small quantity of Chocolatelozenges of fair quality.

TUNES.

The only contribution from this country is a small unntity of a sweetment, called Kefta, which is made of the dried juice of the grape, and is not unpleasant in

TURKEY.

No distinct Award has been made for the sweetments supplied from this empire, which are very oumerons; for the reason before stated in speaking of soap and candles. The Turkish confectionary has, in many cases, the peculiarity of being flavoured either with musk or otto-of-roses. The most remarkable is a sweetment called Rahatlocoum: it is composed of 1 part of wheat-starch, 6 parts of sugar, and 12 parts of water; these are boiled together for some time, and when the mixture has lost so much of the water by evaporation that it will congeal to an clastic jajube-like mass, it is run into n flat tray and allowed to cool: sometimes blanched-almonds are mixed with it. This preparation, which is of agreeable flavour, is in great repute amongst the Tarkish ladies, from its alleged pro-

repute amongst the Turkish kidles, from its alleged pro-perty of developing those proportions of figure which, in their country, are deemed a most essential attribute of female beauty. Auto 600 mos of Halbatocoma ner made Turkish collections. Ayfu-anjo, prepared from the dried joice of the grape; Ayfu-anjos with blasehed almonds; Pazia, which is also prepared from grape-juice order quite have in this meales; the pulp of the Persian prane when the pulp of the Persian prane (this mis ny no means an agreemote involvir) putacenion unt-confils; roots preserved in sugar and flavoured with misk; very good marmalade of plnms; sugar-candy, pink and white; liquorice-syrup; and, lastly, dried liquorice-juice. Of all these the most agreeable is, without doubt, the Rahattacomm.

UNITED KINGDOM.

mate, large quantities being annually imported from mate, large quantities being annually imported from France (chiefly), Spain, Portugal, and her various colo-nies. The weight of fruits preserved in sugar or brandy, imported from all parts, during the year 1850, was 155,895 lbs., and yielded in daty 3,7541. There is one Exhibitor of foreign Preserved-fruits in the British Nec-tion. English jams, jellies, and orange-marmalade, which are prepared very largely throughout the United Kingdom, are not exhibited, probably under the idea that no interest

would be attached to them. Confectionary is manufactured, in enormous quantities, throughout the United Kiogdom, and more particularly in Scotland. It is not possible to arrive at an exact know ledge of the quantity annually produced, nor even to make a tolerably accurate estimate as to its extent; but it is eertain that two or three tons per week of lozenges are not an unusual produce for one house. From the result of inquiries amongst the sugar-brokers and confectioners, it inquiries amongst the sugar-orosers and consectorers, it may be safely stated that nywards of 150 tons of sugar are converted, every week, into sweetments; at 47f, per ton, the raw material used in one year, therefore, amounts to 366,600/L, to which must be added labour, flavonring, and a wholesale and retail profit. Besides this, 31,977 lbs. of Confectionary are annually imported, and pay a duty of 8401,

The manufacture of Chocolate-confectionary is only of recent introduction into England, and is carried on by Frenchmen and Italians, Two of whom exhibit their apparatus at work in Class V1. There are Three Exhibitors of Chocolate-confectionary in the British Department, One of whom exhibited chocolate quite equal to that made

in France Crystallized Liqueur-confectionary, similar to that of France, is now made largely in England, and is quite

equal to quality, but at a considerably less price than the French. This arises, to some extent, from the difference in the price of sugar, and also because the canesugar is more easily worked, or, as the workman expresses sagar is more easily worked, or, as the workman expresses it, is stronger. For example, erystallized liqueur-beans, dragées, and "drops." of English manufacture are sold wholesale at 8d, per lb., the price in France being its 3d. As wages are considerably higher in England, the difference in price is the more remarkable.

ence in price is the more remarkable.

By far the larger portion of ragar annually devoted to sweetnests is carried off by "pipe," lorsenges, and confidence thins. The latter description is made chiefly in Scotland, which has long been renowned for its confectionary. Machinery is employed, particularly in the manufacture of lozenges, acidalusted-drops, and comfits, so that the wholeadle-confectionare is enabled to sell these that the wholeadle-confectionare is enabled to sell these kinds ut prices but little above those of the raw materials; notwithstanding this, an unfair competition seeks still farther to diminish the price by admixtures of powdered gypsum. The acidulated-drop is a production peculiar to this country, the foreign confectioners not understand-ing its manufacture.

Bride-cakes are not wanting in the World's Great Show, nor should they be; for they are characteristic of English tenseity with respect to ancient customs, and few are older than the use of bread or cake at marriage-ceremonies, which, with the wedding-ring, has been derived from the heathens. The sprinkling of wheat on the head of the bride is a very old custom, and is now occasionally perpetuated by the cutting of the cake over her head. Many other ceremonies are also still retained in connexion with the bride-cake; as the passing of very small pieces of it nine times through the bride's ring, in order that the bridesanids may place a piece beneath their pillows at night, and dream of their lovers. No less than Three gigantic Bride-cakes adorn the conoters of the North Transept Gallery, varying in value from 304, to no less a sum than 1504. One, it is said, possesses the advantage of moveable ornaments, so that after the cake has disappeared, the sugar may be transmitted, like the silkappeared, the sigar may be transmitted, include since the discovering of the sigar may be transmitted, include the grand-mother to her grand-daughter! The Three Exhibitors are R. Gurras (112, p. 796), Moosa and Mariert (332, p. 862), and R. Visk (118, p. 797). Although these bride-cakes were not considered of sufficient importance England derives her supply of fruits preserved in bride-cakes were not considered of sufficient importance sugar from countries more favoured than herself in elimaking these the subjects of a distinct Award, they are here mentioned as being the best of their class. The sugar-ornament of the last-named is quite remarkable as a piece of "sugar-piping." The number of British Exhibitors of Sugar-confectionary

is Eleven. There are likewise Two Eshibitors of Confectioners'-ornaments, and Three Exhibitors of Biscuits.

To judge by the contributions to the Exhibition, the forte of the Wurtemburg confectioners is rather in the production of non-edible ornaments than confectionary itself; there being Three Exhibitors of the former, and only One of the latter. The confectionary which is erystallized is, however, excellent,

The number of Exhibitors in this subdivision is Sixtysix; of these there are:-

17 Holders of a Prize Medal. 5 Who obtained Honourable Mention. 44 Unrewarded.

The elassification of Exhibitors, according to the various countries, is as follows:-

America	-	-	-	-	-	-	-	- 2
British C	oloni	les :-	-					
Cnon	da	-	-	-	-	-	-	2
Cape	of (ood	Her	OP.	-	-	-	- 1
Van	Dies	nen'i	La	nd	_	-	_	i
Chins -	-	-	-	-	-	-		- 1
Egypt -	-	-	-	-	-	_	_	- 2
France	-	-	_	-	-	-	_	13
indin -	-	-		-	-	-	-	- 1
Portugal	-	_	_	-	-	-	_	9
Prussin	-	-	-	_	-	-	_	2
Russia	-	-	-	-	-	-	_	1
Santinia	Ξ	-	-	-	-	-	-	i
Saxooy	-	_	_	-	-	-	-	- 1
Spain -	-	-	-			-	-	2
Switzerla	nd	-	-	-	-	-	-	1
Tuois -	-	-	-	-	_	-	-	i
Turkey	-	-	-	-	-	_	_	1
United K	Ingi	horn	-	-	-	_	_	20
Wurtemb	ura	-	_	-	_	_	-	4
	- 6							_
					Tota.		-	66

Of these, Thirty exhibit Fruits preserved in syrup or brandy; Eighteen exhibit Sugar-confectionary; Nine, Chocolate-confectionary; and Five, Confectioners'-orna-ments; the remaining Four exhibit sweet-biscuits.

LIST OF AWARDS.

ALVARGONZALEZ, R., Oviedo (Spain, No. 177, p. 1340), Prize Medal. - Fruit exceedingly well preserved in syrup; comprising Greengages, Peaches, Apricots, and Strawberries.

AUCLERC (Widow), and P. LEBOUX, Paris (France, No. 1059, p. 1229, Prise Medal.—For an assortment of Prenet Comfits, Liquen-bonbons, and Pastillor-figures

(composed of sugar and white of egg, or sugar, gum, an starch). The bonbons are arranged with great taste in fancy boxes and corbeilles, and much skill is displayed

in fancy boxes and covicilies, and much shill it displayed in the modelling of the pattillage-figures. Baxa Baornaras, Bhersch (Wurtenburg, No. 87, p. 1119). Prize Medal.—For a very estensive collection of Confectioners'-ornaments, many of which are very humorous. They are composed of gum-tragacanth and starch, so that, if esten, no ill effects would arise, but they are luteraled only as ornaments. The largest piece represents the cathedral of Cologne, and contains a musical-box. In Germaoy, storks are reputed to bring newly-born infiants, and we find, necordingly, one of these birds carrying a child in a small box strapped on his back.

Castellas, F., Lisbon (Portugal, Nos. 422 to 425, 426, 428 to 433, 438, p. 1312), Prize Medal,—Figs, Plums, Peaches, and Pears as dry conserves; Sweet-plants, Apri-cots, Tangerine-oranges, Figs, Cherries, and Peaches pre-

served in syrup, with their natural flavour and perfectly

CHEVET, jun., Paris (France, No. 121, p. 1177), Prize

CHEVAT, Jun., Parts (Frames, No. 121, p. 1172). Prize Medal.—Cherries, Pears, Apricots, and other fraits preserved in syrup. These are of the highest class, both as regards the cloude of frait and eareful preparation.

COLMBA, The NENNINY of (Forugal, No.417, p. 1312).

Prize Medal.—For a large and tastfully-intraged box of

Conserved-fruits in great variety, and in the highest state

Conserved-truits in great variety, and in the highest state of perfection.

Foarsow, Mason, and Co., Piccadilly (Class III., No. 55, p. 204), Prize Medal (the same Award by the Jury of Class III.)—A very extensive collection of the fluest Preserved-fruits of various comments. bestowed in the selection and arrangement of this (the largest) collection of costly conserves, the Jury has awarded the Prize Medal. Loudernack, M. J., Ciucinnati (United States, No. 7, p. 1433), Prize Medal.—W hite or Heath-peaches preserved

in brandy, of delicious finvour, and in a perfect state of preservation. The name Heath is derived from the sur-

Oudland, L., Sox, and Borchead then.
Oudland, L., Sox, and Borchead, Paris (France, No. 1374, p. 1242), Prize Medal.—For the care in selecting, and taste in arranging, in ornamental forms and in boxes, a great variety of Preserved-fruits; and for Comfits

and Sugared-almonds of excellent quality.

Pans Circcolari: Company, Regent Street (Class III.,
No. 30, p. 202), Prize Medal.—Awarded for most excellent Chocolate-confectionary, in a great variety of forms, all of which was found to be carefully prepared and well-flavoured; and also for an assortment of Syrups, which on dilution form very agreeable and refreshing

Permon, E., Paris (France, No. 343, p. 1193), Prize Medal (the same Award by the Jury of Class III.)— Chocolate-confectionary, prepared in granite mills, and torrefied by steam. This preparation is exhibited in a great variety of forms; amongst other matters, there is a Basket made of chocolate, filled with Chocolate-boubous, which are well flavoured and of most excellent quality.
Philippe and Canaud, Nantes | France, No. 956,

p. 1225). Prize Medal,-Excellent Fruits preserved in syrup, and comprising Penches retaining the deliency of their flavour, Pears, Rasphorries, and Cherries, all of which are free from any signs of fermentation.

Rodel and Sons, Bordeaux (France, No. 992, p. 1226), Prize Medal, for a collection of the following fruits, per-fectly preserved in syrup, viz.:—Cherries, Pears, Aprieots, Greengages, Raspberries, Penches, and Strawberries, which have retained their natural flavour, and are free from fermentation.

Rotu, W., jnn., Stuttgart (Wurtemburg, No. 89, p. 1119), Honourable Meution accorded for a large col-lection of well-mannfactured Liqueur-bonbons, both eyys-

tallized and smooth, ST. PELAYO, The NUNNERY of Oviedo (Spain), Prize Medal.—For a collection of Marmalades of excellent flavour. They are of firm consistence, and are pucked in thin round boxes

SCHOOLING, H., Bethnal Green (Class XXIX., No. 114, 796), Honourable Mention,* for Liqueur-bonbons agre ably flavoured and in every respect well made, crystal-lized and smooth, generally known as French sweetmeats. Some of these are flavoured with artificial essences. (See

page 637.)
Taooles, G., Ulm (Wurtemberg, No. 91, p. 1119),
Honourable Mention is accorded to this Exhibitor, for a Confectioners' Ornament, representing a Liou-hnnt, well modelled in gum-tragacanth, sugar, and stareh, and

eoloured with vegetable-colours.

Turens, F. A. (Widow), Paris (France, No. 1046, p. 1228), Prize Medal (the sams Award by the Jury of * But for a misstatement contained in n label attached

to these productions, by which it was made to appear that they were manufactured in France under the immediate they were manuscured in resuce under the manuscular inspection of the proper authorities, a Prize Medal would have been awarded to Mr. Schooling. The Reporters are now enabled to state that the employment of this label Lan been discontinued.

Closs III.), for a large collection of very excellent and carefully prepared Chaoolate-confectionary, made up into drayers, and representing fruits and rrots; for instance, potatores, natts, cleanurs, turnips, radialises, dates, black currants, bips, and plums; all of which are imitated with skill.

Volsteret, J. P. (Cape of Good Hope, No. 35, p. 950). Honourable Mention is accorded for the following conserves, which are exhibited both in syrup and in the candled state, vir.: Nartjes (a small orange), the Bitter-orange, Green-figs, and Cirrons.

oranige, overen-ups, and Carriota.
Warrinzary, H. (Thas III., No. 27, p. 202), Honourable Mention.—Sugar-drops, flavoured with artificial state of the control of the contr

WILL, C., Berlin (Prassin, No. 20, p. 1049). Prize Wall, C., Berlin (Prassin, No. 20, p. 1049). Prize Medal (An Honourable Mention accorded by the Jury of Class III).—Whole Pine-apples, Penches, Apricots, Pears, Pinas, and Walants in the basks, preserved in syrup. The soft fruits have retained their natural flavour, and are quite free from fermentation.

WOTHERSTOON, J., and Co., Glusgow (Class XXIX., No. 106, p. 796), Prize Medal.—Very excellent Nootherconfectionary, manufactured by steam machinery, and consisting of eighteen kinds of Lowrages and several descriptions of Counits, which were found to contain no other material than sugar, starch, and vegetable-colouring.

.—MANUFACTURES RELATING TO NATURAL HISTORY.

I, ARTIFICIAL FLOWERS AND FRUIT.

Under this general designation two very dutinet classes of articles have to be separably considered, namely, laninative Flowers and Frait, modelled in war, and the same adjects formed from other nativeliat. The Max-flowers, cation to purposes of decoration, and require less difficult manipulations for their nacescall prediction than those made of cambrie, feathers, or similar materials, and decmanded the second of the second of the second of the processing of the second of the second of the second powers, excangular used as articles of tolde.

In examining the Wax-flowers, which are usually intended to form isolated ornaments, we require truthful initiations of Nature, and taste in the selection of forms or grouping, the manufacturing skill required resolving itself atmost wholly into the execution of form and the application of colours.

In the latter class, however, are included those predections to which the term 'Artificial Process' in small times to which the term 'Artificial Process' in State of the Artificial Process and the Artificial Process and the Artificial Process and the Artificial Process of their manufacture. Accuracy of form symmetry of the Artificial Process and the Artificial Process and Translated for the instantos of the Artificial Process and Translated for the instantos of the Artificial Process and Artificial P

production.

Such are the principles by which we have been guided in the examination of the several specimens of Artificial Flowers submitted to the Jury of this Class.

AUSTRIA. The contributions from Anstria are sent by two Exhi-

bitors, both of whom display small collections of chenp Miniature-flowers, in which the trifling cost is the chief

BRAZIL

The contributions from Benzil are only four in number, and undoubtedly the most beautiful of them is that

belonging to Class XXIX, consisting of a splendid lenguet of Feather-flower, including the Coffee, Cotton, and Tolocco-flowers, &c. The name of the mannfacturing artist was not stated; but an Award has been under in Evour of the Exhibitor, who is an Englishman

BRITISH COLONIES AND CHANNEL ISLANDS.

Many of the examples exhibited by the Dependencies of Great Britis have an especial and a very high interest attaching to them, since they may be supposed to reperent with sufficient necuracy a great variety of plants and fruit presently unknown in Durope. The Jury have not the properties of the properties the landshie desire to import information evineed by the numerous Colonia Echibitors who have contributed the several speciances

Exhibitors who have contributed the several specimes. Delisant Indust.—The Since Gancy (p. 75) send a house, the base and the Industry of the Industry of the Industry of the Industry of
Garrary scods a small stand of Wax-fruit.

India.—The examples which have been collected from
Gokak, in the Mahratus country, Travsacore, and Rohilkund, comprise models of about seventy varieties of
Flowers and Fruits. Although possessing but little
artistic merit, these numerous specimens form a most

Flowers and Fruits. Although possessing but little artistic merit, these numerous specimens form a most interesting and instructive display.

Jonatics.—Mrs. Naul (p. 974) contributes several ornamental groups of flowers made of the fibres of the Yucca or Dagger-plant.

Molto.—Axronto Gerada and his danghters (32, p. 946) exhibit a basket of rich Shell-flowers, Musrifias.—The Countess Gerx (1, p. 956) sends a Basket and Wreath of Flowers from the Sechelles Islands, made of Palm-leaves; and Madame Charon and the Milles, Gaxcourr contribute several Bouquets in Shell-

FRANCE.

It must be conceided that the manufacture of Cambricevir is a purely French or, to spex a more correctly, better in a control of the control

* It is estimated that the selling value is nearly double this sum.

silks, &c., supplied from Lyons, St. Quentin, and St. Etienne, there have been distinct manufactories estahlished for many others of the component materials of these graceful ornaments. Thus the Dyes and Bodycoluurs are prepared expressly for this art by mannfac-turing chemists; the materials, as Coloured-papers, Buds, Leaves, Stamens, Pistils, Fruits, and similar articles, are nsually made in workshops devoted exclusively to their production; and in some instances, as may be seen by production; and in some instances, so may be the contributions to the Exhibition, only one description is made in one manufactory. In 1847 there were Purtyeight manufacturers of such materials in Paris, who emplayed 478 workpeople, and produced goods valued at 47,1561. The flowers are composed from their separate component parts in other workshops, some of which have a reputation for one kind only; and lastly, the grouping together of the various flowers is effected in the warehouses of the vendors, who are termed "monteurs," of whom, in 1847, there were 574 in Paris, who employed 5,675 wurkpeople, and produced goods to the value of 395,070f. It must, huwever, be stated, that there are some manufactories in which by far the greater number of these operations are carried on. In most cases, however, each workshop is restricted to the exercise of some particular branch. This will be more readily understood when it is stated that there are no fewer than Six handred and twenty-two manufactories in Paris (including the forty-eight preparers of materials before named), which on the average annually produce goods amounting in value to 711, supposing the total production equally distributed between them; but this is far from being the case, for in 1847,-

In 1847 there were 6,153 workpeople employed in cambric-flower making, namely:—

The men earn, on the average, 3s. per day, the women is 7d per day: the yanths and girls, being mostly apprentices, receive, in most cases, no remuneration beyond their board and lodging.

their board and fullering.

(In Court artist (6), p. 117.)

(I

service in developing the capabilities of this important thee, For however merivates and commondable the treathful insultivation of plants may be, this excellence in treathful insultant on plants may be, the excellence in its to the great taken of the Farinian "innotence," in it to the great taken of the Farinian "innotence," in the contract of the Farinian "innotence," in large, bash, and down, for bead-wrash, demortramings, and bosquerie, as much as to the shill of the time, the contract of the time in this art; and on much diversity age to shill crisis among the various artist, that it is known that the can have the contract of the contract of the contract of the what they would have (1) another of the 30 cm. to what they would have (1) another of the 30 cm.

HAMBURG.

The contribution consists of a frame of artificial flowers, which does not call fur any especial comment.

does not call fur any especial comment. Hense Darmstadt.

Flowers and fruit, modelled in wax, contributed by one Exhibitor, are average productions of their class.

The contributions from Mexico comprise a few examples of wax-flowers and wax-fruit,

A few specimens of wax-fruits form the only contribution from Nassau in this Department,

au in this Department, Postucal and Madeira.

The Portuguese Department contains some excellent specimes of cambried-overs, partly contributed by M. Constantia, who, under his real name of Manegrar (1970; P. 1319), pays that tribuse to the inteller contribution of the partle of the par

Sweden.

Madame Fürstenhoff (27, p. 1351), whose beautiful productions have been spoken of under the notice of France, adoras the department apportioned to her native country with a selection of her admirable imitations of nature.

UNITED KINGDOM.

As the French may be regarded as apperéen in the contention. It Considers from the first of the supposed in the content of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the content of the content of the contention of the contenion of the contention of th

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quantity of the licter description of cambrie-flowers is imported annually into the United Kingdom. In 1850, for example, the imports amounted in value to 61,634L,

and 15,499l, were paid for the duty upon them. Shell-flowers, wax-fruit, and, lastly, feather-flowers, find a place in the British contributions to Class XXIX.

WURTEMBURG,

The contributions from Wurtemburg, which are creditable, are from two Exhibitors, one of whom seeds materials for flower-making, and the other finished flowers made of cambric.

There are seventy-four Exhibitors of artificial flowers and fruit; of these there are-

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1 Holder of a Counell Medal.
16 Holder of a Prize Medal.
16 Holders of a Prize Medal.
10 Who obtained Honourable Mention.
47 Unrewarded.
74 a
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The rlassification according to the various countries is as follows:-

Austria	-	-	-	-	-	-	2
Brazil	-	-	-	-	-	-	1
British C	don	les a	nd C	haur	el Is	land	is:
Baha	mas	-	-	-	-	-	2
Barb	uloc	5-	-	-	-	-	3
Guer	necs	-	-	-	-	-	1
India		-	-	-	-	-	1
Jama	ica	-	-	-	-	-	1
Malte		-	-	-	-	-	1
Maur	itiu		-	-	-	-	2
France	-	-	-	-	-	-	15
Hamburg	-	-	-	-	-	-	1
Herse -	-	-	-	-	-	-	1
Mexico	-	-	-	-	-	-	1
Nassau	-	-	-	-	-	-	1
Portugal :	(3),	and	Mad	cirs	(1)	-	4
Sweden	-	-	-	-	-	-	1
I'nited K	ingd	lom	-	-	-	-	34
Wurtemb	are	-	-	-	-	-	2

Total - - 74

The Seventy-four Exhibitors admit also of classification according to the nature of the articles which they have contributed, in the following arrangement: —19 Exhibitors of Wass-downers: 1 at of Wass-fruit; of of Materials of Crape Mourning-flowers; i. Schibitors of Feathermore, 1 of Schibitors of Schibitors, 2 of Schibitors of Schibitors, 2
LIST OF AWARDS.

ADAMSON, O. G., Panton Street, Loudon (Brazil, 1, p. 1429), Prize Medal, for a very large and chlorate from the plumage of Brazilian birds. It exhibits won-derful brilliancy of colour, and much necessary of form. The mechanical execution is very good, and much taste has been displayed in the armagement of the bouquet. Bhartrant, C., Prini (Pinsoc, 112), P. 1231), Honomorphic and the principles of the prin

Barray, C., Paris (France, 1112, p. 1231), Honournble Mention, for Artificial Flowers, Plumes, &c. These decorative articles are of good quality, and well deaigned.

Benora, J., Vienna (Austria, 700, p. 1043), Honournhe Mentino, for a collection of Miniature Artificial-Flowers. This collection is chiefly noticed as containing examples of a mannfacture which is carried on rather extensively in Catholic Germany. The specimens do not possess any high artistic merit, since they are cheap products for connected purposes.

ducts for commercial purposes.

Chaoor, A., sen., Paris (France, 1139, p. 1232), Prize

Medal, for Feathers, Bouquets, Artificial Flowers, and

Vases. Manufactures of a more common class than most
of the other collections, and intended to supply large

consumers and the export market, for which they are good and well executed. The colours and grouping, as is usual in French stricles, are of a superior character. Chisholms, Emma, Edward Street (Class XXIX, 78,

p. 795), Honourable Mention for Wax-flowers bonnically accurate, especially a group of Orchiduces; a Rose-tree is also executed with much skill. This is, on the whole, a very creditable collection.

Coloracyus, J. Maneren, Paria, and Bagust Street, Landstof (Pariato, 19, 1172). Commis Media, for a large Bandle Pariat (Pariato), 1172, Commis Media, for a large Seath-East Callery. The productions of this make are Seath-East Callery. The productions of this make are seated to the production of the construction, but no instances have been deployed on the production, but no instances have been deployed on the production of the angle and construction. The material of which they are made in most meeters. We also made the production of the seat of the production of the seate of the production of the seate of the production of the seate of the production of the first order in this class of algorithm of the plant of instruction confermation, which are positioned of the seate of the plant of instruction confermation, which are positioned to the ordification of the first order in this class of algorithm of the plant of the plant of instruction of the seate of the plant of

secured. (See Pripliory Remarks, 1987.) Class XXIX, 727, 7233, 7340, 734

their mechanical execution and botanical accuracy.

Fastura, Josepher, Cripiperate Buildings (Class XXIX,
80, p. 795), Honocarable Mention for imitation flowers
in pots, &c. These articles are intented for deceration
on a large scale, for rooms, &c., and, therefore, are of a
somewhat rougher character than agency of the control of the pro
tions of the control of

particularly the Passins (France, 1284, p. 13%) Honomhale Mention, for artificial flowers, &c. Artificial flowers as applied to bead-dresses; fruits and flowers. These, though not of the highest class, are deserving of praise for the taste displayed in the grouping. FOSTER, 809, and DISCHEW, Wigmore Street (Class XXIX., 74, p. 795), Prize Medal, for articles used in the manufacture of artificial flowers, feathers, &c. The

Fourts, Sox, and Duxcin, Wigmore Street (Class XXX, 74, p. 795), Prize Medal, for articles used in the manufacture of artificial flowers, feathers, &c. The materials are good, and brilliantly coloured. Interesting specimens of unfanished flowers are exhibited, illusrating the mode of manufacture. The finished flowers, as well as the feathers, &c., are very beautiful articles, as well as the feathers, &c., are very beautiful articles, the street of the conservation of the conservation of the street of the conservation of the conservation of the content of the conservation of the conservation of the content of the conservation of the conservation of the content of the conservation of the conservation of the content of the conservation of the conservation of the content of the conservation of the conservation of the content of the conservation of the conservation of the content of the conservation of the conservation of the content of the conservation of the conservation of the content of the conservation of the conservation of the content of the conservation of the conservation of the content of the content of the conservation of the content of the con

Führerknory, Esria, Paris (France, 492a, p. 1201), Prize Meial, for artificial flowers, manufactured from muslin and crape, to facilitate the study of botany. There is much merit in this collection, but this depends chiefly apon their beauty and fitness for ornamental purpose; since, although botanically accurate, the examples are chiefly of double and cultivated flowers, which are of inferior value for the purpose mentioned by the exhi-

GATTI, A. and G., Coppice Row, Clerkenwell (Class XXIX., 73, p. 795), Honourable Mention, for artificial flowers and articles used in their manufacture, such as leaves, hads, and other components of flowers; chiefly of common material, but very good in regard to colour, some of the tinta being exceedingly bright and rich. The flowers are extremely accurate in their initiation of natore, and are mently well selected for the peculiar class of article. As chap commercial productions, this sollection

deserves commendation.

GAUDET DU-FRANK, Paris (France, 842, p. 1220), Prize
Medal, for manufactured leaves for artificial flowers.
This collection contains a large assortment of leaves,
executed in a peculiar manner; and though restricted to
a special branch of the mannfacture, is remarkable for
the variety and hearts of the programs which artificial

a special oracin or toe maintenture, is remirastance for the variety and beauty of the specimens, which exhibit a very fair amount of natural character. Hanano, E., Paris (France, 863, p. 1221), Prise Medal, for head-dresses, trimmings, &c. These are very good commercial articles, smited for superior markets, and

exhibiting great taste and accentry in design.
Litron.,—see, pairs (France, 1923, p. 1233), Princ Medal, for materials for artificial flowers. This maker has produced papers and stuffs of most trilliant colours, and the stuff of the stuff

market, J., Tervor Termoe, Knightsbridge (Class XXX., 125, p. 829), Prise Medal for wax flowers. An much skill end artists feeling. The colours are chosen with excellent taste, and the effect of the whole is very beautiful.

MARFFEACE, ELIZA, Msuor Place, Clapham (Class XXX, 185, p. 831), Honourable Meution, for wax flowers, distinguished by their accurate representation of nature, and the delicney and beauty of the colouring. They are executingly well adapted for scientific illustration.

excessingly win angine to electric materians.

Excessingly win angine to electric materians.

Because Class XXIX, 7, 10, 1730, 1930,

PAROISSIEN, A., Paris (France, 945, p. 1225), Honourahle Mention, for a collection of waxed leaves, prepared with considerable attention to accuracy in the imitation of nature.

of nature, Pramor, Perir, and Co., Paris (France, 952, p. 1925), Prim Medal, for artificial flowers, feathers, &c. Bouquetes and sweath, composed of various materials; the feather and wreath, composed of various materials; the feather including the feather ornaments, is very excellent and affords an evidence of sunch taste on the part of these Exhibitors, whose productions hold a high rook in the French Department.

Treets of the state of the stat

RISSEE, VINCENTE, Lisbon (Portugal, 1295, p. 1318), temples of antiquity; indeed leckmann, in his History of Honourable Mention, for an artificial orange-tree. A Javentions, quotes a number of instances which support

very creditable imitation of a small orange-tree, distinguished by more than common truth of general chameter.

Santa Clara (Funchal), The Nunkeau of (Portugal,) Prize Medal, for a case of feather flowers from Madeira, in the Portugases Department. A very beautiful specimen of this manufacture, which is extensively pursued in Madeira.

STRIKLAND, MARIA, NEW Bond Street (Class XXIV., 80, p. 728), Priss Medal, for a collection of was flowers. The flowers of this collection deserve the highest praise in form, colour, and texture; in which latter respect a group of roses may be especially noticed, an uncommon mount of delices; having been stained in the petals. A hunch of beaths is equally good. The model of the excellent and most life-like. Succeeding the deservation of the state of the collection of the collecti

St. Cost., Bonaux, and Co., Aldermanbury (Class XXIV., 26, p. 792), Pris. Media, for artificial flowers, feathers, and head-dresses. The flowers in this collection are mercial products for general use. Much ingreasity is displayed in the imitation of textures by various materials, such as waxed obth, velvet, mushin, embric, &c., and for general accuracy of form and colour, brillings of titu, the feathers are also executingly good.

The feathers are also executingly good. p. 1212). Print TLIAM, p. 1212). Print TLIAM, p. 1212, Print TLIAM, p.

II, TAXIDERMY.

The art of stuffing animals is generally supposed to be an invention of modern date, and to have originated about the period when the various museums of Natural History were founded in Europe. But traces of the are are to be discovered in the earliest records of antiquity, although the methods then employed differ much from those now practised. The procedure of the ancient Egyptians in embalming human remains and dead aniin some measure resembles the manipulations of the taxidermist, inasmuch as in both the parts peculiarly anhiert to decomposition are removed and replaced by more durable materials. But whilst the Egyptian embalmer desired rather to preserve the substance of the body than its form, the taxidermist sacrifices all, except the skin, to the obtaining of a natural representation of the aspect of the living animal. 'The ancient Greeks and Romans, however, endeavoured to preserve the form and Romans, however, endeavoured to preserve me form as well as the substance of the body, but their methods fulfilled the object very imperfectly. The ordinary proceeding consisted in immersion in melted wax, or in honey; this necessarily disguised the shape, even though it remained unimpaired. Perhaps the best of the ancient methods for the preservation of animal subthe ancient methods for the preservation of a namna sun-stances consisted in placing them in a solution of common salt; this is still done, though for very different purposes. In this manner the sow, which by bringing forth a litter of thirty pigs, afforded a happy omen to Excas, was preserved by the priests; and it kept so well that it was said to have been in existence at Lavinium in the time of Varro. In the same way were preserved two hippocentants (probably moostrons births), and also an ape, which, having been sent by the Indiana to the Emperor Constanting, happened to die on the

It appears to have been the huniness of the priests to preserve rare animals, or rare natural specimens generally, and this was so prevalent, that we are almost tempted to refer the origin of muscums of Natural History to temples of antiquity; indeed Beckmann, in his History of Interations, onotes a number of instances which summer this view. And although it cumot be positively asserted, from the nutleus in the Greek and Latin nutbers on the subject under review, that methods recentiling those morses. The control of the control of the control of the subject under review, that methods recentiling those morses. The control of the control of the control of the subject to the complex, shows that they were not invariably quently have possessed methods of preserving animal substances in the day state; but they appoor to have been ill adaptive to the purpose, for the beard of the celebrated in the control of the control of the control of the control temptes of Greece, had evidently suffered by time, or the ranges of Greece, and had bott the greater part of its

The urt of preserving animals appears to have been but little, if at all, practised during the middle ages; for we only now and then meet with a notice of natural objects being kept as curiosities in the treasuries of emperors, kings, and prioces. It is only in the records of the period when the study of astural science was of the period when the study of natural science was resuscitated that passages are to be met with indicative of a knowledge of taxisicramy. Sportsmen had undombi-culty practised it much earlier, in a rough manner, for the purpose of making efficies of call-birds, in the obserner of the living hird, while they imitated the note of the hird with their own voice, or some artificial contrivance. The first records of collections of objects of natural history relate to the second half of the sixteenth century, and it appears from them that such musenms existed chiefly in Italy, in relation to which the name of Francesco Calcrolari deserves especial mention (Verona, 1584). These collections, which were commenced by private individuals from purely scientific motives, increased in number and importance in the seventeenth century. This period gave birth to the collection of the Tradescants father and son), which was purchased in 1659, by Elias Ashmole, who presented it in 1683 to the University of Oxford, and thus founded the Ashmolean Museum; and also to the collection of James Petiver, which was much enriched by Sir Hans Sloane, and, on the death of this distinguished naturalist, became the uncleus of the British Museum. It is from this epoch, in which the majority of continental collections took their origin, that the art of preserving skins must be dated; and from the moment it became subservient to science, it kept pace with the growth and requirements of these institutions.

It is a point of extreme interest to compare the admirable productions in taxidermy contributed to the Great Exhibition, with the old specimens of the art of naimalstuffing to be met with there and there in the museums of antural history. Nothing move disaminar can be imagined;

naurai nistory. Autoing more classmine can or imagined; for while the successful productions of modern times pre
"In one of the Epistles of Homee (Epist, lib. I., Epist, 2, 1, 63), addressed to Lellins, a passage is met with, which has been exernally constructed into a knowledge of Taxildrany

among the ancients. The words are-

Venations, ex quo Tempore cervinam pellem iatravit in suia Militat in silvis catulus.

Many interpret pulls cervino as a sinffed stag, placed in the hell, and barked at by the dog. This explanation assumes that the sucients decorated their halls in such unner; like a modern hunting-box. The passage is, however, intelligible if we translate pulls cervina as the mere skin of the stag.

of he-size, the foregoing details suffice to show that the series of taxolerum cannot finate how regressionally extracted the series of taxolerum cannot finate how regressionally extracted the structure of taxolerum cannot for the structure of the special control force of the said to have regressive force of the said to have been sufficient to the said to the said to have been sufficient to the said to the said to the said to have been sufficient to the said
sent Nature to our eyes, and show that the artist has closely studied ber hidden secrets, the animals of the old studiers resemble anything but their wheel secret are interested to represent. It would appear that the study of nature was not deemed to be essential, and that imagination took to place, and was allowed great latitude in the parting up type would have recoiled in horror from the contemplation of its defanct representative.

The older taxidermists had, evidently, to direct their entire attention to overcoming the difficulties presented by the material, the preservation of which was the main point. At first they contented themselves with removing the intestines and the brain, especially in birds; they attempted to prevent the patrefaction in the remaining parts, by exposing the bodies to a gradually increasing temperature for the purpose of expelling all the water. But however carefully the drying was attended to, it is evident that these productions were of an ephemeral character, as they presented a tempting buit to many descriptions of insects. An improvement was next effected hy removing the large fleshy muscles, the entire skelcton still remaining. At present, the skin slone is employed; all parts that rapidly andergo patrefaction being carefully removed. By this means, and by the aid of modern chemistry, which has yielded a series of useful preparations to the toxidermist, the putrefaction of the stuffed animois was prevented. The operator was consequently annihols was prevented. The operator was consequently enabled to direct his attention to other points of great importance; and from the moment he was freed from anxiety respecting the preservation of his subject, he strove to perfect his mode of representing nature, and thus completely altered the range of his art. The skin thus completely altered the range of his art. The skin of the animal has now become, in the hands of the taxidermist, a crude material to be endowed with form, and life-like attributes, as the marble under the chisel and mallet of the sculptor; and unless, like him, he prepares bis mind by anatomical studies, and a close observation of nature, he will surely fail to realise a satisfactory production. The Works of Art exhibited—for to many of the specimens the term may be well applied-prove that animal-stoffing has been cultivated with unequivocal anccess in this direction.

UNITED STATES OF AMERICA. The exhibitors are two in number, one of whom sends

a black-eyed squirrel, and the other a case of animals, birds, and fishes; but neither of these contributions calls for especial notice.

BELGIUM.

The contribution, which comprises a case of stuffed birds indigenous to Belgium, and also a case of stuffed foreign hirds, requires no especial notice.

Better Colores

Britist Griess—Mr. A. P. Rizzwer, Privis Guine, (16-41, 197). A think a case of safeth brids, compiling—the towards, blue gaser from Ecosyulls, and (16-41, 197). A substitute of the control of the cont

specimens are of great interest, not only from their number (forty-two) and the beauty of the examples, hat also from the evidence they afford of the cultivation of science by the officers of the British Naty. Hesters Africa.—HES GRACE THE DUCHES OF SCHIESLAND (16, p. 954) exhibits a case of hirds from the river Niger,

FRANCE

It is much to be regretted that no contribution has come from France. The attention and the chemical and acientific research bestowed upon this art by French naturalists, Bécœur of Metz, the inventor of the metallic-scap,* Fontenelle, Dufresne, and others, and the value of their writings is well known to naturalists; and it would have been interesting to compare the present condition of the art in that country, with the progress which has been made elsewhere,

SAUDINTA.

The only contribution is an elk from the Zoological Museum at Turin. This specimen is most remarkable. It exhibits to perfection the art of representing the living animal, not only in its general form and character, but marking also the fine and delicate undulations of the flesh marking also her but and certain distances and muscles, and all the matemical details which are externally traceable. The difficulty of effecting this is so great that generally it is scarcely attempted; but in the present instance the artist has been most successful. The present instance the artist has been most succession. In process adopted by Sig. Cowna, 1(83, p. 1305), the exhibitor of this specimen, has been that of modelling the animal in elay, and from that model forming a mould; this mould enabled him to construct a figure of a material resembling papier-maché, retaining all the fidelity of the original model; upon this figure the skin is stretched.

D'XITED KINGDOM

The number of British exhibitors is thirteen, the following deserve especial notice. A. D. BARTLETT (291, p. 817) exhibits an ingenious example of the art in the constructed figure of the Dodo-a hird which was once a native of Mauritius, and found there in considerable numbers at the beginning of the last century-hut now, as far as is known, entirely extinet. The drawings of Savery, preserved in the Belvedere at Vicana, and in the Boyal Gallery at Berlin, and some remains of a skeleton formerly in the collection, already alluded to, of Elias Ashmole, consisting now but of the head and one foot— are the data from which the figure has been compiled. The process is of course very different from that of preserving a real animal, the skeleton and skin of which are entire: an artificial body has to be constructed, and theu covered, feather hy feather, with such plnmage as is most in accordance with our knowledge of the hird. This has been very skilfully executed; and the result, by the testi-mony of Mr. Strickland, and of Mr. Gray, of the British Museum, "represents with great accuracy the form, dimensions, and the colour of the Dodo, as far as these eharacteristics can be ascertained from the evidences which exist," whilst it "does great credit to Mr. Bart-

lett's skill, and to his practical acquaintance with the There are other specimens exhibited by Mr. Bartlett, which are, perhaps, more attractive, inasmach as they re-present nature with a fidelity of which all can judge.

structure of hirds."

* BECKUR'S ARSENICAL SOAP Campbor - - - - -

Campbor - o ounces.
Arseole (arsenious acid), la powder 2 pounds.
Curd Soap - - 2 pounds.
Salts of tartar (carbonate of potash) 12 ouoces. Lime, in powder - -- 4 ounces.

The soap is first cut in small silces, and melted gradually with water over a slow fire, stirring all the time.
When melted, the salts of tartar and lime are added and
well mixed. The mass is then taken from the fire, and the weil mixed. Loss mass is then bases from that nick, and the arrecke triturated with it in a mortar; and, lastly, the campinor is added, after having been separately triturated to powder with the aid of a little spirit of wine. The abt-ture has the consistence of stiff near-paste.—The Art of Taxistency, by Taker Bowell, p. 2.

The pair of Impeyan Pheasants, entitled "Courtable," and the Sleeping Ournog-outan, "Repose," are especially deserving of notice. The fleshy parts of the latter have been very skilfully treated; and the dried and shrivelled appearance which they so often assume is entirely avoided The skeleton of the ourang-outan has been preserved,

and also the viscers; the whole furnishing an example of the manoer in which rare specimens should be dealt with, in order to secure accurate information to the naturalist,

and to promote the advancement of science J. A. HANCOCK, of Newcastle (320, p. 818), exhibits, in the North Transept, some beautiful examples, not only of a faithful and spirited adherence to life and nature, but of a skilful and harmonious combination of forms and co-The three illustrations of Hawking, and the scene in the Tropies, will go far towards raising the art of taxidermy to a level with other arts which have hitherto hadd higher pretensions. The first of the three objects, illustrating the ancient sport of falconry, is the Hooded Hawk, looking lean and hungry, with the strap attached to his leg, by which he is held on the falconer's fist. In the second group, the falcon has struck to the ground, and is in combat with the Courry, a powerful herou, who and is in common with the 'gentry', a powerful factor, who is struggling in vain against the attacks of his enemy; whilst the cd, which, but for the interposition of the hawk, would have been soon decoured by the heron, is quietly making his escape. The third tableau exhibits the grouped falcon: what a contrast is beer presented! the blood-thirsty enemy of the heron is scarcely to be recognized in the drowsy figure: standing on one foot, the nized in the drowsy figure: standing on one toot, the other being drawn up nuder his breast, the eye half clusted, he is the very image of gluttony. The tropical group comprises cockatoos and parrots, disporting in a rich tropical vegetation, glittering (perhaps too much so) with brillian butterflies and bevtles, lizards, and other reptiles. The stolid, heavy, self-satisfied expression of the parrots is well brought out by comparison with the anxiety and trepidation of the Mate of the Dead Gull, in another group; or, with the restless gaze of the Lämmergever of the Alps. The contrast between life and death is also well kept up, by the display of n group of dead game, the ruffled state of the feathers being exceedingly truthful.

C. Gospon (202, p. 801) exhibits a representation of an owl "mobbed by small hirds," in which the action of the owl and of his tormentors is given with great liveliness and fidelity.

Dr. Bezvor, of Newark (204, p. 801), exhibits a dog, prepared much in the same way as the elk contributed from Sardinia, and although not included in the awards hereafter to be enumerated, it is deserving of favourable

J. Leaderater (221, p. 801) exhibits a curious and in-structive collection of Indian gallinaceous birds; and an extensive collection of humming-hirds, comprising about 300 or 400 varieties, in the North Transept, which are

very carefully set up.
T. M. Williams and J. Gardner (219 and 223, p. 801)
exhibit a brilliant assemblage of riehly-plumaged birds from various parts of the world. The productions of these artists are apparently of a class rather for the drawing room than the cabinet of the naturalist. They have selected chiefly those denizens of the air most distinguished for the brilliant colouring of their plumage. So far as the careful preservation of the plumage is concerned, they deserve commendation, but in respect to a delineation of the habits of the hirds by appropriate scenery, they fall short of the excellencies attainable in this art.

WITHTEMBURG.

The collection of H. Ploucquer, Wurtemburg (107, p. 1120) consists of, 1st. A series of scenes taken from Kaulbuch's illustrations of the well-known German story of Reynard the Fox (Reineke Fuchs), and executed with great skill. In these the exhibitor does not of course claim the merit of conception; but the hamour with which the design of the artist is carried out, and the expression thrown not only into the attitude, but into the countenance of each animal, is admirable,

2nd, Groups of birds and small animats in action, designed as well as executed by the exhibitor. Some of tiese also are lumonous, and slow considerable ingenuity, as, for instance — a love-secue, libratived by weader, as the polecut, &c. Others represent the movements or lability of the contract of th

life-tilse execution.

Mr. The representation of the large handing seems that The representation of Saylice's pittures cone, and native of does upon a wild boar tilse does to say the pittures cone, and native of does upon a wild boar tilse does not a stage palled study of nativer; although, in one or the instance, the nation of the finish and smootles are not minimity correct that they cannot detect from the very great merit which belongs to the whole of M. Phonquer's calabilities. The shades of the shades of M. Phonquer's calabilities. The smootlest contract the smootlest contract the shades of M. Phonquer's treatment of the shades of M. Phonquer's treatment of the shades of M. Phonquer's treatment of the three does not consider the model, and it has been unset necessful. The propose of M. Phonquer's treatment by the the largest dame of public desired the model of M. Phonquer's treatment of the M. Phonquer's

There are twenty-six exhibitors of taxidermy, of these there are:-

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e :--
4 Holders of a Prise Medal.
1 Who obtained Honouruble Mention.
21 Unrewarded.
26 Total.
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The classification, according to the various countries, is as follows:---

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America, United States of -
Belgium - -
British Colonies :-
    British Guiana
Nova Scotia -
                        -
    New Zealand - - -
    South Africa
    Van Diemen's Land -
    West Africa -
Sardinia
                        _
United Kingdom - -
                        - 13
Wurtemburg - - -
                        -
             Total -
                        - 26
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LIST OF AWARDS.

BARTLETF, A. D., Great College Street, Camden Town (Class XXIX., 291, p. 817). Prize Medal for a model of the dodo, and several excellent examples in the higher branches of taviderms.

hranches of taxidermy.
Conna, F., Turin (Sardinia, 83, p. 1305.) Prize Medal
for a staffed elk, exquisitely modelled.
Gonox, C., Museum, Dover (Class XXIX., 202, p. 801).

Honourable Mention for a group of stuffed British birds. HAROCK, J., Neveratle (Class XXIX, 320, p. 818). Phize Medal for several single specimens and groups of stuffed hirds and animals, most truthful as to the representation of the habits and appearance of these creatures; and in every respect of the highest merit. PLOCKEGER, III, Stuttgart (Wurtembarg, 107, p. 1120).

Prize Medal for several bumorous groups of stuffed animals; groups illustrative of the habits of birds; and two large hunting pieces.

C, ARTICLES CONNECTED WITH EDUCATION,

I, EDUCATIONAL MODELS,

There is perhaps no subject more deserving of the attention of ealightened persons, nor any means more conducive to the intellectual and physical advancement of a people, than the dissemination of accurate practical know-

ledge among all its classes; and it is one of the most graitfying circumstances of the present age to find many philauthropic individuals endeavouring to smooth the path to knowledge for those whose position in society does not permit of their engaging in a long course of study.

Beyond the mere rudiments of education, no branch of learning is more valuable to the working classes than ap-plied physics and mechanics; and in those departments there are no means better calculated to impress the mind of the student with the great unchangeable laws of nature, and with the construction of the mechanical contrivances by which man renders them available for his wants, than working-models. Under ordinary circumstances, however, these useful aids are unobtainable by the majority of students, on account of their expense. In order to remove as far as possible this impediment, Edward Cowper, Professor of Manufacturing Art and Machinery at King's College, London, has contrived a series of cheap models to illustrate his courses of lectures, with the view of stimulating his students to imitate them. in consequence of their extreme simplicity. Finding that they fully answered their intended purpose, he has since allowed them to be copied by the Society for the Promotion of Christian Kuowledge, for the purpose of their introduction into National-schools. The Society is thus enabled to supply them at a few pence only above their prime cost; and at the same time it also furnishes pamphlets explanatory of the various parts of each model and their functions, so that the teacher may readily acquire and easily impart a knowledge of the subject they are intended to illustrate. For example, a sectional-model of "the working-parts of a steam-engine," 20 inches by 10 inches, is furnished for 7s. 6d. All the parts are moveshle, and the name of each is indicated by a printed label pasted on it; as cylinder, piston, piston-rod, connecting-rod, crunk, fly-wheel, valve-box, side-valve, steam going into the cylinder, steam going out of the cylinder, &c. It would be impossible to estimate how many of the millions of visitors to the Great Exhibition there are who would be thankful for the information obtainable in the North-East Gallery from this and similar resol but valuable models.

roads but relatable models.

In the condition of the correct of stellaring, price 1 ke, showing the revealations of the earth reuse of the same showing the revealations of the earth reuse of the same small the earth; such as treation of the same small the earth; and the restation of the same small the earth; and the restation of the same small the earth of the same small the indimnistion of the earth of the same small the indimnistion of a box of calles, bricks, the, for textaling tagello such as low of calles, bricks, the, for textaling tagello such as low of calles, bricks, the, for texture singular same small the same small t

deration of this Jury, is Professor EDWAED COWPER, Kensington Park Villas (Class XXIX., 245, p. 802), to whom a Prize Medal is awarded,

II, ETHNOGRAPHICAL MODELS.

Under this title will be described a few collections of small ingrate illustrate of foreign centress and nanmall ingrate illustrate of foreign centress and nanmall ingrate illustrate of foreign centress and nanmall ingrate illustrate of foreign centress and the colcentress of the control of the color of the

extensive series in the Indian Court. It is to be feared that this latter collection will be dispersed with the other splendid contents of the department, before its value can be fully appreciated.

UNITED KINODOM.

The Fine-Art Court contains a collection of very beam cut suppring in instances and statistic feeling, both in the position and grouping. They represent the native of in their popular court, and they begin the character, and the court of t

India

The Figures in the Indian Courts, which have, it appears, been contributed by several Exhibitors, are eith modelled in elay or plaster, or else carred io wood, nod painted to represent the natural colours of the various objects. The largest group, which was contributed by Mr. Mansfield, of the East India Company's civil service, is contained in a model of the "Jamma Bundi," or the encampment of a government collector, whilst moving about on his annual tour through his district (pp. 926, 927). The figures are of plaster, and the buildings of wood The double-poled tent of the collector is pitched at a short distance from the village; and he is represented as sitting within it, surrounded by the "Musletdar," and other rewenue-officers. Several petitioners are congregated around the door of the tent, seliciting a remission of part of the payments due from them. The figures of men and ani-mals are about three bandred in number, and present a lively representation of Indian life and character. Some are indolently lying under the trees, some are gazing at the performance of a snake-charmer, and some feeding an the performance of a stange-charmer, and some recoming elephant; whilst others, more intent on the business of the day, are having their petitions written out by the village accountants, or "Coolhurnees." The village, near which the encampment is formed, is represented inside a fortified wall, which surrounds it, and which is shown in section. There are also to be seen the numerous shops and rows of houses in the village, with the inhabitants engaged in their various pursuits,

their various parasita. Here every a transfer of edge, numbersor to Kokinaplar (p. 2031, representing the various castes and professions that their properties of their properties of their properties. Here, instead is the closed juxtuposition with the glossical stress that the closed juxtuposition with the glossical stress of their properties. The contract the closed juxtuposition with the glossical contract to the contract of the contract to the contract of
pations with the lightning speed of the electric-tolograph, are efficient of the Ambersance, or Bayer of the Government of the Covernment
Less perfect in point of execution than the Kishnaghurs day-figures, but still most interesting, are the models manufactured at Golake (p. 926), which it appears are not made as articles of export, but only to order. This collection comprises about forty illustrations, out of which may be especially noticed, as representing trades, the Custon-printer, the Potter, the Woman grinding ment, the Bengal Water-carrier, or Bhaester, and the Washerwoman,

or Dhobie.

The Models illustrating the practices of the Thug underest excite he most painful interest, and experience of the most painful interest, and experders and emode, has his attention directed to the heavest, when the farm landscribed is appelled by a Thug who when the farm landscribed is appelled by a Thug who succeedfully defeating hismosif from an attack can be part of the Thuge, one of them has shall; in The multilation well, and the stranging of travellers on horselect, and one well, and the stranging of travellers on horselect, and on the stranging of the

prise thirty-five figures in wood from the Rajah of Jodipore; a model of a European court of justice, and also one of a native court; models of a silk-factory and an indigo-factory, of a native oil-mill, and of a farm-establishment (p. 927). A series of male and feamle figures, exhibited by T. E. J. Holl.E.G. (p. 927), represent the principal Section fooding thinks and Travancore.

MALTA.

The Figures from Malta, which are modelled in wax, have not the same claims to merit as those before described, but have still a certain amount of excellence. They represent the Grand Master Valetta, the Grand Master Lonzadari, with the Master of the Order of Malta, and a Knight, in their proper contume (p. 946).

SPAIN.

Three Exhibitors contribute models illustrative of tumaners and drawses of Spain. Two of these send figures in painted terra-contar representing the inhabitants of mercus, though they are remarkable for the beauty and correctness of the modelling (p. 1347). The other Exhibitor has sent a model of one-shadle of the interior of the areas. For Jibi Highles at Martin, and in word, and convenient to the contribution of the cont

There are eleven Exhibitors in this section; of these here are—

- 4 Holders of a Prize Medal. 1 Who obtained Honourable Mention. 6 Unrewarded.
- 11 Total.

The number of Exhibitors from the various countries is as follows:-

LIST OF AWARDS

CCREAG. J. (Spain, No. 282, p. 1347). Prize Medal for Three Terra-cotta Figures, representing the Costumes of EAST INDIA COMPANY, The Hon. (India, Class XXX

, 926). Prize Medal for a series of upwards of Sixty Clay p. 926). Prize Medal for a series of upwaren or coal, Figures manufactured at Kishnaghur, representing the various occupations of the Hindoos, GUTHERREZ DE LEON, R. (Spain, No. 281a, p. 1347). Prize Medal for Three Term-cotta Figures, representing

the costumes of Andalusia, MATA ANOTHERA, J. (Spain, No. 289, p. 1347). Ho-purable Mention for an interesting Model of a Bull-

fight, illustrated by 4,000 figures. MONTANABI, N., Upper Charlotte Street, Fitzroy Square (Class XXX., No. 224, pp. 833, 834). Prize Medal for his very beautiful and interesting series of Statuettes illustrating the customs of the Mexicaus.

III. COLLECTIONS OF PRODUCE.

Under this general title there are to be noticed four very important and instructive collections. Two of them consist of the Imports of Raw Materials and Manufactures into Liverpool and Hull respectively; one of the Inorganic and Organic produce of India, and one of Unwrought Materials and Manufactures from the State of Maryland, in the United States. The two most important are those of Liverpool and India, both from their extent and careful arrangement.

UNITED KINGBOM.

1. Mammalia.

The Collection of Imports into the Port of Liverpool (pp. 803-816), exhibited by the Liverpool Local Comttee, contains about five hundred and fifty different substances; but as in most cases several varieties of each kind are exhibited, it comprises a far greater number of specimens than is indicated by this estimate. The na-merous articles included in this collection are arranged systematically under the following heads:-

CLASS A .- ORGANIC SUBSTANCES. Section L. Animal Products.

2. Aves (Birds). 3. Rentilia (Reptiles). 4. Pisces (Fishes). 5. Mollusea. Insecta (Insects), Radiata.

Section II. Vegetable Substances,

Articles produced by Insects, 1. Oils and Balsams. 2. Fruits, Nuts, &c.

 Materia Medica (Medicinal products).
 Vegetable Juices and Vegetable Extracts.
 Dycing Materials. Tauning Materials. 8. Oil Seeds. Agricultural Seeds.

 Dietetie Articles,
 Vegetable fibres. Timber and Hard Woods.
 Miscellaneous (flops and Rusbes). Tobacco.

CLASS B .- INORGANIC SUBSTANCES.

Section I. Metallic, Section II. Non Metallic.

To each article are appended the Commercial and Scientific names, and the name of the Class or Order to which they belong, with the quantity imported into Liver-pool; the locality whence they were exported, and the use of each substance in the Arts are also indicated. A glance at the numerous divisions and subdivisions

just cited will immediately suggest how valuable and interesting such collections would be to the principal seats of British manufacturing industry, especially if they were made so comprehensive as to comprise all raw materials; and not only such as are usually imported, but those also which are known to be useful in the arts, or are likely to prove so, from the quantities in which they can be obtained. These Museums of Raw Produce would, however, be rendered even still more useful by the appointment of energetic curators, fully qualified by previous studies to import accurate scientific and commercial information concerning their contents

It appears from the statement of Mr. Thomas C. Archer. by whom the Liverpool collection was arranged, that the cost of it was about 400/,, which must be regarded as a very small expense in comparison with the importance of the results to be derived from it. Ten months were occupied in making the collection; but it appears that the greater part of each day was consumed in obtaining the necessary funds, in soliciting samples from the producebrokers, and in overcoming the hostile prejudices which existed concerning it. The evenings only were devoted to the classifying and naming the specimens which were obtained by grift or purchase. The time consumed was, it obtained by gift or purchase. The time consumed was, it was stated, one of the principal items of cost, as the Liverpool Local Committee had to reimburse to Mr. Archer his salary from the Government, which be ceased to receive during the ten months he was engaged in making the About 200/, were thus expended; but a large portion of this onthry is attributed to loss of time in soli citing subscriptions; for had sufficient funds been placed at the disposal of the Liverpool Local Committee n the first instance, Mr. Archer conceives that a collection ten times as extensive might have been formed, at a cost but little above that of the present one. This, indeed, was collected under great disadvantages, a few cases being provided as they were required or count or automated. Much credit is due to the Liverpool Local Committee and especially to Mr. Archer, for the perseverance which they evinced in prosecuting their labours under such diffirovided as they were required or could be afforded. eulties, as well as for having produced, notwithstanding, so extensive and valuable an exhibition for so small ar expense. As a detailed list of the specimens comprised in this display is given in the Illustrated Catalogue, pages 803-817, it is unnecessary to reprint it in this Report.

The Collection of Imports into the Port of Hull, exhibited by the Hull Local Committee, is of the same description as that of Liverpool, but far less extensive. This was to be anticipated from the relative commercial importance of the two towns, and from the nature of the trade of Hull, which is chiefly with the Baltic, Flax, Iron, Tallow, Cereal-grains, Linseed, and Linseed-cake, form important items in it. Altogether there are about one hundred and twenty different substances exhihited, to which are appended the commercial and scientific names, and the quantity of each imported into Hall rtailed list of the collection is given at pages 816 and 817 of the Illustrated Catalogue.

The next of the series under review is the Miscellaneous Collection of Mineral, Vegetable, and Animal Substances (pages 860-907), used by the natives of India in their (pages 500—507), used by the natives of isolan in their various Arts and Manufactures, as well as in Medicine. They were principally gathered from the Bazzars of the Bengal Presidency, by Dr. J. Forbes lkoyle, during his residence in India: but they include also some additions obtained by Dr. Falconer, in Cahmere, and by Dr. Stocks, in Scinde

In the arrangement of this collection for the Great Exhibition, Dr. Royle states that he is much indebted to Mrs. Royle for her assistance. It is important, from the vast number of substances contained in it, which amount to between eleven and twelve hundred in number, procured from a few only of the Banares of India. They are need by the analytics of a reside of purposes, but though many possess active properties, others are known a with certainty possess active properties, others are known a with certainty to be some of the must powerful and efficient drugs; and many the contract of a metal properties, though they are lest little account in Europe. It is independently of their moleitant are sufficient forward and pulsars. Surveyinding Sected Michael and Society of its the text is, after instance, the account of the contract
imperfect means.

The collection is further interesting, both in a literary and scientific point of view, because most of the su stances, which are here gathered into a focus, have their properties described in the various works on the Materia properties described in the various In those works a variety of synonymes are given, with the names of the same substances as known in the Hindoo, Persian, and Arabic languages, and very frequently in the Greek also. The universal knowledge of these productions is accounted for by the circumstance that the medical works which are in use by the Mahomedan Hakims in India are translations from the Arabic into Persian, with which has been incorporated information from the writings of the Ilindoos. The Arabs, at the Cont of Harous-al-Rashid, it is well known, made translations from the Greek authors, such as Dioscorides; and hence it will be understood why many of the substances, mentioned in such Persian translations as are now in use in India, have both the Arabic and Greek synonymes assigned to them. By means of this collection we are enabled to examine numerous imens of Asiatic natural productions, which are all labelled with their symonymes; and hence it is frequently possible to ascertain the very substances which both the Arabs and the Greeks have described, and to which they assigned an Eastern origin. Thus the Nardau (Spikenaral) of the Greeks may be shown to be the Intansansi of the Illindoos; and Dr. Fallocare has identified their Castas with the Kost or Kost of the Arabs, a product of the mountains of Colabnere, while in former times found its labelled with their synonymes; and hence it is frequently monainum of Cashanere, which in former tunes found its way to Europe, and at present forms an extensive article way to Europe, and at present forms an extensive article parallels have been traced out by Dr. Reyle, in his Europe on the Astispits of Hinda Dayles Hotang. He has also been the to identify some of the plants mentioned in the sacred writings, from their Arabic synonymes, as he has shown in his paper, The Mandar-tire and the Hyson of Stown in his paper, The Mandar-tire and the Hyson of Scripture.

As a complex list of the swieles contained in this unbandle collection is given in the Historian Conslopes (pages 89-50), it is only to conseque how to that that it could be suffered to the state of the sum of

UNITED STATES OF AMERICA.

The Collection of some of the Products and Manufactures of the State of Maryland (United States, 371, p. 1459), which is contained in an ornamental calinute made of the principal woods of that State, comprises about Eighty different substances. The chief of them are ores, chemi-

cabs, and woods; and the cabinet itself illnstrates the uses to which the woods may be applied. The Jury of Class IV. having also awarded a Medal to this interesting collection, it is to be expected that the various objects exhibited will be discussed in detail in their Report; but as the Hustrated Catalogue does not contain a list of them, the following summary will not be regarded as misplaced:

```
Anthracite Coul—2 kinds.
Bituminous Coul.
Bituminous Coul.
Copper-ore—3 envieties.
Free-stone.
Gold-ore.
Granite—2 verieties,
Iron-ore—8 kinds.
Loud-ore.
Marble—3 verieties.
Sospetone—Scotile.
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Copper rods.
Copper sheets—3 Ainds.
Pig-iron.
Wrought-iron.
Yellow-metal.

METALLIC MANUFACTURES,

iron Nails, Shots, Stereotype-plates.

CHEMICAL MANUTACTURES.

Alum (Double sulphate of alumina and potash).

Bichromate of potash.

Bichromate of potash.

Chiloride of lime (Hypochiorite of Lime).

Chiloride of lime (Hypochiorite of Lime).

Chrome-green (Chrome-griden and Pransina-blue).

Copperns (Proto-rulphate of Irra).

From-sale (Sulphate of Magnesis).

Clue (Gelatin),
Magnesia.
Magnesia, Carbonate of.
Prussian blue (Sesqui-ferrorquaide of Iron).
Red lend (Red oxide of Lend).
Saltpetre (Nitrate of Potush).

Stearle acid. White zine (Oxide of Zine).

BULLDING MATERIAIS, Bricks—3 kinds. Fire-bricks. Lutch-bricks.

VEGETABLE SUBSTANCES.

1. Woods.

Beech.
Cedar.
Cherry,
flickory.
Holly,
Lime.
Locurt,
Maple—2 hinds
Mulberry.
Onk.
Pinc.
Poplar.
Waluut.

Ash

2. Cereal Seeds and Meal. Barley.

Buckwheat.
Buckwheat-meal.
Indian-corn, yellow and white.
Indian-corn-meal.
Onts.
Rye.
Wheat, white and red.

Wheat, white and red Wheat-flour.

Paper.
5, Animal Products.
Belt-Leather.

Beit-Leather, t'aif Leather, Cioth, of mixed cotton and wool. Felt.

Morocco Leather, Silk. Woollen Cloth,

The number of Exhibitors in this section is Four, to all of whom Prize Medals have been awarded. The following is the classification of the contributors, according to their respective countries:—

Ancher, Thomas C., Liverpool (Class XXIX., No. 270, pp. 803-817). Prize Medal, for the collection of the samples of Foreign Articles imported into Liverpool within the last five years, of which he was the Collector

within the last five years, of which he was the Collector and Arranger.

IlCLL Local Committee (Class XXIX., No. 290,

pp. 8t6, 817), Prize Medal, for the collection of Staple Imported Articles of the port of Hull.

and other continuous c

for a collection of Mineral, Vegetable, and Auimal Substances, useful in Medicine and the Arts. To which may be added, the Award of a Prize Medal to the Sultan of Turkey, for numerous examples of Soaps,

to the Sultan of Turkey, for numerous examples of Sonps, Candles, Confectionary, and Pipes, which have been noticed in the respective articles on those subjects also included in the present Report.

D. MANUFACTURES FOR PERSONAL USE. I, DRESSING-CASES, WRITING-DEERS, WORK-BOXES, &c.

Influence which the control of the limit of the limit of the limit of the matrix allered to lice XXIX, yet, as they are also included in that of Chan XXIII, the which they space arrival allered too lice XXIX, which is they space and included in that of Chan XXIII, the solid important of those they are also interest and the control of the control of the control of the local highest control of the local highest control of the local highest very decrease and the local highest. Work-houses are not easily assumed an extraction of the local highest control of the loc

DRESSING-CASES,-The tasteful and compact arrange-

ment of these most useful receptacles belong to a very modern period, but they have, probably, not every verstatused the high degree of eligant convenience of which they are equable. In their primitive character, lowever, of personal shormsent—even the dressing-case is of considerable antiquity. There is a remarkable allusion to coffers of ivery, probably wrought into the forms of buildings, and containing perfames, in Palm at n. et al. (1998) and the properties of the proper

Are have provide in the deve of limins incorp, and the last of the

With this ancient casket was also discovered another receptacle, of the species which the Romans denominated receptacle, of the species which are sound to it, appeared to be intended for suspension from the arm. vessel formed a box of sixteen sides on the exterior, having a circular cover; and greatly resembled a Serisium for containing manuscript rolls, especially as it was deco-rated on the outside with raised figures of eight of the Muses, interchained with garlands; the remaining Muse being placed on the summit. The capsula measured 1 foot in height, and was about 15 inches broad at the base, Within the case was a flat top or tablet of copper, dividing it into one large central compartment, sur-rounded by four of a smaller size, probably originally intended to receive volumes of books. The contents, however, were boxes, essence-phials, small paters and ewers, several tolette-spoons, a taper-stand in the form of a closed hand, a beautiful little wase covered with ambesque figures, and some ornaments for a litter; all which furniture was of silver. The size, the extent, and the luxury, of these antique dressing cases will, bowever, be considered less remarkable, when it is remembered that the perfumes, the ornaments, the mirrors, and all the toilette-furniture of a female, was called by the Roman jurisconsults "Mundus Muliebris," or a woman's world; and, indeed, they have their parallels in the Great Exhibition.

Chee for combe and mirror, which were usually kept together, were common in England from the latter half of the sixteenth century; when the haberbandward and the sixteenth century; when the haberbandward and the sixteenth century; when the haberbandward and the trees of the metropola, and in the Upper-Pawa or galley of the metropola, and in the Upper-Pawa or galley of the metropola, and in the Upper-Pawa or galley of the metropola, and in the Upper-Pawa or galley of the metropola, and in the Upper-Pawa or galley of the metropola, and in the Upper-Pawa or galley of the metropola of the metropola of the metropola of the metropola of the Upper-Pawa or galley of the Upper-Pawa or galley of the March of

Böttiger's Sabina oder Morgenseenen in dem Putzzimmer einer reichen Römerin, p. 62, Leipvig, 1803; translated in the New Monthly Magazine, 1818, vol. x., p. 419.

In general, however, down to prehaps the middle of the eighteenth certainty, the most cloudy interest-funzione the eighteenth certainty, the most cloudy interest-funzione which covered the dressing-calabit. It is possible that the thought of fitting a single receptable with audion Lapina towards the close of the seventeenth centary. These were made to constain a number of mattle boxes of the constaint counter of mattle boxes of the constaint of the constaint counter of mattle boxes of the constaint counter of the constaint of the constaint counter of the constaint of the constaint counter of the constaint of the constant of the constaint of th

A hij's drevisiq-ease of the present sky would appear to have been originally contrived win as two of containing to have been originally contrived win as two of containing cammerated by Evelyn as belonging to a hely, towards the cammerated by Evelyn as belonging to a hely, towards the cammerated by Evelyn as belonging to a hely, towards the contribution of the contribution of the contribution of the adopted for travelling in the since-tend sectatory; excepting, adopted for travelling in the since-tend sectatory; excepting, the published class of large, it is not more needles as to be to believe to the contribution of the contribution of the published class of large, it is not more needles as to be to believe the contribution of the contribution of performaneral where further surface when the contribution of the adoption of the contribution of the contribution of the high extensing case were reduced in number and size, is hely a developed proper of the contribution of the table example of a hely's developing case is to be found in the contribution of the contribution of the contribution of the register of the contribution of the contribution of the contribution of the proper discretifiery when superfusions language is very undesirable. At the same time there are numerous limitances

the surpose than woul, the of Densing-care, Writingdriving and the surpose of the surpose of the surpose of the edge of the surpose of the surpose of the surpose of the very district branches of manufacture, allich, however, to will be supposed to be a surpose of the surpose of the transfer of the surpose of the the body of the box is nailed or fort words, or monidate in the body of the box is nailed or fort words, or monidate in the body of the box is nailed or fort words, or monidate in the body of the box is nailed or fort words, or monidate in this body of the box is nailed or fort words, or monidate in simple rafte, with creating-took guided by means of a simple rafte, with creating-took guided by means of a simple rafte, with creating-took guided by means of a simple rafte, with creating-took guided by means of a simple rafte, with creating-took guided by means of a simple rafte, with creating-took guided by means of a simple rafte, with creating-took guided and a simple rafte, with creating-took guided by means of a simple rafte, with creating-took of the companies of the simple rafter with the companies of the companies of the simple rafter with the companies. The simple rafter was not considered in the properties of the surpose of the companies
The articles on which the Jarons of Class XXIX, were principally required to decide, are those belonging to the first two of the preceding wardetes: yet, on consulting the Award-books, it would appear that other Jurics have also investigated the merits do some of those predestrions. It decisions, confirmed the Awards of the Jury to which they properly belong. Those Awards have been, in most instances, omitted in the list for Class XXIX, as no Exhibitor is entitled to more than one recompense for the reasons, nectioned in this Egopt.

AUSTRIA

The chief contributions in the Austrian Department are a Dressing-case, and a Dressing-class, and a Dressing-class, and a Dressing-class, and and the single-discovered with velvet and ornamentare devidently ill-adapted for the intended purpose. Besides these, there are some Ladies' Work-bacco of wood, and Dressing-cases and contribution of the
BELGIUM,

Five Eshikton, from that once fishionable watering, sheep, the town of Higo contribute numerious articles of behavior and the contribute numerious articles of boxes, Rending-desks, Portfolios, Glove-boxes, and other states of the contribute and the contribute articles in these are mode of ryanomor or maple and the contribute and the c

BRITISH COLONIES.

The contributions from the British Colonies are numerous, but they must, in most cases, be regarded rather as curiosities than as articles of large sale. From Ceylon there is only one article, namely, a Desk of Porcupi quills, arranged parallel to one another, and surrounded with a border of carved ivory, the sunken portions being filled with colour. The Indian Court contains numerous specimens of boxes made of a variety of materials, and ornamented with great taste in several different patterns, Amongst these may be enumerated a Desk and Envelope-box of ivory and sandal wood, and a Porenoine-quill box from Calcutta; a beautifully and elaborately carved Cutchbox, and several specimens of boxes from Bombay, ornaented with tasteful and minute inlaying. New South Wales contributes a Desk of polished woods of different kinds. From New Zealand there is a box which may be regarded as a native dressing-case, as it is used by the aborigines to contain their head-dresses. In the South African Section is exhibited an Olive-wood work-box, which has been sent from the GROENELOOF MISSIONARY STATION. And lastly, from Van Diemer's Land, Mr. McNauchten contributes a Writing-desk and a Workbox, made of Musk-wood, and inlaid with pine, blackwood, she-oak, and myrtle.

CRINA

There are Three Exhibition of Writing-desks and Weeks in the Chines Propriettest. Mr. Chazana Corractest in the Chines Propriettest and Chazana Corractest in the Chines of the Chinese State of the Seems and the Seems are collectaing based and Japanese and the Seems of calculating based, and Japanese of Japan desks are she exhibited by Huverra and Co. [14]), not of which is commented with a benquer of Japan desks are she exhibited by Huverra and Co. [14]), and the commented with a benquer of Landscape partiared in relief with gold breast. These process much historical by the puper-model smartineture, that must not be regarded as of the highest class of Japanese and Co. [14]. The control of Chinese who have been must for the landscape in Annality Manufall and Co. [14] and Co. [14]. Legvin, also powers amany of the most transfill extension ples extent, and the Mounton of the Huper also contains a present and Co. [16].

The Egyptian Court contains a Writing-case made of Alizier-wood.

Passer

Although the Exhibitors in the French Department are few, their display, chiefly of Dressing-cases, is most gorgeous and costly, and the articles contributed are remark-able alike for their beauty, brilliancy, and variety. The cabinet-maker of Paris stands unrivalled for the clegant lightness of his designs and the exquisite finish of his workmanship; and the same is true of the French artist in huhl and marqueterie. Hence it will be readily credited that the plain French easkets are unsurpassed, and the more orante mequalled. With regard to the fittings—whilst due praise must be given for the taste displayed in the designs, the spirited euchasing, the execution of the enamel, and the due balance of bright and frosted work, yet at the same time it must be stated that the French silver has not the high degree of finish usual in the fittings of an English dressing-case. This defect is in a great measure to be ascribed to the metal being polished without the workman having recourse to those numerous preparatory manipulations which give evenuess to the surface. Hence the undulations of surface betray how much has been done by the hurnisher and how little by the polisher. The cutlers and glass are also inferior. It must, however, be stated that these dressing-cases are relatively far cheaper than those of the English; and although each silver article is lighter, yet, as there are more fittings and their size larger -for an ewer and a washing dish are usually includedin the aggregate there is a much greater weight of silver given in proportion to the amount paid. This is in some measure due to the almost nominal duty on silver plate in France, which is only 11 fr. per kilogramme (33d. per troy ounce of 480 grains). It contains 50 parts of alloy in 1000, with a toleration of a farther quantity of alloy, not to exceed 11 parts per 1000. The French have not yet sneceeded in the manufacture of Russia and other better classes of leather dressing-cases, and but few examples are to be found in their section; these appertain to the class of goods belonging to Class XVII., the Jury for which has examined them

Iu 1847 there were in Paris One hundred and fifty-eight dressing-case, work-box, and writing-case makers, em-ploying Nine hundred and eighty workpeople (882 men, 30 women, 68 boys), who manufactured goods valued at 155,120f.

PERSTA.

The Persian Court contains examples of inhid and japanned Work-boxes, and also a Pen-case, which are contributed by Mr. Mills, Jun., who states that they were collected by his father during his residence in that country. They may, therefore, be considered as truly representing this description of manufacture in Persia.

His Majesty the Kino of Portugal (1237, p. 1318) contributes an elegant Ebony Writing-case, inlaid with

SAXONY.

One Exhibitor in the Saxon Department, W. Rock-HAUSEN (172, p. 1112), sends several creditable glove-boxes. made of rosewood and sycamore, some inlaid with mother-of-pearl. The prices of these are 42s., 45s., and 6os. per dozen. There is also a lady's dressing-case in his collection, valued at 60s., which, from its simplicity, recalls the remark of Böttiger, after describing the Roman toilet-box before spoken of, when he says, "Our ladies are generally satisfied with boxes of atins (satin) or rosewood, inlaid with hruss or silver, while the ancient fair condescended not below silver materials, and the workmanship of a sculptor."

Swenzy

The Swedish Court contains a Writing-case which calls for no particular comment.

* Statistique de l'Industrie Paris, Part II., p. 821,

UNITED KINGDOM.

The Exhibitors of Dressing-cases and Work-boxes principally, but also of Desks in Classes XXIX. and XVI., are nincteen in number. Besides these, there are Fourteen Exhibitors in Classes XXII., XXVL, XXVIII., and XXX., whose productions did not come under the notice of the Jury of Class XXIX.; and the fact that writing-desks and writing-cases are exhibited chiefly in Class XVII. has been already adverted to. Confining the present remarks, therefore, to the two first-named Classes (XXIX. and XVI.), it may be stated, that the general display of British Dressing-cases, &c., is highly creditable to the numerous Exhibitors. Beside many examples of the more usual kinds of wood dressing-cases, remarkable for their cheapness and excellence, it comprises some examples of a more costly description, which, in comparison with those in the French Department, are, unquestionably, higher in price, even after making all allowances for the lower duty of silver in France. They are, however, exquisitely finished, in all the details of the case and fittings, which are posprpassed for excellence of workmanship. Indeed, the silver-work is far higher in point of finish than the French, a circumstance which has already been commented upon, In Leather Dressing-cases the British have no competitors, either for cheapness or excellence of workmanship; and the numerous examples which are displayed were highly praised by the Foreign Jurors.

It is chiefly within the last twenty years that Leather Dressing-case making has attained its present high state of development; and this is principally to be attributed to the liberal support of the better class of workmanship given by the leading houses in the trade, and to the judi-cious encouragement of the individual efforts of their workmen by a due appreciation of their merits. The im-provements which have taken place within the last ten years in the manufacture of dyed leathers in England, has also had a very beneficial effect on this hranch of muuufactures. The number of Leather-case makers in Great Britain is not large, there being only 468 workmen and 250 females. As the best description of work is produced principally in London, the greatest number of workmen are there employed, amounting to 308, the workwomen being only 20; whilst, in Sheffield, there are no less than 200 females, who are considered to be very skilful, and only 47 workmen, employed, who are chiafly occupied with the more common dressing-cases, and in making the better kinds of razor-cases. In Birmingham, there are 50 workmen and 30 girls, also engaged on articles of a second class. Beside these, there are many workmen employed in making wood dressing-cases and the various fittings; hnt the Reporters have not been able to ascertain their number. It may be remarked, that the glass trays and covers are made principally in London and Birmingham, whilst Sheffiald produces the metal covers, and shares with London in the supply of the cutlery. The hinges, handles, and other metal work, are obtained chiefly from Bir-

mingham One of the largest Exhibitors of Dressing-cases, Workboxes, and Desks, in Class XXIX., is our colleague, Mr. J. J. Mecut (No. 45, p. 791), who is, by his position of Juror, precluded from competing for a recompense. justice, therefore, to the excellence of his productions, the following resolution was proposed to the other Jurors of this class by M. Natalis Rondot, seconded by Viscount Canning, and carried ananimously, on the 23rd of July.

" M. J. J. Mechi a exposé une collection de Nécessaires-detoyage, de Papeteries, de Tables et Coffrets-à-ouerage dons lavaelle en trouve une remarquable diversité de modites et

" Membre du Jury de la Classe XXIX, M. Mechi ne peut en raison de cette haute position reocroir aucune récompense. the room is certify and by the his soit permit, pour cette rainin, dissorier le Nom de M. Mechi parmi les plus diques; mais il est heweux de constater la belle, importante, et intelligente fobrication des ourrages que M. Mechi a exposés."

WURTEMBURG.

Wurtemburg is represented by one firm, Weben and Co. (No. 86, p. 1119), who exhibits stained Sycamore

these are:

5 Holders of a Prize Medal.
5 Who obtained Homourable Mention.
40 Unrewarded.

50 Total.

New Zealand =

The number of Exhibitors from the various countries is as follows:—

Austria — — — 3 Belgrum — — — 5 Bergrum — — — 1 Gibraltar — — — 1 Gibraltar — — — 1 New Swoth Wales — — 1

South Africa 1
Yan Dieneu's Land 1
7
China - - 3
Egypt - - 6
Persia - - 1
Prussia - 1
Protugal - 1

Naxony

Saxoder

Sweden

Luited Kingdom (beside 14 ln Classes

XXII., XXVI., XXVIII., and XXX.) - 19

Wurtemburg

1

Total - - 50

LIST OF AWARDS.

ASPREY, CHABLES, 166 New Bond Street (Class XXIX., No. 50, pp. 791-92). Honourable Mention, for a beantiful set of Twelve Malachie and Ornolu Table-ornaments, the price of which was stated to be 2401, and also for some Dressing-cases and Writing-desky.

and the second section of the second
the prices quoted were considered to be very reasonable. Acrost, L. D. J. Park (Prance, N. II.), p. 1190. Price Acrost, L. D. J. Park (Prance, N. II.), p. 1190. Price Telescope and the price of the pr

reasonble.

AUSTIN, Gronor, Dublin (Class XXIX., No. 36, p. 791).

Honoarable Mention, for a Ludy's Dressing-case, with surver fittings, and a Gentleman's Dressing-case, made of airver fittings, and a Gentleman's Dressing-case, made of devks of Coronandel-wood, which are more remarkable for the geodieses of the workmanship than for any excellence in the ornaments. The price of the Lady's Dressing-case is 90%, and that of the Gentleman's 80%.

Enwann, T. J., King Street, Holborn (Class XXIX., No. 89, P. 99). Prize Melali, for Drossing-cross and unforced by the property of the propert

price. In the construction of the loxes a friction-lings is employed, while a credited contrivence collast of the extent, and a voide the necessity for numerous foose trays. The nearer marshall sold optics supplied by the Exhibitor 100d, as Continuant 3 Dressing-case, and a Gentleman 100d, and a Continuant 1

In the Management. Paris (France, No. 564, p. 1205). Prize Latense Compared to the Management of the M

value 121.7, a Bohl develoors, Tr. Uor, a Bohl Writingden and Papetries, "M., and a Start-box, M. No. 14, pp. 731. Price Model (the same chosen by p. 731. Price Model (the same chosen by the street), tasked by designed, and of excellent vorknamalay. The Class AUHL/Se errors Browleng and Trevelling-cases, tasked by designed, and of excellent vorknamalay. The popical antices—A Lady Paroning-case of walanct-tree, champed with pierced silver plates and conversations of the popical antices—A Lady Paroning-case of walanct-tree, champed with pierced silver plates and conversations of mounted beliefs-to-less, with a belong-gloss and candidloiders, the value of which was stated to be 2001, a mounted beliefs-to-less, with a polaring-gloss and candidnative control of the start of the start of the start part of the start of the start of the start of the mounted start of the start of the start of the start of part of the start of the part of the start of the start of the start of the start of the price of the start of the start of the start of the start of the price of the start of the start of the start of the start of the price of the start of the s

MARIN, JONAH STEPHEN, Spa (Belgium, No. 414, p. 1164), Honourable Mention (Priza Meda teaewide by the Jury of Class XXVIII.), for In large collection of Spa-ware, comprising numerous examples, all well manufactured and embellished with fair copies of paintings, and original and nasteful groups of flowers. Work-boxes are exhibited, ranging in price from 21 to 30, 3c, each, amount of yorks in the orangement, according to the amount of yorks in the orangement.

Manusco, E. and II. oxidatelyjam, No. (12, p. 1164). Blocournable Mexico (the same deved by the Juny of Class XXIIII. for several well-disabbed articles of Spaware, comprising West-boxes, Notation boxes, in casts of five sizes, &c., ornamented with plainings, for the most part very credibably executed. The places most descripted of Instites are, a large Work best, Notation of Society and Spaware an

XXIX, No. 45, p. 791). Honomable Mention for Dressing-cases of the cheeper description, but yet of very good workmaship. As an example may be cived a Gentleman's Drift of the control of the control of the control of the Drift ornamental Certam silver plates and correct pieces, the mounts and covers of the trays and jers being of solid silver. It contains 5 secut-bottles, an is helo, x, it glieb box, tooth and nail-brush trays, a shaving-toop box, a square coup-box, a note-power box, 2 salve boxts. box, 4 tooth instruments, and 2 penknives, The price of this case is only 38d.

II. PARASOLE AND UMBREAKS.

J. Parasols – The first employment of those portable protections from the sun and rais, called Parasols and Umbreaks, probably commenced with the former of those inventions, in a region where the intensity of the light and heart readered a shade almost indispensible. In the combreak the readers of a shade almost indispensible. In the combreaks of the property of the p

ower. Home it became an inflation of high rash. The record disorteries at Nurset show that the Parson of the Parso

There appear to have been more than one species of num-shade proper to Egypt, as represented in the senjatures and paintings of that country. Of these, one appear feathers, faced upon a long limited, in other cases, the figure scene intended to represent the emopy of a parsod, drawn with the imperfect shill of no be gipt mass rate. So drawn with the imperfect shill of no be gipt mass rate, Se flavors with the imperfect shill of no be gipt mass rate, Se Ethiopana princess, travelling in her chariest through Upper Egypt to Theles, wherein the car is furnished with a knot of unibreds faced on a tall strong srad raing the chairs-amberland of the prevent time, by recentling the chairs-amberland of the prevent time, by recentling

From the very limited regal use of the Parasol in Air and Africa, it seems to hire passed both as a distinction and Africa, it seems to hire passed both as a distinction declining ages of those countries. The Nikadéno, or the high spike of the Countries, and the Parason of the Paraloy-shade of the Greeke, was carried vow the break of African were required to been parasols over the break of the massless of the cay, at the great Seitries of the Parascover the roof of the simplification; if was the existion for cover the roof of the simplification; if was the existion for cover the roof of the simplification; if was the existion for cover the roof of the simplification; if was the existing a cover the roof of the simplification; if was the existing and contributed to the contribute of the contribute of the parason of contributed to the contribute of the contribut

Although the use of the Parasol was thus early introduced into Italy, and had probably been continued there as a vestige of ancient Roman manners, yet so late as 1608, Thomas Coryat notices the inventiou in such terms as indicate that it was not commonly known in his own country. After describing the fans of the Italians, he country. After describing the fans of the Italians, he adds, "Many of them do carry other fine things of a far greater price, that will cost at least a ducat (5s. 6d.), which they commonly call in the Italian tongue Umbrellace, that is, things that minister shadow unto them for shelter against the scorehing heat of the sun. These are made of leather, something answerable to the form of a little canopy, and hooped in the inside with divers little wooden hoops that extend the unbrella in a pretty large compass. They are used especially by horsemen, who earry them in their hands when they ride, fastening the end of the handle against one of their thighs; and they impart so long a shadow unto them, that it keepeth the It is probable that a similar contrivance existed at the

It is probable that a similar conditriance existed at the total role of the condition of th

But the use of such a defence against the heat was not nuknown in Eagland, though probably only used as a luxury, even in the early part of the seventeenth century. Hen Joosson mentions it by name in a comedy produced

in 1616; and in 1640 it occurs in Beaumont and Fleteber's "Rule a Wife and have a Wife," when Althen says.—

"Are you at ease? Now is your heart at rest? Now you have got a shadow, an Umbrella, To keep the scorehing world's opinion From your fair credit."—

As a canopy of state, the use of the Umbrella mpecars to have been general in Southern Europe from a very time (herrel); it was borne over the Bost in precessors; it formed part of the possible regals; and about a.b., 1175, when Pope Alexander III. took refuge in Schautian Zain, the Deeg, and his successors, the privilege of placing the Possibleal parasol over their armortal Without, however, attempting to trace any further the

frequent appearance of the parasol in the early history of Europe, we may be allowed to make a few statements regarding the Parasol of the Chinese. According to the statement of Dr. Morrison, Parasols and Umbrellas in the Celestial Empire appear to be first referred to in books printed about A.D. 300; the tradition being, that the San, which signifies to cover or shade off the sun and rain, originated " in standards and bunners waving loose in the This date, however, has been recently proved to be many centuries too modern, by the evidence of a very eurious book of Chinese ceremonies, entitled Tcheou-Li, or the Rites of Tcheon, for the first time translated and published by the late M. Biot. † The author of the work was Prince Teheon-Kong, brother of Won-Wong, the first Emperor of the Teheou dynasty, who wrote it at the begin-ning of the twelfth century before the Christian era. In this valuable work is contained a descriptive detail of the duties of the several officers belonging at the period to the Chinese Court; and it directs that the workmen making the wheels of the Imperial earringes should also place the the age where the cars. The figure of this dais | contained in the Chinese edition of the Tchees-Li, and the particular description of it given in the explanatory commentary of Lin-hi-ye, both identify it with an nmbrella. The latter describes the dais to be composed of 28 arcs, which are equivalent to the whalebone ribs of the modern instrument, and the staff supporting the covering to consist of two parts, the apper being a rod 3-10ths of a Chinese foot

It is probable that the most general use of the Paramol in France and Engined was adopted from China status the middle priche several extensive. At the best probable was adopted to the probable with the probable probable was proposed to the probable with the probable probable was probable with the probable probable with the probable probable was probable with the probable probable with the probable was probable with the probable w

in circumference, and the lower a tube 6-10ths in circumference, into which the upper half was capable of sliding.

underful or sun-shale.

2. Chelevilla.—In the preceding notices these strifts in 2. Chelevilla.—In the preceding notices these strifts in the light and heat of the sun, with but slight reference to their equality gravat value as defenses against rain. Their adoption for this purpose appears to have been much later to their equality gravat value as defenses against rain. Their adoption for this purpose appears to have been much later to be twenty the sun of t

^{*} Dr. R. Morrison's Chinese Dictionary, vol. 1., part 2, p. 624, No. 8802. † Le Tcheon Li, on Rites des Tcheon: Traduit pour la

Primitive fole du Chinois pur feu Edouard Biot. Paris, 1851, 8vo. Vol. li., p. 475. \$ M. Blot's Translation, p. 488.
\$ Ibid., p. 478.

any defence, excepting from the rain, could never be required in the streets of London. The verses in question are suggestive of two very curious observa-tions connected with the listory of the articles under consideration. From the beginning of the present century, the use of the parssol as a protection against the sun has been increasing in Londond until it has become aniversal amongst females, contrary to the declaration of the concluding lines. The Umbrella, on the contrary, though apparently well known in Gay's time, did not come into general use until the close of the last century. Jonas Hanway is stated to have been one of the first men who commonly carried one, for it was usually regarded as proper to females only; and he, probably, brought the practice from Persia or from the continent. In the Statis-tical Account of Glaugow, hy Dr. Cleland, it is related that about the year 1781 or 1782, the late Mr. John Jamieson, surgeon, brought with him an Umbrella on his return from Paris, which was the first seen in the city, and attracted universal attention. The earliest specimens of the English Umbrella were made of oiled-silk, which, when wet, were exceedingly difficult to open or to close the stick and furniture were heavy and inconvenient, and the article generally very expensive.† Its transition to the present convenient portable form is due parily to the substitution of silk and gingham for the heavy and troublesome oiled-silk, which admit of the ribs and stretchers being made much lighter; and also to the many ingenious mechanical improvements in the frame-work which have been made from time to time, chiefly by English and French manufacturers, several of which have been pa-tented. No change has proved a greater convenience than that from the old-fashioned ring and string, for securing the Umbrella when closed, to the clip and Indian-rubber braid; and yet, before this was accomplished, many tran-sitions had to be passed through, which must be familiar to most persons: these outward improvements may be taken as the type of numberless others which are not ap-

preciated, because they are not generally seen and understood.

We may now pass to the consideration of the various contributions from the different countries, first, however, premising that from England and France the largest quantities have been received.

Acceptata

The Parasols and Umbrellas of Austria are gandy, and not very well finished, and, indeed, evince but little skill or taste on the part of her two manufacturers who exhibit the finished articles.

Norwithstanding tim, is appear that they are expected to more catestor to several of the Mediterrons markets, for tome catestor to several of the Mediterrons markets, for the contract of the Mediterrons markets, for the several of the Mediterrons which they are sold are considerably higher than those for which good of a better quality can be friended by the which good of a better quality can be friended by the children's pracasks of each of the two makers, which the coldification pracasks of each of the two makers, which the coldification pracasks of each of the two makers, which the coldification pracasks of each of the two makers, which the coldification pracasks of the coldification of the

* That the nue of the Taileville was one considered as to effectionate for mee, is remarkably illustrated by the following passage contained in *The Founde Tailet* of Thee, I, following passage contained in *The Founde Tailet* of Thee, I, boses, that, for fore of rais, horrowed the University WIII's Coffee-bosse, in Corpubil, of the misterse, is hereby with the contained of the contained of the contained of the corpus of the contained of the 3 A not-extinsively published in 1757 by Thomas Foldense, and the contained of the contained of the contained of the machine property of the contained of the contained of the machine contained of the contained of the contained of the second of the contained of the contained of the contained of the second of the contained of the contained of the contained of the second of the contained of the contained of the contained of the second of the contained of the contained of the contained of the second of the contained of the contained of the contained of the second of the contained of the contained of the contained of the second of the contained of the contained of the contained of the second of the contained of the contained of the contained of the second of the contained of the second of the contained of the co

112 Cheaptide, sures that he has "a great assortment of this much approved ported and portable furnivellar, which, for lightness, elegance, and strength, far exceed anything of the kind ever imported or mannfactured in this kingdom. All kinds of common unbrellas prepared in a particular way, that will nover sitch together as the control of the contr

of white wood, and hop bone handles 1e, and 1s, 3d, each. Theye, A., carryed bone Unwell-stelles, with handles of bone, 2e, 6d, and 3e, 6d, with ivery handles fairly carred wood 44d, 5d, and 1s/d, caels: these latter were considered to be cheep. The two yambous carring, execution with the carring of the Meerrchaum pipe-lowis reviewed in another article.

Resourse

The contributions from Belgium consist of Parasols only, and were sent chiefly by one Exhibitor; for although purasols covered with rich lace are exhibitor; for although east gallery with other articles of lace, they cannot be regarded as appertaining to this branch of trade. The Parasols exhibited (No. 432) are well manofac-

The Parasols exhibited (No. 432) are well manufactured, but are not in such good taste as those made in France; whilst at the same time they are dearer than similar goods sent by the English makers. The prices quoted vary from 20s, to 25s, each for plain parasols, covered and lined with silk.

BRITISH COLONIES.

The richer contributions from the East Indies and the Island of Ceylon consist of State Parasols or Umbrellus. many splendid examples of which adorn the Indian Courts. The most remarkable example is the gorgeous Statenmbrella from Moorshedabus, exhibited by His Highness the Maharajah of Nanroos. This beautiful object is represented in the Hinstrated Catalogue, p. 924. ribs and stretchers, which are gilt, are sixteen in number and divide the umbrella into as many segments, covered with silk exquisitely embroidered with gold and silver ornaments; the upper part of the design is complete in each compartment, but at the lower it is formed into a graceful running border, to which a fringe is fastened. The handle is hollow, and in formed of thick silver plates, Other examples contributed by his HIGHNESS THE RAJAH OF DROLEPORE (p. 924) comprise the Sorroej Mackre, or native parasol, covered with rich damask silk, and having likewise a silver handle; and the gold umbrella with silver top and handle, and enriched with gold fringe. Of the more usual descriptions may be cited several specimens of Bengalee Chattake or small umbrellas, conical manifold plaits, and consensently ribs and in form, with stretchers. These chattabs are composed of the leaves of Licaula pelluta, and are the description used by the poorer classes of natives of Bengal during the rainy season. Of the same class is an unlirella made in Gowhattee, of the same material, but used by the higher classes of natives in Assam. There is also a conical umbrella of painted and variabled cloth, made in Calcutta; and, as if to illustrate how difficult it is for the native taste to adapt itself to European requirements, there is a very inferior imitation of an English umbrello, having ten ribs, covered with crimson calico, and lined and fringed with dark green.
This umbrella, it appears, is generally used by Europeans throughout India,

CHINA.

In China the Coulerthis is still a mark of high reads, but and can chancely on it must not be, overer, in inferred land conclusions, and in the control of t

 In Alexander's Costone of China, Part 8, is a plate representing a group of Chinose, habited for rainy weather, which accords with this description. entitled "Umbrellas in the East," are evidence that the umbrells is not an article of such paramount importance in Chins as in England; and yet Umbrellas and Parasols are made in considerable numbers in the provinces of Kwang-tung, Fo-kien, and Hoo-kwang, and form an important branch of commerce. They are exported from Canton, Amoy, and Shanghae, to India, the Indian Archipelago, and even to South America; in 1846, 300,000 were sent out from these ports. Almost all the parasols and umbrellas are covered with oiled paper, which is afterwards painted and varnished. At Canton umbrellas are termed Kittysols, from the Spanish word quitasol; the Chinese name is Chi-yn-son, or Yn-che. Two examples only are exhibited in the Chinese Court; they are contributed by Messrs, Hewett and Co., but present nothing remarkable beyond the great number of ribs, which amount to fortytwo. These ribs are formed of wood; and instead of being embraced by the fork of the stretcher, as is the case in European umbrellas, they have a groove cut in the middle of their length, into which the stretcher is secured by a stud of wood. The head of each rib fits into a notch formed in the ring of wood, which is fastened on to the top of the stick, there being a separate notch for each rib. The slider is of wood, and has forty-two notches, namely, one for each stretcher, which, like the ribs, is formed of wood. The covering of the umbrellas exhibited is of oiled paper coarsely painted.

FRANCE. In the higher class of Umbrellas and Parasols, France undoubtedly stands pre-eminent. The tasteful designs and sharp and excellent carving of the ivory handles, and the artistic grouping of the colours of the various silks used in the manufacture of parasols, and the supple dress-ing of the silks for umbrellas, give to the French manu-factures a decided superiority; added to which, the frames were much lighter and nenter than those made in England until a very recent period. The French parasols and umbrellas have, in consequence of their lightness and elegance, acquired a high reputation in America and Italy, to which countries large quantities are annually exported, as well as to the French colonies. Taking an average of the annual exports of Silk Umbrellas and Parasols from 1827 to 1836 inclusive, their value was 36,360L; between 1837 and 1846 it was 54,1721.; and in 1847 it had reached to 70,0881.; so that in twenty years the exports had nearly doubled in value. To obtain, however, the true exponent of the annual exports in umbrellas, must be added the average value of the uncovered frames exported in the same years; in the first-named period it was 7,160L; in the second, 9,160L; and in 1847, 9,280L: so that the value of the umbrellas, parasols, and frames which were ex-ported in that year was 79,368l. Whilst the foreign trade of France has been rapidly increasing as regards silk on brellas, she has lost ground in those covered with gingham, io which her trade was bever large, owing to the competition of the English makers. Thus, from 1827 to 1836 the mean annual value of the exports was 1,2401,1 from 1837 to 1846 it was 960l.; and in 1847 it was reduced to 480l. According to the Statistique de l'Industrie è Paris, Part II., p. 825, etc., it appears that in 1847 à Paris, Part II., p. 825, etc., il appears that in 1847 there were in Paris 377 materies engaged in the business of umbrella and parasol making, and comploying [4,429 work-people (501 mex, 742 women, 43 boys, 31 girls); who, according to M. Natalis Roadot's estimate produced goods to the amount of 205,222(ii. in that year; not much unore than one-fourth part of which was exported, as will be seen by comparing the furgregoing figures. In 1850 the exports were somewhat less than in 1847; thus the value of the silk umbrellas and parasols was 57,3864., of gingham umbrellas 891., of umbrella and parasol-frames 9,0951., making a total of 66,5641. Besides the umbrella mounters and finishers, there were

in 1847 in Paris 74 manufacturers, employing 304 workpeople (264 men, 6 women, 34 boys) engaged in the production of sticks, handles, and tips, whose returns were 30,400l. Of the 377 parasol and umbrella mounters and finishers-

Parasols and Umbrellas were formerly made by the rporate body of " Boursiers" (leather purse makers), who were at the same time breeches makers, cap makers, collar-makers, brace-makers, powder-puff, game-bag, and travelling-bag makers. In 1754, says M. Natalis Kondot, there were 250 master purse-makers in Paris; and quoting the Journal du Citogen of that date, he remarks, that the folding parasol sold at from 12s, to 17s, 6d, each, and the common parasol from 7s. 3d. to 11s. 3d. ench. Two questions naturally suggest themselves, what was the form of these instruments, and what their weight; fortunately both questions can be answered satisfactorily. In the well-known French Encyclopædias* there are plates representing the whole of the objects made by the " Boursiers. and the tools employed in their manufacture. The usual parasol or umbrella of that period which is there figured, closely resembles the ordinary gig-unbrella of the present day, and, slightly modified in form, is still used by the peasantry of France. The folding parasol was constructed with jointed ribs so as to fold back, and was likewise self-opening. The rod was a metallic tube, and contained a spiral spring which acted upon and pressed upwards an inner rod. To this inner rod were jointed the stretchers, which in this construction were placed above the ribs instead of below, as in the ordinary form; beside which they were much shorter so as to admit of their being concealed by the covering. By the elasticity of the spiral spring contained in the bollow stem, the inner rod was pressed outwards and lifted the stretchers, and by their means raised the ribs also, so that in its ordinary or natural state the umbrella was always open, and would continue so unless constrained to remain closed by a catch. On releasing the catch it consequently sprang open. In order that it might be easily closed, four cords were attacked to four of the ribs and passed to the handle; and a loop embracing these cords passed down by the side of the handle, and enabled the possessor to close his umbretla without difficulty. From the authority already quoted we learn that whalebone was employed for the ribs, and that their number varied with their length: for example, when 24 inches long, the number employed was 8; when 25 inches, 9; and when 26, 28, and 30 inches, 10 were used. Calico was employed to cover umbrellas and silk to cover parasols. The use of parasols was common in Lyons at that period (1786); they were carried by men as well as womeo; "they were rose-coloured, white, and of other colours, and were so light as to be carried without inconvenience," In Vol. V. of the Dictionagire des Arts et Mellers, published in 1788, and forming part of the et Metiers, published in 1788, and forming part of the Encyclopetite Methodique, mention is made of parasols contained in walking-sticks, which fly out by the action of a suring as soon as a catch is released. The comparof a spring as soon as a catch is released. The compara-tive "lightness" of Parasols may be judged of by the annexed statement, which relates to unibrellas of different periods, from 1645 to 1849, contributed to the last French Exposition in the latter year by M. Parge-

^{*} Etude pratique du Commerce d'Exportation de la Chine. Par Natalis Rondot, pp. 117, 118.

^{*} Diderot and D'Alembert's Encyclopédie on Dictionneire Raisone: des Sciences des Arts et Métiers. Paris, 1751-1765. Recell des Planches, Tom. I. Encyclopédie Méthodipue, Paris, 178-1850. Section Arts et Métiers, vol. vi. (1786).

	Length of ribs.	Weight.		
	Inches.	lbe, or.		
1645	314	3 84		
1740	29	1 13		
1780	281	1 8		
1840	271	0 135		
1849	27	0 8		
	1780 1840	1645 31½ 1740 29 1780 28½ 1840 27½		

Hence it appears that the Umbrella of the present day weighs only one-seventh of that of a century ago. From 1808 to 1848, a period of 40 years, there were 80 Patents of invention, 3 of importation, and 41 for improvements relating to the Umbrella-trade taken out in France. Some of these are for mechanical contrivances allied to those before described; some are for improvements in the ordi-nary frames, and others for the adaptation of machinery as a substitute for hand-labour. With all this, the productions of France must be characterised as high in pr the ordinary wholesale price of a good silk nmhrella of the self-opening construction ranges from 20s, to 40s,, and seri-opening construction ranges from 204, to 405, and that of parasols from 13s. to 80s.; but then they are in every respect exquisitely finished. The French manu-facturer is also famous for many ingenious contrivances: for example, with respect to Travelling-umbrellas, which may be removed from the stick and pocked in a port-mantean or placed in the pocket; and others too numerous to mention in detail.

PORTUGAL.

The Umbrellas in the Portuguese Department, Nos. 1127 to 1143, and the Parasols, Nos. 1144 to 1150, comprising about 30 varieties, are contributed by one Exhibitor, and may be characterised as creditable, though not remarkable, productions. The umbrellas are both with whalebone and steel ribs, covered with black silk, and have ivery and wood hardles. The parasots are also made with metal frames, some for ladies', others for children's use, and are covered with plain and striped silks,

Person.

The contributions from Prussia are from only one Exhibitor, and consist merely of Umbrella and Parasol haudles, which are sold at low prices. In 1846, Prussia possessed Seventy-seven manufactories of umbrellas and parasols, which gave employment to Five hundred work-

Tuxta

The Tunisian Court contains many examples of Parasols, some of which are made of leather and silk, and others of silk adorned with ostrich feathers.

TURKEY.

Although we have not to cite any examples of umbrellas Although we have not to cite any examples of unbivilias or parasols as having been sent, yet, in trating of these articles, it is desirable to allade to the very prevalent couployment of these useful shifters by the middle-classes of Turkey as a remarkable instance of the introduction of European eustoms into that country. So much, however, still remains of the regal attributes of the umbrella, that, in passing before the palace of the Sultan, the custom is to lower it; a compliment which the sentinel on duty does not fail to enforce from the foreigner, who, unconscious of the forms of society, may happen to pass with his umbrella elevated.*

UNITED KINGDOM.

Whilst France stands pre-eminent for articles of the highest class, England is without a rival in the production of parasols and unshrellas of the plainer descriptions. This is to be attributed not so much to the introduction of new the production of the productio and expensive machinery (for it is still almost as simple as that figured a hundred years since in the French Encyclosedins before mentioned), as to the judicious subdi-vision of labour, and the importation free of duty of her colonial cames for the ribs and sticks; likewise whalebone for ribs, and lastly, olso free, born and ivory for the hams and plain silks, also, gives her decided advantages over other untions.

It is not possible to determine with certainty the exact yearly produce in the parasol and umbrella trade, which, for finished goods, is chiefly centred in London; but some idea may be formed of its importance when it is stated that several of the large city bouses dispose of from 250 to 500 dozens of parasols and umbrellas weekly, prices of the commoner kinds is marvellously low, as will be understood when it is stated that children's gingham parasols are sold wholesale from 4d, each, and women's from 10 jd, each. Silk parasols commence at 10 jd, each, and gingkam umbrellas at 7d, and 10d, each, according to the size. Alpaca umbrellas range from 6s, to 12s, each, and silk nmbrellas from 3s, 6d, to 22s, each. To the price of the silk parasol there is scarcely an assignable limit, as any amount of expensive lace may be used to adorn it; the highest price quoted was 51. 5s., but the example was far less elegant than most of the specimens in the French Department, and much higher in price. Our umbrella-manufacturers would, indeed, du well to profit by the example of their French brethren, by calling artistic taleat to their aid in devising new models. For there are many English artists who are capable of furnishing excellent designs for the ivory carver, and of superintending the carving of the first model; with whose aid we should gradually find good engraring taking the place of its present substitute high-polish, whilst the cost on each individual article would be very slightly increased. A little artistic help is likewise desirable in the assortment of barmonious tints; and, at the next Exhibition, there will be no examples of crimson parasols with yellow fringes.

We are indebted for the eleganess of the commoner

umbrellas to three causes :-

To the small cost of labour attributable to the dexterity and industrious habits of the artisan; to the low price of giogham, which is sold at less than 3d, per yard; and to the employment of split and dyed ratan canes for the ribs in lien of whalebone. M. Meyers (XXIX., No. 140, p. 797), reports that bis weekly sales of cane ribs average 12,000 sets, eight to the set; the wholesale price of which is 10d, per dozen sets, or a little more than three farthings for each nmbrella. Although ratan-canes are used for some other purposes, the statement of the quantity imported into the United Kingdom, during the last ten years, will not be deemed out of place in the present Report.

RATAN CANES (not Ground-raten).

Years.	Number imported.	for home consumption,
1841	6,784,379	4,949,609
1842	4,101,369	4,687,757
1843	4.181.050	4,865,195
1844	8,145,757	8,233,984
1845	10,667,636	Free, and there-
1846	8,794,776	fore no account
1847	12,324,768	taken.
1818	7,974,413	
1819	4.723,564	
1850	19,760,796	

A large quantity of wbale-fins is likewise imported, and is consumed principally in the manufacture of umbrells-Whale-fins Imported during the last Ten Years into the

ited	Kingdom:-		
	Yests.	Imported, Cuts,	Entered for home consumption, Cuts.
	1841	6,369	6,272 4,368
	1843	6,609	6,297 7,160
	1844	11,484	Free, and therefore
	1846 1847	9,101 8,128	no account taken,
	1848	7,765 8,926	
	1830	9,498	

It has been previously stated, that one element of chesp production is the low price paid for labour. This position we now proceed to illustrate, first remarking that the putting-together of umbrella and parasol frames with caue 2 U 2

^{*} Penny Magazine, vol. iv., p. 480.

and whalebone ribs, is chiefly done by small masters in London, who employ lads to assist them; that the covering is performed by women and girls at their homes; and that in the lowest priced goods, the joint labour of an entire family is necessary to eke out a subsistence, The fixing of the handles and ferrules is often done at the ware-

In order that the reader may better appreciate the small amount of the wages paid for putting the frames together, the subjoined description of the various processes is g The frame-maker requires a capital of from 3l. to el., in order that he may erect a couple of very primitive-looking lathes with a circular saw; a rose-cutter for forming the tips, and several drills, all of which screw into the mandril of the lathes; also a paring-knife, a small vice, and three or four pairs of pliers; and lastly, n" weighing-board." The circular saw, rose-cutter, and paring-knife are comparatively modern improvements. He must rent a room or shop, and pay for fuel and candles. He has likewise to provide all the iron-wire and brass-plate out of what he receives in wages; but the stick, ribs, stretchers, and runners are furnished to him. In order to work ecmically he must employ two lads, but he usually finds it more to his interest to employ four, to whom he pays 4s. per week.

Preparing the Stick. The stick, which is usually of stained beech, is first sawn off to a length; one end is tapered with the paring-knife, to prepare it for receiving the ferrule; two grooves are cut in with the circular-saw in the direction of the length of the stick, in order to receive the two springs, one for sustaining the umbrella open, and the other for keeping it closed. The springs are then made out of iron wire, and fastened one in each groove, the fastening being effected by simply driving one end of the spring into the lundle: the other is left free, but is prevented from fiving out by means of n cross wire, the insertion of which requires two operations, viz., wife, the inferious of water requires two operations, via., drilling a hole and inserting and rivetting the wire. A stopper is formed by bending a piece of wire like a staple, and it is then inserted into two holes drilled above the top spring, in order to prevent the slider from going too far; lastly, two holes are drilled near the top of the stick, through these the cross wire is inserted, and when finished it presents the appearance of a double staple, one loop being on one side of the stick and one on the other. In preparing the stick it has passed at least sinetees times through the hand

2. Preparing the Ribs. Each rib is roughly tapered with the paring-knife at one end, and is rendered smooth and conical by bolding it in the direction of its length in the groove of a wheel lined with fish-skin, which wheel is made to revolve rapidly in the lathe; the taper end of the rib is then held across a steel fly-cutter or "machine, likewise running in the lathe, which cutter has a circular groove of the proper radius of eurvature formed on its periphery. By rotating the rib in the hand its "tip rendered spherical; the tip is then varnished, and has a hole drilled in it, to admit of fastening on the covering and each rib is cut to the proper length by sawing off the opposite end: the "head" of the rib is lapped with thin brass-plate and rounded, and is then drilled, to admit of the "head-wire," on which it is afterwards hinged; the rih is also inpped near its centre with brass-plate, and drilled, in order to admit of fastening on the stretcher; and, lastly, the stretcher is attached by means of an axis of wire, the ends of which are riveted. Each rib passes not less than thirtees times through the hand; and, as there are eight ribs, the frame consequently passes one handred and four times through the hand in this stage of the con-

3. "Weighing" the Ribs. Unless every rib be of equal strength, the nubrella will not "set round," hence the necessity for the "weighing" process. This operation is somewhat analogous to that which cagineers employ in somewhat antalogous to that where cagnifeers employ in ascertaining the deflection of a beam, and is effected by n very simple instrument. The weighing-board is about 3 feet 6 inches long and 2 feet deep, and is affixed to a wall, the longer side being parallel to the horizon; and there are in different parts of it in multitude of shall holes for the reception of wire pegs. The rib to be weighed is is as follows:-

placed over one peg close to its stretcher, and under mouther peg, so far distant from the first as to reach scarly to the hend of the rib; a small leaden weight is then hung on to the tip, and of course deflects the rih; the amount of the deflection (indicated by graduations on the are of a circle affixed to the board) gives the relative strength of the ribs, which are assorted out in sets accordingly. The weighing adds eight more operations to those

already enumerated, 4. "Threadling" the Ribs. Each stretcher, which it will be remembered is attached to the rib, is taken up in turn and threaded on to a wire, and is then inserted, each one in its respective place, in the notches of the slider, and all are made secure by binding the wire round the top of the slider, which is grooved for that purpose. The head-wire is now inserted through four of the ribs, and is then passed through the two loops of the " cross wire at the top of the stick; and now the four remaining ribs are threaded, and the head-wire seemed by twisting its ends together with pliers. Reckoning that this adds four operations, the frame will have passed one hundred and thirty-five times through the bands of the workman or

as assistants. All this labour is performed for $\frac{1}{2}d$, to $\frac{1}{3}d$. In the case of parasols, and for $\frac{1}{2}d$, to 1d, in that of umbrellas, A workman can, nevertheless, earn fair wages at these prices, provided he is supplied regularly with work; but he is frequently subjected to much loss by being kept waiting about in the wholesale warehouses, which some times occasious a loss of at least half a day to him. The prices just quoted are those paid for the lowest description of work, but for putting together the frame of an nu-brella with whalebone-rils the workman gets 23d. Of the cheaper kinds of umbrellas, say those at is, per dozen, a workman and four lads can make four gross per week, for which he receives 48s. After deducting the wages of his lads, 16s, and the cost of the materials he supplies,

nis inds, 162, and the cost of the innermise or suppose, which is about 8a, it leaves him 24s, for himself.

Covering of Umbrellus. This is paid for according to the description of work, the commonest at the rate of

the description of wax, or communication is per dozen, and the best 4s, per dozen.

The frames, which are made of metal, are almost exclusively manufactured in Birmingham. The stick, ribs, stretchers, and ferrule, are all metallie, and require, after many the insertion of a lone word on item. covering, merely the insertion of a long wood or ivery handle and the ferrule to complete the umbrella. These frames can be farnished at from 7d. to 10d. each, and although not so cheap as the canc-frames, they are cousumed and exported in enormous quantities, in consequence of the small bulk which they occupy. Many improvements have of late years been made, not only in the machinery used for making the metallic frames, but also in the construction of the frame itself. Amongst those most deserving of notice, may be cited the improvements of Mr. Holland (No. 131, p. 797) and Mr. Boss (No. 146, p. 798). Either of their constructions adds about 2s. to the price of an umbrella. In conclusion, it may be stated that the umbrella-manufacture in the United Kingdom is in a very prosperous condition, and is rapidly increasing.

WURTEMBURG.

There are Four Exhibitors of Umbrella-handles from this country, the curving on some of which is very hamorous: the most important collection has been reworded for other ivory goods which were exhibited at the same time, and which formed the largest proportion of the contribution. (See Toys).

The number of Exhibitors of Parasols and Umbrellas.

or their components, such as handles, sticks, and mounted frames, is Thirty-three; of these, there are-

> 5 Holders of a Prize Medal 2 Who obtained Honourable Mention. 26 Unrewarded.

The number of Exhibitors from the various countries

661

Austria	-	-	-	-	-	_	_	_	5
Belgium	-	-	-	-	-	-	-	***	ï
British ('olo	nies (Ind	in at	nd C	ey'es	3)	-	2
China	-	-	-	-	-	-	-	_	ī
France	-	-	_	-	-	-	_	_	3
Portneal	-	-	-	_	-	-	-	-	1
Prussia	-	-	_	-	_	_	_	_	i
Tunis	-	-		-	_	-	_	-	í
United F	line	:lom	_	-	-	-	-	-	14
Wortem	bury		_	-	-	-	_	-	4
									33

LIST OF AWARDS.

Box, Isaac Amanana, 6 Bury Surest (Clear XXIX, No. 146, p. 780; Unknownfab Mentakon is accorded to this Exhibitor for several Mechanical Improvements in the construction of mineflux and parasal frames. One are constructed on of mineflux and parasal frames. One are constructed on the construction of the co

22. 3d., one of ordinary construction being 10d.
Cazat, —, (France, No. 108, p. 1176). Prize Medal.
For Parasols and Umbrellas elegant in form and of excelleat workmanship. The carved ivory handles evince much taste and are well sculptured; the framing, which is very light, in many cases presents novelties of construction. The self-opening umbrella, for instance, may be cited as a very ingenious contrivance; the desired effect being produced by simply making each stretcher double, and so arranging the parts that a tension is put on one of the sets of stretchers in closing the umbrells, which consequently flies open as soon as a cutch is released. A travelling umbrella, so arranged that the stick may be conveniently removed and used as a walking-stick, is also worthy of commendation. The prices of the nubrellas are, however, high; they range between 32s. and 100s. each. M. Cazal likewise exhibits Canes made of rhinocacit. M. CAZZI Inkewise exhibits Cance made of Finion-ceros-horn, white whale-loose, and conglomerated hera... Charactear, E., Paris (France, No. 1144, p. 1233). Prize Medial. For Unbriellas and Parasols of first-rate workmanship. The designs and sculpturing of the handles are in all cases of the highest class. The case of this exhibitor likewise contains numerous examples of ingenious mechanical contrivances, among which especislly to be commended is an umbrella which closes of itself when a spring near the handle is touched. The specimens, although equal in manufacture, and, at the same time, more moderate in price than those last mentinned, must still be considered as costly; nmbrellas, for instance, range from 20s. to 60s., and purusols from 13s, (very plain) up to 80s, for the more elegant class, whole-

table.

IBOLARON, Hewart, Birmingham (Class XXIX, No. 131, p. 192). Price Nedal. For Farned and Undrell: Frames part of the New York of the Parado and Undrell: Frames parts of which were exhibited to avious stages of perpense, so as to illustrate the plan of masurfacture. This description of frame is distinguished from others cheely on the period of the period of the Parado and Para

it souts arount 22.

Montano, J., and Son, 30 Eastehenp (Class XXIX., No. 306, 8.818). Fire Medal. For Farasols and Universities of very excellent workmanship and at moderate prices. In the better class of goods Holland's frames are emplayed. The unbrellas exhibited range in price from 3s. 6d, to 22s, wholevale, and the silk parasols from 1s. 7d, (children's) up to 16s. each.

Salareria, Williams and Joux, 10 Regent Street
(Clasa XXIN, No.15-p. p.79). Prize Modal. For sile tollow of a valling-side is not yet obsoive. In
the form of a valling-side is not yet obsoive. In
the forms thathiston, D. Gazar, of Perth, displayed a
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of the Peruvian and Chilian sheep, and is therefore not liable to fide, nor is it seted upon by salt-water; hence Alyses pursuels and unabrellas are much used at wateringplaces, und are also largely employed as a cheap substitufor those covered with silk. Alignen parasols sell at 5x, each, and unbrelish at from 6x to 8x, wholesale.

The c assumption of Alpuca-cloth in the unbrella-trade, now with unblug its recent introduction, is very considerable, for it appears that the production for this purpose amounted, during the last year, to the value of 25,0.4.1; its price is about 2s, per yard.

Wilson, M., Berlin (Prassia, No. 257, p. 1063). Honourable Meurlou. This Exhibitor contributes a great variety

able Meuriou, This Exhibitor contributes a great variety of Parasol and Unabrella Handles, manufactured from horn, hone, and ivory, which are deserving of Honourable Meution.

III. WALEING-STICES. When succer the heroic period may be supposed to have

Wheredever the herete period may be supposed to have was the well known, since it is referred to in the engines put forth by the 'sphysta, and solved by Gdijass. "There a Being," said the questioner, "which has fore in the part of the the property of the

totters with a sizes.

The use of a staff for support in walking appears to be so natural and inartificial us not to require any illustration; and yet the Pilerim's staff of the middle ages. and the Alpensick of the present time, have a certain amount of historical interest. The Bourdon, or Pilgrin's staff, was a strong and stout stick, apparently about five feet in length, armed at the lower end with an iron spike, and intended to supply a support and balance to the body, when the traveller was climbing up slippery paths or steep acelivities. About a foot from the top of the staff was generally found a large protuberance, rither artificially or naturally formed around the staff, on which the pilgrim's hand securely rested, without danger of sliding downwards. The lower part of the staff was altogether solid, but the apper joint was a hollow tube, capable of containing small articles, like a long circular box. It is probable that these articles were originally reliques of saints, or the "signs," as those emblematical figures were usually termed, which were commonly sold at the shrines to which pilgrims travelled, as proofs that they had really visited those sacred spots. In the later ages of pilgrimage, however, this part of the staff was sometimes converted into some kind of pipe or musicalinstrument, such as sticks have frequently contained in modern times. Above the tabe the staff was surmounted hy a small hollow globe, and it was also furnished near the top, on the outside, with a kind of crook, for the purpose of safely sastaining a goard-bottle of water. After the pilgrim had completed his votive journey, and returned from Palestine, he commonly brought with him a branch of palm, fastened into the top of his staff, as the proof of his travel into Palestine or Egypt. It is, how-ever, unquestionable that the pilgrims' staffs frequently became the receptacle of secular articles. It is recorded by Holinshed, that in the hollow part of a pilgrim's staff the first head of saffron, afterwards so successfully culti-vated at Saffron-Walden, was secretly brought over from Greece, at a period when it was death to take the living plant out of the country. The silk-worm also found its way to Europe in the hollow of a pilgrim's staff. So late way to Entrope in the nonew of a pigerin's analos as the time of Cervantes, certain Spanish pilgrims existed, who had collected newards of a hundred crowns in alms, which, being changed into gold, they concealed in the hollow of their staves, or the patches of their clothing. It seems to be a natural observation in this place, that the aucient contrivance of making a repository in the hollow of a walking-stick is not yet obsolete. In the Great Exhibition, Dr. Gnay, of Perth, displayed a medical walking-stsff, containing a variety of instruments and medicines; and the same principle has been also frescopes, instantaneous-light-apparatus, and many other

important arricles.

Several varieties of sticks were likewise exhibited enchosing in them words, dirks, and apring-spectre. The besings that we words, dirks, and apring-spectre. The besings that they required a heavy blow to be given with the armed end before the strong spring could be overcome which held back the spectrodes. Severhielder, Severhielder, but this kind of weapon walking-straves is not of later invention than the last century; though that which colearly VIII.

The Algentock is another ordinary travelling-staff requiring to be noticed, of modern me, though of great antiquity. It is a stout pole of about six feet in length, provided with an iron spike at the lower cud, and surmonoted with a chamois' horn as an ornancia. It is almost indispensable in mountain journeys, and may be

procured for two francs throughout Switzerland, Another order of walking-sticks comprises those light wands to which the name is now exclusively attributed; and these also are descended from a time of considerable antiquity. The stem of the giant-fennel the Ferula of Pliny, is the chief progenitor of this family, and he derives the origin of the name of the plant either from fero, from the stalk being employed in walking, or from ferio, because schoolmasters used it for striking boys on the hand. It would seem as if the latter interpretation had become established at an early period, since Martial terms the ferula aceptrum pedagogorum; and even down to the present day the word popularly conveys no other meaning. The tough lightness of the fennel-wood rendered it especially fitted for a support to aged persons; whilst the imposing length of the staff gave as air of importance to those who carried it. Hence it became the prototype of those lighter wands, which have continued as the sign of seniority or gentility to the present

In Orderal countries the substitute for the fermit was for fively right as a specific and the six methods of story light as a support, and the six methods of Gregs, is noticed, in probable a provertied form, by the Gregs, is noticed, in probable a provertied form, by the Gregs, in the Gregorian control of Gregorian control

In the Egyptius sculptures persons of importance or offsicial rank are represented valking with tall sleader staves, having the lotas-lower on the top. Several many control of the contro

At a very early period of the Soreed history the disintertive character of the staff carried by an individual is indicated from his immediate recognition simply by the production of it with his signet and his barwelets (Gensis xxxviii, 18—29). Homer has commemorated the "sceptre-bearing princes" of the Greeks, and especially the sceptre-staff of Achilles, adorned with golden studis; "I will swear a great each," mys the here, "even by this

reeptre, which shall never again bear leaves or shoots, nor will bed again from the time it left its trunk upon the mountains, when the axe stripped it of all its leaves and bark." These sceptres, although they were indiputably the insignia of rank and authority, were also evidently the usual walking-sticks of persons of the highest class. Agamenoom, it is stated, never went forth without

bearing with him his paternal stell of royalty.

In the pertrain of many of the node personages of the tap pertrain of many of the node personages of the pertrain of the pertrain of the personages of the pertrain of the personages of the personages of the pertrain of the personages of the personage of the personages
with a whetmore tiping of with golds."

From the middle of the sevent-work century unliking. Proven the middle of the sevent-work century unliking. The manufacts and also of the materials of which they of the insuring and also of the materials of which they contain, the most fashionable sorts were made of certain contain, the most fashionable sorts were made of certain variety of colorer or risk century open plant into, which was most approximately described by the English term and the properties, both one account of their speeding sorts, and they were often richly assumed with which are proportions, but the "chould quantify as greatly valued as to be preserved in cases of migrate of the described properties and the properties of the control of of t

" Sir Plume, of amber souff-box justly vain, And the nice conduct of a clouded cane,"

as well as Gay's commemoration of the same kind of walking-stick in " The Van :"—

44 Here clouded canes, 'midst heaps of toys are found, And iolaid tweezer-cases strew the ground."

The most carious account of the walking-sticks of this period is, however, contained in the "Tatler," No. 103, written by Addison and Steele, and published on Tuesday, 6th December, 1709. In that paper Isane Bickerstaff represents himself as issning licenses and regulations " caues, for the beaux of the time, as to the carrying of for the beaux or the time, as to the carrying or caucs, perspective glasses, orange-flower waters, and the like ornaments of life." The first part of the essay is in-tended to ridicule and abolish the prevailing absurd though fashionable practices connected with walkingsticks; hence the respective parties were licensed to carry them provided they did not walk with them under the arm, nor brandish them in the air, nor lung them on a hutton. One of the petitioners desires permission to renutton. One of the pertubures useres persuased to ter-tain bis cane, because it had become as indispensable to him "as any other of his bimbs," and because "the knock-ing of it upon his shoe, leasing one leg upon it, or whistling upon it with his mouth, are such great reliefs to him in conversation, that he does not know how he should be good company without it." The cane of this person being produced, it is described to be "very cu-riously clouded, with a transparent amber-head, and a blue riband to hang it ou his wrist."

In the second half of the last century there was one peculiar form of walking-stick prevailing, which was generally used by females who were advanced in life. The

^{*} Costume in England, by F. W. Fairbolt, p. 473.

sticks referred to were between five and six feet in height. taper, and slender in substance, turned over at the upper end in the manner of a shepherd's crook, and twisted thoughout the whole extent of the wand. The materials were either wood, ivory, or whalebone, mounted with silver or gold, and sometimes they were formed entirely of a clear, pale, green glass. The length of the most fashionable sticks of this period is noticed in a number of The Loudon Chronicle published in 1762, wherein the writer says, " Do not some of us strut about with walking-sticks as long as hickory poles, or else with a yard of varuished cane scraped taper, and bound at one end with waxed thread, and the other tipped with a neat ivery head as hig as a silver penny." Towards the close of Towards the close of the eighteeuth century two peculiar forms of walkingsticks were commonly carried by the most gay of the voung men of the period, one being a very short and strong bamboo-cane, bent over at the top, and the other a stout knotted stick, in which the grotesque natural growth of the wood was frequently regarded as its greatest excellence.

Auother kind of walking-sticks comprises those gro-tesone stayes which have been devised or adopted by individual fancy or eccentricity. It is possible that this peculiar humour may be of considerable antiquity, since the knotted walking-staff and wallet were the distinctive attributes of the Greek and Roman philosophers, and especially of the cynics. The chief peculiarity of this class of staves, however, consists in an ingenious adaptation of the excrescences of the wood of which they were made into grotesque human heads and faces, of which the Exhibition contained many eurious and remarkable in-stances. The old English form of these staves may per-haps be referred to the bunbles earried by the fools and lesters who were retained by sovereigns and noblemen of the sixteenth and seventeenth centuries. The Jester's Bunble consisted of a short stout staff surmounted by the earved figure of a puppet or a fool's head; and the modern practice of carrying sticks decorated with humorous faces appears to have existed early in the eighteenth century. About 1730 The Universal Speciator states, that at the court end of the town, instead of swords, many polite young gentlemen " carry large oak sticks, with great heads and ugly faces carved thereon. Perhaps some of the most remarkable instances of these carved some of the most remarkable instances of these carried sticks ever exhibited were those executed and carried about by James Robertson of Kineraigie, otherwise called "the daft Highband laird," of whom Kay published an etching in 1784. In the latter part of his life he adopted the amusement of carring, for which he had some talent, and sculptured in wood the efficies of such persons as attracted his wayward imagination, whether friends or enemies: the latter, however, being executed in caricature. These small figures be mounted on the upper end of a walking-stick, sometimes one above another; and as it was reported that he produced a new one every day, he was commonly accosted with the inquiry, "What has ye up the day, laird?" to which he would readily auswer, by naming the individual and the reason for selecting him.*

It might be supposed that the manufactures of waitings, with a consistence of the conserver, and article central of the conserver, and many perment of the conserver, and many command in it. There is secorily a grant or a many command in it. There is secorily a grant or the conserver of the cons

bark. The West Indies furnish a copious supply of the most approved materials for walking-sticks, in supplejacks (vine-stems), pimentos (from the Engine piment pepper-tree , cabbage-stalks, orange and lemon-tree sticks, and the coffee-shrub and Indian briars. Numerous canes, the produce of climbing palms, and gigantic grasses, are also largely used by the stick-maker. The principal of these are the following:-rataus, dragons, and Penanglawyers, which are the stems of a species of calamus or climbing-palm, and are obtained from India, Singapore, Java, and Chinn-white and black bamboos, fluted bamboos, wangees, jambees,* and dog-head canes, which are the stems of various species of bambusa or grasses attaining a height of from 50 to 60 feet, and are exported from China; ground-ratans, large ground-ratans, malsecas, and drugous from Singapore. There are also the bumboo and jungle-bamboo imported from Calcutta; and, lastly, capes from Manilla

It must an be supposed that these various materials, in the surrought same, present an appearance at all reunderstanding the same and the same and the same and the same and the same angle is the North-east Gallery (XXIX., 164, pp. 75,
78), dily confirm this natament, but the truth is such
more strongly impressed on the initial after an inspection
more strongly impressed on the initial after an inspection
more attention of the same and the same and the same
more affected that the same and the same and the same
many thousand of possible structure is to be level up for
the same and the same and the same and the same and the
same and the better descriptions require many more operations
and the better descriptions require many more operations.

1. Itelity of the Bank—Prom mont of the forest-woods the bank has to be removed before the separated boughts can be made into polished stakes, but in some manipulate its the wrate-earth, the excremence of which are produced by an abnormal growth of the tree resulting from the paneters of an insect. As a half-penny is the from the paneters of an insect has a half-penny is the will be readily canceleded that there must be some simple means of facilitating this operation; and accordingly the stake are boiled for a couple of hours; the bank then stake are balled for a couple of hours; the bank then striped of without officials.

2. Forming the Crook and straightening the Stick.—Few limbs of trees or even canes, are sufficiently straight in their natural condition to answer the purpose of a walking-stick, and very few present those conformations which can be readily fashioned into handles; hence the necessity for these two operations, which claim our admiration from their ingenious simplicity. The handle is formed by softening the wood or cane in hot down sand, when it becomes pliable and non-elastic, and readily assumes and retains any curvature or bend that may be given to it. Minnte attention, however, is required with regard to the temperature for each description of wood; hence the precise degree which is proper for each can only be learned by long experience; and in cases where n new variety of material is imported, some experimenting becomes necessary. The straightening is performed in a similar mauser, excepting that the previous softening is effected in dry sand heated on an iron plate, that is in the ordinary sand-bath. When the stick has become suffi-ciently pliable, it is inserted into a deep notch cut in the edge of a strong plank, and is strained first in one direc-tion and then in another until it has become straight. The stick when softened takes any form much as a p of red-hot iron would do. The straightening-plank is three inches thick, about six feet long, and one foot wide, and is inclined away from the workman at an angle of

^{*} Biographical Sketches attached to Kay's Edinburgh Portruits, Part I.

The relative fashlousble value of some of these sorts of cane is satirised in The Tutler, No. 142, published on Tuesday, March 7, 1709-10. In that paper, "a plaid dragon" is charged at five guiness, and "a true jambee" at tea.

about 30" from the perpendicular, it being firmly scenred

to the floor at the lower end.

3. Finishming the Stick.—In this operation some sities are wrought to aname a twisted or giral form, and others the knotted appearance of a hambon or winages; and others the knotted appearance of a hambon or winages; the still represent the st

4. Staining.-After straightening or earving, the sticks are in many instances brought to a very smooth surface by means of emery or glass-paper, and finished off with fish-skin; and they are then, previously to the varnishing, unale to assume so many different burs by means of dyes, that the uninitiated would conclude that each was a perfectly distinct variety. The surface is likewise soot-times charged, and the charged portion scraped off partially here and there, so as to produce a very ornamental appearance. Sticks are also embellished with lithographic-transfers, but not in England, as hand-labour is too expensive. Malnecasennes, when not sufficiently long between the joints to form a straight stick, are made to appear continuous by reducing the larger part to correspond to the smaller, and tapering it gradually from the point of juncture. It then becomes necessary to colour that portion which has been reduced in size, and this is done with so much skill, that the stained and natural surfaces are not distinguishable,

Hitherto, mention has been chiefly made of sticks of vegetable origin. Of such as are made of animal substauces may be instanced whalebone, tortoise-shell, rnm's horn, rhimoceros horn and hide, as commonly employed for sticks; and occasionally the real bone of the whale, the spine of the shark, the hara of the narwhal, and ivory. The horns of animals under particular treatment with heat and by mechanical appliances, are drawn out into long cylioders; and tortoise-shell raspings are easily conglomerated by heat and pressure, and in the soft state formed into elougated rods applicable to the maoufacture of sticks. The hide of the chinoceros forms a very transparent horn-like substance, and is very clustic and tough. The feet of fawns, which are frequently used for stickhandles, are made to retain: he required form by merely haking them. Ivory, horn, and bone, are also largely used for stick and umbrella handles, and give, in their preparation for these purposes, employment to a considerable number of workmen,

Metals are not much used in the formation of the entire stick, but are restricted chiefly to the handles and ferules; still, however, iron sticks painted to represent wood and came are not unusual.

Baths, or common cases, although used for sirks, as more frequently employed as a substitute for visiblence more frequently employed as a fastistic for visiblence more frequently employed as a fastistic for the first two sees; they are merely spirit by hand to a before the substitute of the substitu

Before proceeding with the review of the contributions of the several nations, attention is claimed to the fact that London, Hamburg, Berlin, and Vienna, are the chief seats of the mannfacture under consideration, and that by n curious coincidence the principal makers in three of those cities bears the name of Meyer or Meyers. Two of them, namely, those residing in Loudon and Hamburg, are present by their works in the Great Exhibition; but the third, of Vienna, does not exhibit.

AUSTRIA.

The display of walking-sticks in the Austrian Section is very extensive, and has been contributed principally by two stick-makers; and also by a manufacturer of prpe-tubes, who has been rewarded chiefly for the latter article (see Ptres). Although the two other exhibitors have not received any Award, their contributions are deserving of favourable mention from their extent, cheapness, and goodness of workmanship. The largest exhibitor is A. Tatrus (e85, p. 1042), who sends a very extensive collection of sticks, from 9d. to several pounds each. They comprise most of the known varieties, and are generally ornamented with ivory handles, which, although not remarkable for any great correctness of form, are very well executed and very claborate, and many of them are exceedingly humorous. Taking the amount of work into consideration, the goods of this maker are generally low in price. The exhibitor next in importance in T Lepwio (679, p. 1042), who has contributed walkingsticks from 1s. each, but not ranging to prices so high as those sent by the maker already mentioned. His contributions are remarkable for their cheapness wherever much hand-carving is displayed,

Betown

The Walking-sticks in the Belgium Department are contributed by one exhibitor from Bruges (4, 6), and consisted entirely of a description ornamented with inlaying, which is well-executed.

BRITISH COLONIES. The exhibitors of Walking-sticks from the various dependencies of Great Britain are very numerous, and their countributious highly interesting from the variety of

materials employed in their formation; none, however, can be considered in any way as representing the art of stick-making in a commercial sense. From Western Africa is a stick, or rather, staff of honour usually carried before the African chiefs. Beside this, which was sent by Dr. McWilliam (5a, pp. 953, 954), are several sticks from the horn of the rhinoceros, contributed by Mr. HANBURY (28, p. 950), and a stained Quina walking-stick from the Greenkloof Missionary-station. From South Africa Mr. Hatpurs (21, p. 950) has sent some sticks of rhinoceros-hide. Brilish Griana is represented by two exhibitors, Mr. BEE (156, p. 987) and Mr. DUOGIN (148a, p. 986); the first of whom has sent a walking-stick made of the outer part or rind of the Tooroo palm from the River Demerara, and the second one made of a tree called letter-wood. From the Eastern Archipelago are ratans and bamboos contributed by P. HAMMOND and Co. (2, p. 988). The Indian Courts contain some very interesting specimens of decorated sticks, as they do of most of the ornamental arts, they are contributed by four exhibitors, beside the Honograble East India Company (p. 924). beside the Hosourable Last Isbla Contract p. 227). The specimens at present to be naticed consist of four bamboo-walking-steks, richly monated in gold and silver, sent from the Rajah of Ulwab); a stick enriched with a painted ornament, and mounted with silver, contributed by the RAJAH of KISKAGHUR (p. 924); sandal-wood and carved ivory Chorvess, or Whisks, from the RAJAH of BIEERTOBE (p. 924); an ivory walking-stick, with a guld ring; two Ivory Chowrees, one from Jodhpore, the other from Bhurtpore; and two Chowrees, made of the tail of the Yak (Bos Granicas), with silver bundles (p. 924). There is also a selection of walking-sticks of various descriptions, made at Calcutta, and in Corbin China; Betel-nut sticks and a Saudal-wood whisk from Calcutta. Most of these beautiful and interesting articles were purchased by the Company for the purpose of the Exhibition. The small collection from the Island of St. Viacrott (p. 978) consists principally of specimens of Supple-jacks; and from Triatilat is a walking-stick sent

by the Gavernor, Lord Hannis (pp. 974, 975). From Von Diesen's Lond are two contributions of walking-sticks, made with the hard portion of the bone of the whale, with beads carved out of the whale's tooth, one being sout by Sir W. T. DENISON (304, p. 998), and the other by Mr. T. SCREEN (305, p. 998); and there is also a stick made of the Oak of Tasmania (Converns quadricales), con-tributed by the Venerable Archdeacon Marriott.

In the Chinese Court is a hamboo walking-stick, enriously carved, which was contributed by Mr. F. S. Can-PENTER (33, p. 1425), in addition to which may be men-tioned two Chinese sceptres, one from HER MAJESTY'S Cossc. at Shandhas (28, p. 1420), and a still more in-teresting and elaborately curved specimen contributed by Mr. P. P. Thoms (16, pp. 1422, 1423), of Warwick Square, a full description of which will be found in the Itsustrated Catalogue. It would appear, from Mr. Thom's account, that it dates from 2169 years n. c. These specimens, however, must be regarded as mere cariosities, and in no way representing the commerce of China in this branch of trade, which as regards the raw material is very important, large quantities being annually exported. From Canton alone 1,200,000 sticks of various kinds were exported in 1846, consisting chiefly of different kinds of cases and bamboos, but comprising also laurelsticks, stems of the tea-plant, and the root of the fig-tree uf the Pagodas (ficus indica),

The French Department contains some very elegant examples of walking-sticks, which have been sent principally by an exhibitor noticed in the List of Awards; but specimens were also exhibited by the umbrella-manufacturers, who have been spoken of under the preceding article. In-deed many of the underella-manufacturers of France are also makers of walking-sticks and riding-whips. France does not export a very large quantity of walking-sticks, on account of the far less cost of production in London and Hamburg of the ordinary descriptions, and in Vienna of those with elaborately carved handles. The chief specimens sent by the Prench stick-makers, and also by the umbrella-makers, consist generally of articles made of clongated ram's horn and conglomerated tortoiseshell. 1847 there were, in Paris, one hundred and sixty-five manufacturers of walking-sticks, and riding and drivingwhips, employing nine hundred and sixty-two workpeople, who produced goods valued at 140,320/. The journeyman, who in Paris works by the piece, earns from 2s. 10d. to 4s. 10s, per day; and a skilful engraver or enchaser about 7s. 3d. per day. The workwomen earn from 1s. 2d. to 1s. 10d. per day. M. Natalis Rozdot quotes 12,000l. as the annual value of the productions of the largest manufacturer in Paris; but this estimate comprises also riding and driving-whips. About nine-tenths of these articles are exported. The imports of lamboo-canes into France are as follows:-

Years.	Rembose and Large Canes.	Ratans and other small Canes
-	Cuts.	Cuta,
1830	146	126
1835	254	468
1840	610	1,820
1845	828	4,120
1850	950	3,606

HAMBURG

The most important display of walking-sticks is undoubtedly that in the Hamburg Department, contributed by H. C. Meyer, jun. (86, p. 1139), who it appears is the most extensive stick-maker in the world. His collection contains about five bundred varieties, comprising most of the known materials. This exhibitor, who in Hamburg employs between two and three hundred workpeople, has also a branch-establishment in New York. There is also a small collection from another exhibitor of Hamburg,

which, being a free port, possesses an almost equal ad-vantage with London in regard to obtaining materials free of duty, and is generally a large purchaser at the Colonial sales in London of all the productions obtained frum the British dependencies. Being placed on an equality in this respect, Hamburg has another great advantage in the cheapness of hand-labour over London, and is consequently a most powerful rival in the mannfacture of sticks.

HESSE.

From the Grand Duchy of Hesse is contributed a collection of sticks, ornamented with transfers from paper, printed by lithography, and which are produced at so low a price as to defy the competition of Hamburg or London. Large quantities of these very neat productions, imitative generally of sticks covered with plait, are annually exported to England and America.

There is one exhibitor who sends good articles from

SABBINIA.

There is one exhibitor of beautifully finished plain sticks, which, although comprising few varieties, are very meriturious. SWITTERLAND

Sends a gold stick-head with internal mechanism.

of gilt bronze.

TUSCANY. The contributions from Tuscany consist of five walking sticks, composed of numerous pieces of born, with haudles

UNITED KINGDOM

The manufacture of sticks in England is in an increasing and most flourishing condition; for not only are the goods for home-consumption chiefly made in this country, but Great Britain also possesses a very large export trade in the finished article, and almost exclusively supplies the Continent with the raw material with which her markets are abundantly furnished from all parts of the world. To give some idea of the extent of the trade, it may be stated that the principal Loadon maker prepares manually 80,000 bundles, which are equal to 2,500,000 ratans, principally for parasol and umbrella ribs; and he also sells annually the subjoined quantities of manufactured sticks, viz.:—

Partridge canes	_	_	-	-	-	-	60,000
Bamboo canes	-	-	-	-	-	-	80,000
Malacea canes	-	_	_	_	-	-	110,000
Dragon caucs	-	-	-	-	-	-	100,000
Ground ratans	-	_	_	_	-	-	15,000
English sticks,	such	RS	onk,	26	h, er	nb,	144,000
maple, &c							

Polished ash-sticks are chiefly manufactured at Birmingham, where they are sawn out by machinery, and subsequently turned and polished. At present the English maker is unable to compete with the German manufacturer in producing sticks ornamented with transfers from printed papers, but probably the substitution of letter-press for lithographic-printing would turn the scale in favour of

The importation of walking-sticks is, however, very small as will be seen from the following table :-

VALUE of the IMPORTS into the UNITER KINDDOM, of Manufactured Walking-sticks in 1850.

	From all P	arts	_	_	_	1,604
11	Other Parts	-	-	-	-	93
"	France -	-	-	-	-	269
11	Holland -	-	-	-	-	450
From	the Hansentic	Tox	TLS.	-	-	792

Whale-bone sticks are made better and cheaper in Germany, and the continental makers are also more proficient in making sticks from the hide of the rhinoceros; but as regards those ornameuted with silver wire, Fagland is unrivalled, and holds a high position with regard to the

£.

chased silver and gilt handles; indeed the ferrules and metal-work generally are unsurpassed. The same remark which was made with respect to umbrellas, here applies to the earved ivory stick-handles; the fault appears to consist in choosing subjects which cannot be well executed

at such prices as can be afforded for the carving.

The following wholesale prices will give some idea of the value of the different kinds of sticks of British mannfacture, though not a very accurate one, without at the

same time seeing the samples :-

						Per dos.		
Pollshed .	Ash	stick		-	-	34,		
Bamboos	-	-	-	-	_	2r, 6d,	\$a	64.
Partridge	-	-	-	-	-	64.		
Whangee	-	-	-	-	-	40.	to	48s.
Malacca	s 2x, 6d, to fix, re 5x, 10 l8x, re 4x. 10 48x, re 4x. 10 49x, rith crutch handles _ 12x, to 18x, tith loaded beads _ 10x, re _ 10x,							
Beech, wl	th e	rutch scied	ha	ndles ds		12s.		
Sword-ath	-ka	_	_	_	_		to	

Walking-sticks are sent by thirteen exhibitors, whose productions are dispersed in various divisions, as, for example, in Classes VIII., X., XVI., XXII., and XXIX. These specimens comprise many instances of the em-

ployment of walking-sticks for containing various implements, alluded to in the introductory matter. Beside the instances there quoted, are to be found-a walking-stick which serves the purpose of a miniature wine-cellar and larder (Class XVI., 81, p. 522); one which contains a voltnic-battery (Class X., 423, p. 455), which continually sub lects the owner to an electric current; one (Class XXIX., 183, p. 8(8)), to contain guide-maps, and I wo or three others convertible into seats, umbrellas, and other instruments.

Husen Street The United States are represented by one contributor. who exhibits a gold-headed walking-stick, made from the

WERTEMBERG.

Beside one manufacturer, who exhibits sticks to some extent, three contributors send stick and nubrella-handles, with other articles io ivory, one of whom has obtained a Prize Medal, to be alluded to under the article Toys.

Beside those who exhibit walking-sticks, with articles discussed in other portions of this Report, there are fortysix exhibitors of walking-sticks only, or principally : of

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these, there are:-
          5 Holders of a Prize Medal.
          3 Who obtained Honourable Mantion,
         35 Unrewarded.
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enried-hickory.

The number of Exhibitors from the various countries is as follows:

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Austria.
 ritish Colonles:--
  Guisna -
  Eastern Archipelago -
  East Indies -
  South Africa
     Vincent -
  Trinklad -
  Van Diemen's Land
  Western Africa -
                               3
                       _
China
              -
                       _
France
 Ismburg -
Hesse - -
Sardinia
Switzerland
Tuscany - - -
Uolted Kingdom -
United States - -
                           - 13
Wurtemburg -
               Total
                           - 46
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LIST OF AWARDS.

BAGRE, -- (France, 1123, p. 1232), Honourable Mention is accorded for a collection of walking-sticks made of ram's-horn and tortoiseshell.

Ctaupo, Joseph (Sardinia, 68, p. 1304). Prize Medal for a collection of well-manufactured walking-sticks, com-

prising several varieties of wood. FRANK, J. G., Offenbach, (Grand Duchy of Hesse, 61,

p. 1129). Hononrable Meotioo is accorded for a large collection of well-made and very cheap walking-canes, which are ornamented with tartan and other patterns, transferred from lithographic impressious on paper, and then highly varnished; and also for papier-maché souff-

HEDINGER, C., Stuttgart, (Wortemburg, 92, p. 1119). Prize Medal for a collection of Malacca walking-sticks, partridge walking-cases, umbrella and parasol sticks, and

some few ambrella-frames. The goods exhibited are well made, and at very reasonable prices. MEYER, II. C., jun. (Hamburg, 86, p. 1139). Prize Medal for a most extensive assortment of excellent walkingsticks, sword-sticks, and dart-sticks, the mounts of which are, in most cases, tastefully designed and well executed The collection comprises also split whalebone, plain and fluted, which is used for covering sticks, whips, operaglasses, and telescopes,

MEYERS, BARNETT, 18 Crntched Friars (Class XXIX., 140, pp. 797, 798). Prize Medal for a very large and inter-esting collection of cames and sticks of various descriptions, in the raw state, which comprises all the principal varieties. Also parasol and umbrella ribs of dyed ratan; cane-ribs for milliners, cap-makers, whip-makers, and chair-makers, together with an excellent collection of highly-finished walking-canes, sword-sticks, and dart-sticks, the mounts of which are good in design, and of the

best class of workmanship.
SCHULE, C., Essen (Prussia 593, p. 1083). Prize
Medal for a collection of well-made walking-sticks, and sword-canes, which are well manufactured, and are sold

at reasonable prices.

Torri, L., Florence (Tuscany 111, p. 1298). Honourshle Mention for a collection of walking-canes composed of numerous pieces of horn of different tints.

Upwards of 3000 years ago the artist of ancient Egypt paioted the fan on the walls of the tombs at Thebes. There the Pharnoh sits surrounded by his fan-bearers, each in his due rank; and there is seen an investiture of a fan-bearer, which realises the description to Genesis of the honours paid by Pharnoh to Joseph. The office of fan-bearer must have been honourable, and the insignia of office were long slender vividly coloured fans on variegated or twisted handles: in war the same officers acted as generals or marshals, using their fans as standards; and in peace they assisted the Pharaob in the temple, and waved their variegated fans both to produce a cooling breeze, and to guard the sacred offerings from the contamination of noxions insects.

the contamination of noxions insects. The flux is mentioned by horspieles, and its origin from "barbarous countries," its use in Greece was similar to The mean of the contamination of the contaminat taken and spread out somewhat in the form of a semieirele, hot pointed at the top; a thread connected the feathers at their base, and another near their summit, and the fan thus made was fixed in a handle. This fan, the precise type of the state-fan of India and China of the

present day, was waved by a female slave.

The fan, according to Virgil and Apuleius, was sacred to Bacchus, and the "mystics Varaus Incchi" was carried in procession in the feast of that deity, as well as in the Eleusinian Mysteries. Its appellations multiplied, though its office remained the same, and it was termed indifferently "Flabellum" or "Muscarium."

The modern Greek church is careful to place a fan in the hands of its deacons to guard the officiating priest and the elements from desceration.

The Roman ladies certainly enjoyed the luxury of the fan, which, gorgeous with peacock's feathers, or delicate with the tinted plumes of the ostreth, could not yet be fielded, and rendered the services of an attendant

In the works of the middle ages references are made to the two forms of the fan, to that employed for winnowing the grain, and that used in the service of the church alternately to court the breeze or wave away the flies, till we hear of the fan as brought to France by Catherine de Medicis, when it was no longer stiff and unviolding, but light and pliable. In the early part of the seventeenth century, it was so constructed that it could be folded in paper and perfumed leather, it became the delight of the French Coort; and attracting the attention of artists, fans in the luxurious reigns of Louis XIV. and Louis XV. (in the latter under the name of "Pompadours") shone with gilding and gems, and at length glowed with the pictures of Boneher and Watteau; until at length no toilet was esteemed complete without a fan, the cost of which was frequently in those days as high as from 121. to 15t. sterling. In Italy, on the contrary, in the early part of the seventeenth century, even painted fans were part of the seventeenth century, even painted hais were of a very moderate price, and of universal use. "The first fans," says Coryat, in his Travels in 1608, "that I saw in Italy, I did observe in this space between Pizighiton and Cremoun; but afterwards I observed them common in most places where I travelled. These fans both men and women of the country do earry to cool themselves with in the time of heat by often faming of their faces. Most of them are very elegant and pretty things. For whereas the frame consisteth of a painted piece of paper and a little wooden handle, the paper which is fastened into the tops is on both sides most euriously adorned with excellent pictures, either of amorous things, having some witty Italian verses or fine emblems written nuder them; or of some notable Italian eity, with a brief description thereof added thereto. These fans are of a mean price, for a man may huy oue of the fairest of them for so much money as countervaileth an English groat."

England must have been agreat buyer of fins in the last century, as a budy of that privid would have felt as a ward without her fin as a gentleman without this secord. Indeed Addisson makes the comparison, and in secord. Indeed Addisson makes the comparison, and in the fin is taught. "In the finter of a fam," he observer, "there is the angong future, the moder future, their construct, the confused flutter, the merry flutter, and the amorous flutter," He says, "I have seen a fin as a backet forer who provoked it to have come within the wind of it."

Gay again gives the fan as a present from Venns to a despairing lover, in order to soften his mistress, and describes in verse the laint which the peacock's tail presents for its construction.

CHINA.

In the making the Chinese and Prooth are the great relax, and may be add to morepose the negative of the relax, and may be add to morepose the negative of the relax, and may be added to the control of the relax of the control of the relax
no the equility of the frame and the design of the leaffit excupped which are in the Genet Lishibian did not, The excupped which are in the Genet Lishibian did not, oscirilized by three English exhibitors, via: Morrecorriboral by three English exhibitors, via: Morreley (C. T. Baxare C. 1942), Daxmar, 1942), and compire flast of planted and embodered feathers; a function-day planted with after outlines, respectable place and white; an irreprint embouring correct and the and white; an irreprint embouring correct home, it price being only 28. There are also several very common piece-disc, oraneament exhibits with gridposition.

FRANCE.

Pan-making has arrived at a high degree of perfection in France, and presents a remarkle instance of the substitution of linear, as may be gleaned from the statement, that about twesty different operations, performed by as many pairs of hands, are necessary to the production of no fine while selfs for fest than use halfpeany; and that these various processes are not all carried on in assigne numeratory, from four different productions, and the contract of the production of th

wives and children

A the consists of the frame of soilst asserted, sailed a "Feel", which is composed the turn rise on "Drive," "Feel", which is composed the turn rise on "Drive," "Feel", which is composed the turn rise of "Drive," the frame of the feel of the "Feelle". The frame is made of the feel of the "Feelle". The frame is made of the feel
The leaf or feuille is sometimes single, but more often double; and it is usually made of paper lined with all or eaties, but also of parchiment, lamb-wkin, ratio, and water-colours on veillam, by artists to extend the supernature of the supernature of the supersistence of the supercolours of the superties by artists of ecletivity, since Blooder and Waterson, familie Bospetheir signatures to fast which they have decorated. The devices on the more ordinary descriptions of fina are partial from copper plates, and soluently hand, and extense-of-thempoly, we returnated by the precent

The feullike is foliced in a mould of strong paper, and is then mounted on the frames and gined to the perologiations or "Best" of the inner ribs. The feuille of the best fins is after this painted on the edge with gold-size, and gift with leaf-pold; but the feuille of the common fins is printed in Dutch motal; previous to it being ensemted on the frame. The decorate row or ensuests that frame with gold or closed to the control of the control of the strong the control of the control of the stateshes the sate sels, and selvent the proper sized sheath into which she places it.

The frame or "Pied" is made in the parishes of Andeville, the Deluge, the Boisière, Corbeil-Cerf, and Sainte Generière. In the district situated between Méra and Beauvais, in the Department of the Oise, 2,000 workpeople, men, women, and children, are employed in the fin-traile. The woods used are the beam-tree, the plamtree, ebony, saindal, and the lime-tree. The dexterity

^{*} Etude pratique du Commerce d'exportation de la Chine, hy Natalis Rondot, pp. 92, 93.

and sureness of hand of the possant workman are said to be quite wonderful. Considering his wart o knowledge of the principles of drawing, his facility in engraving, scapitaring, and sellong, in certainly resultable. The scapitaring has been supported by the scapitaring of the the workman makes for himself with pieces of watchspring. A reasthable piece of san-priering in the skape of a mother-of-poor! fan in exhibited in the French Section, No. 169; it centalizes no less than 1,000 for the scape of the scape of the scape of the scape of one of one of those possant artisans, named Device Pietry.

The printing, the colouring, and the mounting of the feuille, and the final embellishment of the fan, are usually performed at Paris, under the direction of the fan-maker, called par excellence "Ecentailliste;" though he has really but little to do with the nanufacture of the fanand must be regarded rather as the collector into one focus, and arranger of the produce of others; yet his labours are not the less essential. The mounting of the femille, its ornamentation with feathers, and final deco ration, are the operations usually performed by a small number of workpeople in his own establishment; be-sides which he furnishes the drawings to the peasant in the Dise, for the framework to suit the constant changes in fashion, he instructs his feuilliste as to the style of ornament, he groups together the frames and feuilles, and finally he overlooks the whole to see that the workmanship has been well executed. Except the mount-ings of the feuille and the final adorning of the fm, the other operations are usually performed by workmen at their own homes. The number of fan-makers or Ecentaillistes in Paris in 1827, was 15, who employed 1,010 workmen (344 men, 500 women, and 166 children), and sold about 40,420l, worth of fins. According to the our colleagues M. Natalis Rendot and M. Say, it appears that in 1847, there were 122 fan-makers, comprising colourers. The value of the fans made was 110,000.1 These masters employed 575 workpeople (262 men, 264 women, 29 youths, and 20 girls). The workmen on are working on the average earn 3s., and the women 1s. 8d. per day.
The men were for the most part copper-plate engravers and printers, lithographic draughtsmen and prioters, painters, and colourers; the women were mounters, illnminators, painters, colourers, and overlookers. Thus in twenty years, it appears that the produce in fans had increased in value nearly threefold, whilst the number of workpeople had diminished to one half. This change is to be attributed to the employment of machinery; especially of the fly-press in stamping out and embessing the ribs, and the extensive employment of chromo-lithography, an art not practised at the former period. By these means the French have been enabled greatly to increase their exports by the production of cheap fans, to compete with those made by the Chinese. P. DUVELLEROY France, 495, p. 1201) exhibited some small fans, the price of which was as low as 5d. per dosen,

The callection of flam in the Forech Department is more complex, and remains reveral specifyll occurred in more complex, and remains reveral specifyll occurred in Albert. Bookie there and others, painted by first-rate artists, it comprise most off the deverging toman marketered extended of the complex of the complex of the complex of the complex of the market for which they are detributed for instance, some diday great differences in the length of the market for which they are destined, and the complex of the c

BRITISH COLONIES.

The colonial dependencies of Great Britain contribute many examples of Fans, some of which are interesting on account of their simplicity, whilst, on the other hand, those from India present most striking proofs of the luxurious splendour of the Indian princes. British Guisnes. Internous spendour of the intain princes. British dissipation of the Ita-palm. Condity, A fan of somewhat similar nature, but made of the bark of a tree, is contributed by Miss Ilelen Romerea (175, p. 967). Cogline. There are several rich "Puntahas" or fans, and a richly-painted troy fan-handle from this island. India. The Indian Department contains fans or Poubots in great variety as regards form and decoration and the material employed, some of them being of a very costly description, some of them being of a very costily description. There are, for example, two fins contributed by H. H. the Rajam of Kota (p. 924), one with an ivory handle, the other with a gold handle; but as the names of the various manufacturers were unfortunately not ascertainable at the time the Jury examined these specimens, no prizes were awarded in their Savour. The Indian fan differs from that of Europe and China in not closing, and likewise in its form; and it is usually kept in motion by an attendant. Beside the fans alfixed to central handles, all of which are most gorgeously enriched with embroidery and jewels; there are exhibited others resembling a curtain suspended from a silver rod, which is held horizontally by the attendant, and waved backwards and forwards over the head of the wealthy lliudoo: and there is also the circular standard-fau: the handle being a silver staff, crooked at the top, to which the fan is attached on the side opposite to the crook. The attendant stands by the side of his master, and placing the end of the staff against his foot, inclines it away from his body and slowly swings it to and fro. There is also a heautiful peacock-feather fan from Assam, and a fan or Possible, composed of China beads and pearls, and made in the city of Delhi. The most simple, however, are those made of the entire or the divided leaf of the Bornson Rabelliformis, manufactured at Calcutta, and commonly used both hy natives and Europeans. The other examples comprise, a punkah made of khus-khus grass (Andropogos nouricatus) which, when wetted, emits a fragrant perfume; fans made of sandal-wood, from Calcutta; a fan made of bamboo from Moorshedabad, and several of similar description from other parts of India; and lastly, from Bengal, large and hand-fans, made of the palmyrn-leaf. As far as the Reporters could ascertain the names of the contributors. it uppears that, besides the faus from the Rajah of Kota, before named, several of the examples were sent by the RAJAH of PATTIALA (p. 924), the RAJAH of JODHPORE (p. 924), the JUBBULPORE SCHOOL of INDUSTRY (p. 924), and Captain Datron (48, p. 791). The inspection of these heautiful productions of Indian workmen, unturally suggests the idea that their skill and remarkable taste might be turned to profitable account, if directed to the production of fins suitable to the European and American markets. Nove Scotis (p. 970) sends an example of a very simple Indian fan. Trinidal. Lord Hanars, the Governor (p. 975), sends examples of fans for Indies, And from Westers Africo, Mr. R. JANESON, of Liverpool (22, p. 955), exhibits several fans from the banks of the

Niger, one of which is made of a species of grass.

A few specimens of fans are exhibited in the collection from Egypt, to which much interest attaches, as coming from a country in which, possibly, the fan was first devised.

SPAIN.

There are two exhibitors of flats in the Spanish Court, one of whom excentinates painted and also printed "Fouller," and the other both feullist and complete flats, some of which are copies from French models. The camples, which are copies from French models. The camples, execution with the splendid flats from France, are good of their kind; and it would appear that the attention of their calibitions has been directly rather to the manufacture of or arr. But it is remarkable, that no fluer specimens should have been sent from a country in which the use of fans is so prevalent that they are commonly offered for sale outside the arena of the hull-fights and uther places of amusement.

The fans in the Tunisian Court are ten in number, and are in some cases ornamented with rich embroidery.

TURKEY. The only example is an embroidered fan made at Adrianople.

WURTENBURG, Several bone and ivory fans are exhibited by M. C. STOLL of Ulm, they are reasonable in price, but not nearly so good as the ivory-fans contributed by the Freuch

The number of exhibitors of fans is twenty-three; of these, there are: -

2 Holders of a Prize Medal. 1 Who obtained Honourable Mention. 20 Unrewarded.

23 Total.

The number from the various countries is as follows:-

Ξ	-	1
-	-	
	**	i
-	-	5
-	-	1
_	-	1
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-	-	3
-	_	2
-	-	1
-	-	1
-	-	1
		-
-	_	23

LIST OF AWARDS.

DUCAGT and PETT, Paris (France 149, p. 1178), Honograble Mention for a collection of fans in ordinary demand and at reasonable prices, namely, from 5d, to 40s, each; also excellent examples of pierced and sculptured ivory and mother-of-pearl fans, one of the specimens of which has been before alluded to in the introductory These are of much higher quality, and range in price from 31. to 121, each,

Develleroy, P., Paris (France, 495, p. 1201), Prize Medal for a display of fans ornamented with artistic paintings, and remarkable for the beauty of the inlaving, and the pierced ivory and mother-of pearl frames. most elegant fan in this collection is one painted by Roqueplan; the ribs are of richly-pierced and sculptured mother-of-pearl inlaid with gold, and it is valued at 404. Beside the above, others intended for foreign markets were exhibited, the prices of which vary from 3d, to 40s.

FELLY, ALEXANDRE, Paris (France, 199, p. 1183), Prize Medal for a collection of fans, being for the most part copies of the best examples of ancient fans: these, although not possessing the merit of originality, are such remarkably beautiful specimens of vellum-painting, that they fully entitle this manufacturer to the award, and are moreover the richest of any exhibited.

V. PIPES AND AMBER MANUFACTURES.

Before discussing the merits of the pipes contributed from all quarters of the globe to adorn the Great Exhihition, it will be proper to notice the materials principally employed in their manufacture. Clays, of different kinds, are more used than any other

substance in the formation of pipes: Inst as their nature and composition will probably be fully discussed in the been abstracted.

Special Report on the fictile-arts, of which clay pipe usaking is comparatively but a small branch, it is needless here to describe them

Woods of several descriptions are next in importance. The wild cherry-tree, and the jasmine are the principal sorts, and great care is bestowed on their culture to ensure their growing free from knots and identishes; the young stems of the jasmine being wound round with cloths to effect that object. Lemon-tree and clony are also in re-quest, the latter being generally used for carved tubes.

which of perel, Horn, Forey, and Hore are extended Mother-of-perel, Horn, Forey, and Hore are extensively used; nor are the precious notath and costly gone excluded from a share in the formation of the pipe. But these have not that intimate connection with the subject under notice, which appertains to two materials-Merroleman and doder, whose names are emphonious to the ear of the rennine smoker. The former substance is devoted exclusively to his use; and the latter though not entirely his own, pays to him a very considerable tribute, in the form of month-pieces.

So early as the year 1609, the genuine meerschaum just have been held in estimation in England; since Dekker appears to refer to it in his "Golf's Horn-book when he wishes his gallant to be able to discourse " which pipe has the best bore, and which berns block, and which breaks in the burning.

Meerschoon (Econo de mer) is a mineral of somewhat rare occurrence. It consists of magnesia, silica, and water, and may be called a hydrated silicate of magnesia (MgO, SiO2+HO). As the compound is not crystalline. its constituents are variable, and thus silicates of iron and alumina are often found in combination with it. These affect the colour of the meeyschanm, which when pure is quite white. Siliente of iron frequently occurs, and gives it a tinge of colour, varying from the palest yellow to a deep brown. Good meerschanm is tolerably soft, it resists the pressure of the hand, but is easily indented by the finger-nail, and, especially after having been wetted, may be easily cut with a knife. The fracture is generally earthy, and rarely conchuidal; still the state of aggregation of even pure meerschaum is very variable, as is proved by the marked differences in its specific gravity. Some kinds sink in water, others float un its surface; these qualities in the estimation of the pipe-maker, are indicative of different values, for he rejects both the very heavy and the very light, and prefers those of medium density. The light varieties are generally very porous, and even contain large cavities, whilst the heavier kinds he suspects to be an artificial product.

Mecrochaum is met with in various localities, in Spain, Greece, and Moravin: but by far the largest quantity is derived from Asia Minor, it being dug chiefly in the peniusula of Natolia, near the town of Coniah. Formerly the material was roughly fashioned on the spot into bowls. which were more elegantly carved in Europe. The art was especially cultivated in Posth and Vienna, where it formed an extensive and important branch of trade. These rough bowls still occur in commerce, but by far the greater part of the mecrachaum is exported in the shape of irregular blocks with obtuse angles and edges, requiring careful manipulation with the aid of water, in order to remove irregularities and faulty portions. A beautiful specimen of meerschaum thus cleaned is contributed by LUDWIG HARTMANN (Austria, 675; and there is also a box of meerschaum earth in the Greeian Department, 23). This preliminary treatment still leaves namerous blemishes, and the meetschaum of commerce has defects of various kinds; besides various minerals scattered through its mass, it contains a hard sort of meerschaum, which the mannfacturer calls chalk (Kreilemassen), and which is the cause of much difficulty in the earving.

Previous to the mechanical treatment of the meerschaum* for making the bowl, it is subjected to a certain preparation. It is soaked in a liquified unguent composed of wax, oil, and fats. The wax and fats which the sub-

* This subject is ably discus: under the head * Meer-haum," in Precht's "Encyclopicitic der Gewerke und schsum," in Prechtl's "Encyclipatic art creation Konste," from which some of the foregoing remarks have stance absorbs, cause the colours which mecreclaum assumes after masking. Under the influence of the heat produced by the lurraing tolacco, the wax and fats pass through all the stages of a true process of dry distillation, the substances thus formed become associated with the products of the distillation of the tolacco, and by their colour which are so highly prized by the commensuring the produced of the colours which are so highly prized by the commensuring the produced.

Occasionally, though rarely, the bowls are artificially stained by dipping them, before they are souked in wax, in a solution of copperas (sulphate of from) either alone, or mixed with one of dragon's blood. This process must manifestly affect, very materially, the shades of colour produced in stonking.

Attempts have not been wanting to initiate meerschaum, the process being rather mechanical than chemical; for nilthough chemists have of late been very successful in the artificial production of minerals, for instance palagorite (Bansen, spinelle; Ebelmen, verystallized carriomates: Senarmont), no one has attempted the production of meerschaum, chemically.

The large quantity of meerschaum parings that are left in roughing out the bowls would entail considerable loss, unless some process had been devised of rendering them available. A species of meerschanm bowl has long been known in commerce under the name of Mana-khade massa bowls), which is made from the parings; these are triturated to a fine powder, boiled in water, and moulde i into blocks with or without the addition of clay, each of these blocks suffices for one bowl; but before they can be used they must be allowed to dry for some time, as they contract considerably. Specimens of composition pipe-bowls and eigar-tubes are exhibited in the Austrian Section (687). These bowls are distinguished from real meerschaum by their greater specific gravity, but there is no very certain test by which the real meerschaum can be distinguished from the composition, and many suppose that all the beavier descriptions are spurious, though there is no alsolute proof of this being the case. A negative test may however be mentioned; the composition bowls never exhibit those little blemishes which result from the presence of foreign bodies in the natural meerschaum, therefore if a blemish ocear in a meerschaum bowl, which is very frequently the case, the genutueness of the bowl is rendered most probable; but as these do not show until after the bowl has been used for some time, the test is not of much value.

Assier. - The most extensive use of this elegant material is for the manufacture of the mouth-piece, constituent of the gennine meerschaum and Turkish pipe. Up to the present day, amber mouth-pieces continue in great request in the East, where they fetch very high prices, instances of which will be quoted. There is a current belief in Turkey that amber is incapable of transmitting infection, and as it is a great mark of politeness to offer the pipe to a stranger, this supposed negative property of the amber accounts in some measure for the mation in which it is held. In the Christian countries of Europe, ivory, hone, and horu, have to some extent usurped the place of the more costly material, which is reserved for the higher class of pipes. Amber is also much employed in numerons small fancy articles, espe-cially for beads, necklaces, brooches, and earrings. The Exhibition furnishes also examples of its being worked occasionally into candicaticks, salvers, pipe-tubes, and other larger articles. The coarser descriptions and chips of amber are also employed for the manufacture of va nish, and the preparation of amber-oil and succinic acid, which it yields by distillation at a moderate temperature. Copal, which bears a strong resemblance to, but is much cheaper than amber, is occasionally substituted for it, frandulently or through ignorance. There is no difficulty in distinguishing the two by a chemical analysis, but this renders the sacrifice of a small piece of the substance necessary; some varieties of amber, especially the dark yellow and transparent descriptions, are searcely to be distinguished, unless by n well-practised eye, from copal. A few words may be said respecting the ebemical characters of amber which, however, do not affect its

employment in manufactures. According to an analysis of herzelius, it contains a volatile oil, succeinie acid, two resins soluble in alcohol and other, and a complex bituminous substance (succinic bitumen) which is not affected by any solvent.

by any solvent.

The mode of obtaining amber is peculiarly interesting. The greater part is found on the coast of Prussia Proper, especially between Königsburg and Dantzie; it is distinguished as terrestrial and marine amber; the former is dug in mines, and is generally found in alluvial deposita of sand and clay, associated with fossil wood, iron pyrites, and alum shale. Amber is also found in some other countries, but never to any amount. The marine amber is east ashore during the autumnal storms on the coast of Ponceania and Prussin Proper. It is then picked up, or fished for with small nets. There are several fine specifished for with small nets. There are several fine speci-mens of both descriptions of nuber in the Austrian Section. (675, p. 1042), and in the Prussian Section (438, 441, 40, and 41, pp. 1075, 1050). In the case bearing the latter number are specimens of land amber, and the fossil wood associated with it which were obtained at a depth of associated with it waters were obtained at a depth of 60 feet by the exhibitor, M. TESKLER (41, p. 1050), who employs about 20 workpeople in his amber-pits. The opinious respecting the origin of amber are very divided, some hold the view expressed by Tacitus in his Germonia, that it is a resin exuded by certain conifers, traces of which are frequently observed among the amber. Others assume it to be a species of wax or fat, having undergone a slow process of putrefaction; and they base their views upon the fact that chemists are able to convert cerous or fatty substances into succinic acid by inducing oxidation artificially. It is quite certain that at one time amber autificially. It is quite certain that at one time amber tunst have been liquid, for numerous small animals are found coclosed within it; these for the most part are insects belonging to an extinct species of Arnolmide (40), There are numerous and excellent specimens of amber enclosing insects in the Prussian Section (441), and others case which deserves favourable mention from D. T. TESSLER, who has sent one specimen containing the leg of a toad.* The processes which nature employs for the preservation of the structure of extinct insects, is one which the microscopist successfully imitates by embalming bis delicate dissections in Canada balsam between two slips of glass.

There is evidence of the extreme antiquity of amber in

the fact that the Phonicians of old fetched it from Prusia. Since that period it has been obtained there uninterruptedly, and no diminution in the quantity annually collected has been perceived. This would almost induce a belief in the correctness of the outrefaction theory, above alluded to, and we may perhaps assume that a constantly new formation of amber is taking place; this view is somewhat strengthened by the different appearance of the varieties of amber, which seem to exhibit the successive stages of its development and decay: still this conclusion to many will appear strained. The different kinds of amber are distinguished by varieties of colons and degrees of transparency. It is found of all shades of yellow, from the palest primrose to the deepest orange, or even brown. In point of clearness amber varies from vitreous transparency to perfect opacity, specimens being obtained nearly as white as ivory; in this latter case the transformation is assumed to have advanced further than in the ordinary varieties. It is rarely found, and is chiefly used for earness ornaments, and is mounted on darker amber which forms the back ground. Several examples of its employment are exhibited in the Prussian

An inopairy naturally suggests itself as to which of these varieties of suber is the most valuable. It is selfcrident that this must depend, as in the diamond, upon the size and the eniformity of the pieces. Besides, as all the varieties, excepting the white, which has its special nees, are equally popherable for manufacturing purposes, and the property of the property of the property of depend in a great measure upon its rarity. The strayyilow, slightly cloudy, translatent variety is the most

* According to M. Natalis Rondot, specimens of amber contairing juscets are of frequent occurrence in China.

rare, and in that which the Orientals prefer to all others, and which they purchase at extravagant prices. There are few specimens of it in the Exhibition, and it is needless to search for them in the German Department, as every piece that is found to Prussia is exported to Turkey in the raw or manufactured state; and it is in the section occupied by this latter country (1928, 1929) the only specimens in the Exhibition will be found.

Some writers are of opinioo that the preference which the orientals show for the pale yellow, slightly clonded variety, has been transmitted to them from the ancients, but their argumeots will not bear a close examinatioo

Having alloded to this matter, it will be as well to advert to the opinions held on the sobject by the nucleut authors. It appears that the word "electron" (amber) had two significations; one referred to the substance which we call amber, hence the derivation of the word electricity, from its long-known property of attracting, when rubbed, light sub-stances, such as straws, which was the first electric phenomenon ever observed; the other meaning applied to an alloy of gold and silver found in nature, or produced artificially. Pliny expresses himself very clearly on this point; he says that gold always contains ailver, and that when the silver amounts to one-fifth of the compound it is termed "electrum;" if the proportion is higher, the electrum ceases to be malleable.

It has been assumed that the latter was the original meaning of the term, and that it was subsequently applied to umber on account of its resemblance to the white gold, to umber on account of its resemblance to the white gold, the variety most closely resembling the alloy possessing the highest value. This view is supported by the circumstance that we find "electron" profess of by the epic poets lesiod and Homer as employed in articles for which assure you will be supported by the population of the polyectron, for instance, of amber for sheltda might cause some slarm for the safety of the Homeric heroes. But the ancivot poets did not always pay minute attention to the natural qualities of the materiols which they meetioned in their narrative ; this is evident from Hesiod's employing other fragile substances, such as ivory and alabaster in the manufacture of shields. Moreover, the fine carving of these show-pieces was not adapted to resist heavy blows. The learned Buttmann (Abandlanoes der Berliner Academie 1818, 1819), very correctly observes that these works of art are derived by the poet direct from the workshop of Vulcan, and that this at ooce does oway with any protest Vuican, and that this at occe does oway with any protest against the insecurity of vory, albaster, or examel to the manufacture of his shields. The same learned anti-quary has compared critically the most important pas-sages in which the word "electron" occurs, and he has demonstrated, incoorrovertibly, that the word originally meant amber, and that the accord interpretation has only meant amber, and that the second interpretation has only been introduced at a later period, especially by the tragic poets. Thus it follows that the transmission of the predilection for the straw-coloured cloudy amber from the ancients is far from being proved, and that we must content ourselves with the explanation first attempted of its resulting from the greater rarity of this kind of amber. This predilection appears to be coofined to the East, as io other countries, e.g., Russia, the orange-yellow transparent variety is decidedly preferred, possibly on account of its elempness. The Russian peasant girls adorn themselves with double ond treble rows of amber beads; though frequently they are supplied with mere copal-bends iostead of the genuine article.

Having made these general observations on the character of amber, we pass to the detailed consideration of what has been presented to us to the Exhibition order the head of Pipes and Amber Manofactures.

 Historia Naturalis, xxxiii., n. 4. Omni anro inest argentum vario pondere, siibi dena, siihi nesa, siihi octava gentum vario pondere, siibi dena, alihi nona, alihi octava parte. Ubinnaque quinta argenti portio est, nietrum vocator. Pit et eura alectrum argento addito; quod si quintam partinome excessii, incudibus non resistit. Et electro suctoritas Homaro teste, qui Menelai regiam auro, electro, argento, ebori fulgera tradit. Jd. Paga 460, vol. li., ari Holland's Transiation.

GERMANY.

No one will be sorprised that this lood of smokers bears off the palm in the manufacture of pipes and amber; nor that her exhibitors outnumber those of all other nations that her exhibitors outnumber those of all other nations collectively. All the States of Germany, however, have out contributed equolly, the pipes being chiefly from Austria, and especially from Vienne, and the amber-manufactures from Prussin. The mecrechnum works of the Viccooses are unrivalled, as regards taste lo design and excellence in execution; the carving of many of the pipebowls and eigar-tubes being examples of highly-cultivated art. Most of the fancy pipe-tubes, composed of horn and art. Most of the lancy pipe-tubes, composed of norm and mother-of-penf, are more curious than gracefol; the cherry-tree tubes are in great variety, and are good examples of this component of the log pipe; besides there, there are large numbers of bene and wood mouth-pieces, and others made of omber, the latter being bene-pieces, and others made of omber, the latter being benetifully worked.

The meerschaum pipes from Prussis are not comerous, oor are they so elaborate as those of Austria. The Prussian Section presents such a series of amber specimens as are oot likely to be again collected; the manufactured amber dors not, however, evince much feeling for artistic design on the part of their exhibitors, whose marits rest principally oo the excellence and difficulties of the workmanship.

The contributions from the other parts of Germany consist of meerschaum and other pipes from Bararia, which are oot remarkable; porcelaio pipes from Homburg and clay-pipes from Nassau. Those from Hamburg are of fancy forms, and those from Nassan are chiefly plaio descriptions, which are sold at exceedingly low prices.

BRITISH COLONIES.

Brillish Guianz.—T. B. Duggin (146, p. 986) sends a specimes of a pipe, or rather tube, used by the aboriguies for smoking tobacco, called a Wioos; it resembles o cheroot in outward appearance, but is hollow so as to contain the tobacco. It is said to be made from the rind of the fruit of the Manicole-palm (Arcca municol, Lodd.), from the River Berhice. It may be remarked that such tubes, made of paper covered with a leaf of tobacco, ore now manufactured in England. County contributes a collection of well-made clay-pipes. The Indian collection contains examples of the costly and beantifully-orno-mented cocos-ant and lae Hookahs, mounted in silver with their rich tubes or soakes, and the simple pipe com-posed of two pieces of hamboo, one for the bowl cut close to a knot, and a smaller one for the tube. These primitiva pipes are io common use amongst the poorer natives of India, and yet Dr. Royle cites an extemporary pipe sometimes used by the natives, which surpasses even this to simplicity; the amateur makes two holes, one louger than the other, with a piece of stick, in a clay soil, in-clining the stick so that they may meet; ioto the shorter clining the stick so that they may meet; ioto the shorter hole he places the tobsecco, and applies his mouth to the other, and thus luxuristes to the fumes of the narcotic herh. There is, likewise, a specimes of the Singoo opium-pipe which is of very small dimeosions, the tube out being larger thoo a thimble. The opium is placed in the bowl, and ignited by placing a piece of charcoal on it, which is effected with a small pair of tweexers, which find a place in this interesting and well-arranged collection

The habit of smoking is very general in Chios, being common to both sexes in all classes of society, and at all ages. In every part of this vast empire the tobacco plant is cultivated, and consumed both as sauff and for smok-ing. So prevalent is the babit that little girls and boys are commonly seen smuking, and from this early period it is persevered in hy its votaries through life nlways customary to offer visitors a cup of ten and a pipe, M. Natalis Roudot estimates the number of smokers io China as at least 100 millions, and states that pipes are made in enormous numbers, and in an almost infinite variety of forms; they are of three classes, the woter-pipe, the straight-pipe, and the opinm-pipe. The Chinese pipes are generally very long, and the bowl very small, it being usually made of uickel-copper (white metal). The only contribution however is from Dr. Berncustle, who sends an optum-pipe and apportenances.

EGYPT.

The specimens in the Egyptian Court comprise two Narguiles or water-pipes, one of zinc and one much richer, mounted in silver; also several pipe-bowls of Assonam and Assiout.

FRANCE

The examples contain of the popins only from two examinations and the state of the

Person

Mr. J. B. Thomson (3, p. 1426) contributes a Narghili or Narguiké, and a lady's amber mouth-piece, and Mr. J. Hubson (10, p. 1427) several specimens of pipes, which illustrate the luxurious habits of the Persians in smoking.

SARDINIA

The contributions from this country consist of beantiful examples of carred mecrachann pipe-bowls, which equal those of Austria, but are insignificant in point of number, having been contributed by only one exhibitor.

TUBKEY.

In the Turkish collection are numerous rich examples of the Narguish; or success composed of the Narguish; or success composed of the Narguish; or success of the Subit to the Narguish; the content of a pipul to every with inchange of the Subit to the Narguish; the numerous of the pipul to the Narguish; the numerous of the longer of the longer of the longer pipul. The Turks, in modeling the Narguish; that the the same in the battage, and were consume to the pipul to the longer of the longer, or Kalibious, and its cluster-pipe, or Children, and its cluster-pipe of the longer, or Kalibious, and its cluster-pipe of the longer, or Kalibious, and its cluster-pipe of the longer o

ances, or ruber the duration of a journey, by the number of pipes which insight be sended in the interessery to receive the opine with the pipe sended in the interest and the exhibitor of the pipe set in spinshow. The exhibitor calls for of closic contractions are not to be a superior of the pipe. The exhibitor calls for of closic contractions are the pipe sended to the p

Tours

Weeds for pipes, and two embroidered pipe-guards, are the only contributions.

TUSCANY.

The only example in the Tuscan Section is a beauti-

fully-carved ebony pipe-tube.
UNITED KINGDOM.

The pipes in the British side of the Eabhition are important; two central order, done is a contrivance for controlling the finance. No common chyprine are childred, their manners from the control of the pipes of t

The number of exhibitors of pipes and amber is fortynine, of these there are:-

nese there are:—

10 Holders of a Prize Medal.

18 Who obtained Honourable Mention.

18 Who obtained Honourable Mentic 21 Unrewarded,

The number of exhibitors from the various countries is as follows:—



LIST OF AWARDS

ALBA, SAMUEL, Vienna (Austria, 664, p. 1041).— Honourable Meation is accorded to this exhibitor, for a very large collection of meerschaum pipe-bowls, eigartubes, mad amber month-pieces. The plain bowls and cigar-tubes, and those ornamented with folinge are very creditable productions, but where human figures are introduced, they are not so well executed.

ATS-ATS. LEAS., Vienne (Austria, 666, p. 1641).— Prite Medal, for an assortance of most equivite specimens of meerchann pipe-howls and eigat-tubes; the scalpturing of the figures displaying remarkable artistic skill, and the execution of testage being bold and sharp. very moderate (10,843, 30s.; 11,028, 45.; rigar-stubwith figure of Venas, 45s.; number with that of Heredes, 50s.). Besides the above, the collection comprises acreat-0.31 and the state of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the state of the control of the control of the control of the control of the state of the control of the control of the control of the control of the state of the control of the control of the control of the control of the state of the control of the state of the control of the control of the control of the control of the state of the control of the control of the control of the control of the state of the control of the control of the control of

BEISDOYL, PHILIP, Vienna (Austria, 667, p. 1042).— Honourable Mention. For mecrehaum pipes with silver mounts and amber mouth-pieces; meerschaum pipe-bawls and cigar-tubes; cherry-tree and ebony pipe-tubes, and plain amber mouth-pieces, which are all very well manu-

and eigar-tubes; cherry-tree and ebony pipe-tubes, and plan amber month-pieces, which are all very well ananaplan amber month-pieces, which are all very well ananaments. Soss, and Ca., St. Omer, Pas-de-Calain (France, 176, p. 1813)—Infoomable Mention. For a great variety of clay-pipes, such as are used by the working classes, and more particularly by the peasantry. These pipes are more remarkable for their chesposes pipes are more remarkable for their chesposes.

Figure 1, 1987. Omer, Pas-de-Calais (France, 211, p. 1184).—Homorable Mention. For a large assortment of clay-pipes exceedingly well-made. The bowle are mostly in the form of heads, some intentionally grotesque, and others intended to represent eminent personages, scarcely less to, on account of the eyes being picked with two dals of black. These pipes are not remarkable for Prench.

Fig. 67. PLOGE, GERHARD, Vienna (Austria, 670, p. 1042).— Prize Medal. Carred mecrechaum pipe-bowla and cigartubes in great variety, and of excellent designs and exaction; also a large collection of amber for smoking purposes, including the round month-piece used in Turkey.

Fargater, Johans, Vienna (Austria, 671, p. 1042).

—Prize Medal. A very large assortment of merchaum pipe-bowls and eigar-tubes, with amber mouth-pieces of beautiful designs, frequently containing several figures, which are exquisitely and boddly sentptured. The prices, which vary from 17s. 6d. to 7l. 10s. each, are reasonable.

GRUNHUT, J., jun., Prague (Anstria, 673, p. 1042).— Honourable Mention is accorded for a mecrschaum pipebowl and two cigar-tubes, the carving of which is very shape and expirited.

sharp and spirited. Discourse (Tustey, 1928, 1929, 1938, 1939, 1939, 194

HARTMANN, Lemvino, Vienna, (Austria, 678, p. 1043).

—Prize Media, For a very large collection of well-made mouth-pieces of amber, mother-of-pearl, bone, and wood betry-tree, and other pipe-tubes; inard-wood eigar tubesers, and the collection of
Henderson, —, Montreal (Canada, 187, p. 968).— Honourable Mention is accorded for a case of well-made

clay-pipes.

Horwasy, C. W., Dantrio (Prussia, 439, p. 1075).—

Prize Medal. A large assortment of amber-manufactures,
22(1, 10; a letter-weight of a single piece, 8!, a smill-box
set in gold; and other articles which are well manufactured, but are not remarkable for beauty of design.

HOPFMANN, G. J., Dantzie (Prussia, 440, p. 1075).— Honourable Mention (the same Award by the Jury of Class XXIII.). For a very large collection of amberbeads, some of which are of large size.

nodas, some of which are or large size.

JANTZEN, G. E., Stolpe (Prasia, 205, p. 1059).—
Rusonable Mention (the some Award by the Jury of
Cless XXIII.) For an assortment of ambre-manufactures, comprising necklaces made of strings of very
beautiful pear-like beads, which are very rare; a ladier'companion, the handles of the various instruments it contains, and also the needle-case and erechet-mediel-holder

tains, and also the needle-case and crochet-needle-holder being of amber; besides these the Collection comprises several miniature ornaments of amber. Lux Baorunass, Muhla, Saxe Gotha (Prussia, 796, p. 1094).—Honourable Mention, For a great variety of plain meerschaum pige-bowls, initiation meerschaum

howls, pained percelain howls, and carred wood pipes. MASSHIMSTR, WOLTE, Koingberg (Prussis, 438, p. 1072).—Homeamble Mention (the same Award by the Pary of Cline J. Der the exhibition of two unmusulty that sort obtained in the amber pits, and has a rough extence; it weights of the: it owlete in marine amber, and is water worn; it weight 45 fbs.

18. Hocher (Nassun, 10, 1139).—Homomable Mention. For remarkably cheap pits of the property of t

p. 1132).—Honomable Mention. For remarkably shows day-pipes, varying in piter from 6.1 to 2s, per hindred. NATH EFFECHI, Contantinople (Turkey, 1441, 1447, 1469, 1969).—Pites Media fire a valuable collection of round amber month-pieces, for the chiboque or long pipe. Commanested with rings of artificial aventuries and with colour of the month-piece, the lowest being 378, 64, and the lighest 354, and also for a collection of justing pipes.

Pantscu, A., jun., Theresienfeld (Austria, 611, p. 1038).

—Honourable Mention. For an assortment of cheap clay-

pipe-bowls, coloured and glazed,
Romoli, Lurici, York Terrace, Chelsea (Tiscany, 124,
125, p. 1300).—Honourable Mention, For an ebouy pipetube, wrought in pierced carved work.
Roy. W. vov, Dantizi (Prassis, 441, p. 1075).—Honour-

Roy, W. vox, Dantise (Prussis, 441, p. 1075).—Honourable Mention, For a most interesting collection of all the known varieties of amber, systematically arranged in four cases, which contain likewase succinio seld, crude and pure, obtained from amber. Also for various manufactured articles, amongst which the most remarkable is an ranged to form a mosaic pattern, the Royal Arms of England being engraved in the centre.

Satu Aza, (Turkey, 3802, 3372, p. 1399). Honornible Mention, For an assortment of those maber mouth-piece which are in most general use in Turkey, and which vary a large collection of pipe-tubes, and wood month-piece. Stratzss, J., Turin (Sradisin, 80, p. 1895.—Piers Medal, For several elaboratoly-arred merechanum pipe-tubes, and the strategies of the

amber, among which are strings of well-formed spherical beads, a eigar-tabe, a ring-stand composed of different coloured ambers, the ornane at and workmanship of which are very good. This exhibitor has likewise sent a specimen of land amber, together with the fossil wood with which it is generally associated.

WINGENDER BROTHERS, Hochr (Nassu, 9, p. 1132).— Honourable Mention is accorded for an assortment of various descriptions of clay-pipes, intended chiefly for exportation, and which are remarkable for their low price, 5g, 6d, per thousand.

WINTERFELD, J.A., Bredan (Prantia, 204, p. 108).

—Prize Medal. For the largest collection of aubermannfactures, the workmanniy of which is exceedingly good: also a collection of most of the varieties of raw amber. The manufactures comprise amber mouth-pieces agree pipe-takes, composed entirely of amber; amber dange pipe-takes, composed entirely of amber; amber white opening manufactures and the control of the composition of th

Wönera E, H. (Hamburg, 89, p. 1139),—Honourable Mention. For a collection of well-made pipes mannfactured with Tarkish elay.

Zerras, Joseph Wienna (Austria, 687, p. 1042)— Prize Medal. Masca pipe-bowla and eigar-tubes, which are manufactured from meen-chann dust. The forms of these articles are elegant, and the execution so good that they are distinguished only with difficulty from the real mercubann. The price of massa pipe-bowls is much lawer than those of the real meen-chann, and they are smally mounted with plated instead of real silver tups.

VI. SNUFF-BOXES.

The boxs, which are known under this very general name, have exhibited equally the extremes of consesses and of elegance. Under the former condition, they will be remembered in the box of hors, beas, or japanned-tion—the last, however, being known rather as a common expensel for tobacce; and in the latter state, they will be recognised in the countless persible depositories for how the state of the state of the latter state, they will be recognised in the countless persible productions of nature have supplied the materials.

The word must is an infection of the old northern work must, and it existed as a term expensive of strong inhabit, and it existed as a term expensive of strong inhabits of the strong inhabits of the strong inhabits of the strong inhabits of the strong in
"He was perfuned like a milliner; And, 'twist his fager and his thumb, he held A Ponnect-box, which ever and anon He gave his nose, and took 't away again; Who, therewith angry, when it next came there Took it in sunff."

The word postner, out of which is formed postner-took, on put in supposed to have been resorted priority from picassons, on put in present, and heart for the six of our relating to priority, were progned as sometimes, were regarded as ormanisms executed by a roll of points, or in open-work. A postner-took, therefore, the priority of points of the priority of the priority of points of the priority of the pri

So early, however, as the beginning of the reign of Mannes I, a "March relineed" was no britished with All Rames I, a "March relineed with a second-mod instruments, must repeat with all the second-mod instruments, but the relineed with all the second-mod instruments of the relineed with a life second instruments of the relineed with a life second instruments of the relineed with a life second in the li

boxes of suntchin, and draw it into their nostrila with a quill; and it will beget new spirits in them, with a fresh vigour to fall to their work again."

There is very little information extant concerning the

Here is very litter allowable which could be the Schrift MILL of the Architectic, published by the Schrift of All of the Architectic, published by the Schrift of Architectic process, float anti-, and engine in the Trave of Lendon, which were exhibited to that believily in Notice and the Schrift of the Schrift of the Schrift of the Schrift of Lendon which were though a place in the treasurable produceflanks, and were about 29 lathers in terph and 2 lateshed in width, but they reprovided apont. On the starter they were enamented with design apont. On the starter they were enamented with design apont. On the starter they were enamented with design apont. On the starter they were enamented with design apont. On the starter they were enamented with design apont in the starter in the them architectic which these bottles in the water. In the the naturable of which these bottles

In the extract already given from Howell's Letters, it is stated, that so early as 1646 even the peasants in Scotland were accustomed to "take out their boxes of suntchin, which exand draw it into their nostrils with a quill;" plains the intention of the spoon attached to the eruets referred to, the manufacture of which probably belongs to the early part of the seventeenth century. The word erroneously printed "smutchin" by Howell, is accurately mention, a vulgar name for stuff, which causes sneezing: and hence anceshin-mill (sometimes corrupted into most!) is the Scottish name for anuff-box. Dr. Jameson,* from whom these illustrations are derived, adds, that the word mill " is the vulgar name for a snuff-box, especially one of a cyliadrical form, or resembling an inverted cone. No other name, he continues, was formerly in use; and the reason assigned for it is, that when tobacco was first introduced into this country, those who wished to have sunff were accustomed to toast the tobacco-leaves before the fire, and then bruise them with a piece of wood in the box, which was thence called a mill, because the sunff was ground in it. From these notices it is easy to perwas ground in it. From Inese hotters it is easy to per-ceive how a ram's horn, from its conical shape, became one of the primitive forms of the Scotch sunfi-box; al-though at the present time it is frequently one of the most costly and Justrious. Down to the middle of the ciphteenth century, the "meeshin-born," with the spoon and hare's-foot attached to it by chains, appears to have been regarded as so completely a national characteristic, that when Baddeley played Gibhy in The Wooder, with Garrick and Mrs. Barry, he came on the stage with such an apparatus.

require that most of the known arts should be passed in review, as the greater number, not excepting even that of glass-making, have from time to time been subservient to the production. The discussion of these subjects is clearly "An Elymological Dictionary of the Sortish Language. † The Gulft, Horwbook, by T. Dekker; edited by the Rev. J. Nott, 1812, p. 119.

factore of the snuff-box in all its ramifications, would

beyond the province of the Reporters for Class XXIX., the Jurors for which were called upon to judge of such auuff-boxes only as are composed of papier-mache, wood, ivory, tortoise-shell, or horn: those made of glass and the various metals belonging to other Classes. Notwithstanding this limitation, the Reporters have endeavoured to ascertain the number of exhibitors who have contributed snuff-boxes in other Classes; but there may be some examples which have escaped their observation.

The manufacture of papier-maché snuff-boxes does not call for any special notice in this place; for although aus can sor any special notice in this passe; for allhough it forms a distinct frament of paper-maché work, its various processes scarcely differ in their details from those universally employed in the making of other articles. It may be remarked that the production of south-forces of this material is chiefly earried on in Oermany and France, whence they are exported to most

parts of the civilised world.

The manufacture of those very beautiful articles, called Scotch boxes, is the only one calling for especial notice in the present Report. These ingenions productions were originally made in the village of Laureneekirk, hy Mr. Stiven," whose son and successor is present by his works in the Great Exhibition. The art, however, suppears soon to have spread to other parts of Scolland; for we are informed that in 1832, in the parish of Old Camusck in Ayrshire, upwards of a hundred persons, comprising men, women, and children, were employed in the practice of it, and in 1845 there was also an extensive manufactory of wooden snuff-boxes in the town of Mauchline.† In this work, about sixty persons were at that period employed. Judging only by the importance of the contributions to the Great Exhibition from Laurencekirk and Mauchline, it might be inferred that the latter town is st present the principal seat of the manufacture of Scotch wares; which now includes the production of numerous other articles beside snuff-

In Classes XVII. and XXIX, are examples of covers fur books and memorandum-books; paper-knives and book-markers; eard-cases and card-trays; spectacle-cases; needle-books, thread-reels, erochet-cases, knitting-cases and work-boxes; razor-cases, sheaths for razor-strops, pomatum-boxes, scent-boxes and dressing-cases; eggcups, ten-caddies; and even candlesticks. To give an idea of the wholesale prices of some of these articles, the following quotations are eited:-Cigar-cases are sold at 42s, per dozen; paper-knives from 10s, to 17s, per dozen, according to size; snuff-boxes from 22s, to 168s, per dozen; and netting-cases at from fe, per dozen

The Scotch Sautt-box, which has long been renowned for the perfection of its binge and the close fitting of the eover, is cut out of the solid wood, the description chiefly employed being the symmore or plane-tree. Mr. W. Chumbers states that this is the timber used at Old Cumuock; and that a piece of rough wood which costs 25s, will make snuff-boxes to the value of 3,000/. first operation consists in making a number of circular exeavations in close contiguity to each other, by means of a centre-bit, or a drill running in a lathe; the interior is then squared out by means of goages and chisch, and is afterwards smoothed with files and glass-paper. The celebrated hinge is formed parily out of the substance of the hox and parily out of that of the lid, the greatest attention being paid in its construction to the accurate fitting of the various parts one into the other. The box is lined in the inside with stout tin-foil, and is painted on the outside with several coats of colonr, each of which is rubbed down smooth with glass-paper before the succeed-ing coat is applied. It is then ready to receive the various styles of ornament, which, in some cases, are produced by the hand of the artist, and, in others, hy mechanical means. The most usual decoration consists of the mrtan-patterns, the component lines of which are drawn separately by pens fixed in a ruling-machine on to

the box itself, if bounded by planes or slightly-curved surfaces: although such lines were also formerly drawn by means of a rose-engine on circular boxes, it is now found a more convenient practice to rule the lines on paper, and then to attach the paper to the boxes Another style of ornamentation, known by the name of "Scoto-Russian," is of more recent introduction, and imitates, in a remote degree, the beautiful ensmelled silver snuff-boxes, for which Russia has long been famous, In these, the outside of the box is first covered with stout tin-foil, then completely painted all over the surface, and afterwards placed in the rating-machine, which traces upon it on intricate pattern of curved and straight lines, hy means of a sharp flot tool. This instrument pene-trates completely through the paint, but only scrapes the tin-foil, which is left very hright and resembles inhid silver. Several coats of copal varnish, each of which is successively polished down, are then applied to complete the south-box.

In the manufactory of the Messra Smith, of Manchine, which is said to be one of the largest, about eighty arti-saus are employed, who have been instructed in the works. The workmen carn from 16s, to 24s, per week, according to their skill and the department in which they are engaged; and the women from 7s. to 9s per week. An actist capable of making a copy of an oil pointing earns 30s, per week.

AUSTRIA.

There are two exhibitors of snuff-boxes in the Austrian Section, one of whom, P. Buaaalla, (t/60), has contributed some beautiful specimens composed of a sparkling glass, called Artificial Aventurine; which is a silicate of oxide of copper, wherein part of the oxide of copper has been reduced to the metallic state by processes which are kept secret. The reduced copper exists in the form of minute erystols, which, under the micro-scope, present a most splendid appearance. Although mention is here made of these articles, they really belong to Class XXIV. The other exhibitor has sent examples of nanier-maché snuff-boxes, glove-boxes, work-boxes, cigar-boxes, spice-boxes, and buttons, which are creditable productions of their class, and remarkable for their cheappess,

CHINA.

In the Chinese Court there is a beautifully carved sourf-box, sculptured out of English cannel-coal, which was taken to China for that purpose by the exhibitor, Captain NHA, p. 1420. The carving, which it appears occupied the Chinese arriva is fortisight, cost the eXhibitor only 2l, sterling. This specimen, however, does not strictly belong to Class XXIX, nor does it represent the smuff-box used by the Chinese. The snuff-box, or rather suuff-flask of Chinn, is in form and size like a smellingsount-mask of (Linna, is in rorm and size mac a succining-buttle, and is made of rock-crystal, coloured gisses, por-celain, wood, and other materiels. To the stopper is strached a small spatula, for the purpose of taking out the snuff, a contrivance which has already been described as formerly in use in England.

BAVARIA

The contributions from Bavaria, sent by two exhibitors, consist of papier-maché small-wares, including snuff-boxes, which are produced at remarkably low prices, and are exported in very considerable quantities,

BRITISH COLONIES. The Indian Courts contain several examples of snuffboxes, the most earnous being - the goard small boxes, mounted in gold and silver, from Scinde; a snuff-box

mounted in gota and adver, from Seinde; a smift-hox made from a econs-sut, highly polished; another from the bilva fruit; and a beautiful specimen made of huffalo-horn inlaid with metal (p. 920). St. Helma con-tributes smift-boxes made from the willow-tree inder which the remains of the great Napoleon reposed until their removal to France and also removed until their removal to France, and also from a willow-tree which he planted behind the library at Longwood. From Von Diessen's Land, J. Million (201-203, p. 996) exhibits several specimens, interesting from the variety

The New Statistical Account of Scotland, Vol. XI. p. 144.
 † Ibid., Vol. V. p. 164. Chambers' Gazetteer of Scotland,
 p. 175.

[#] Gazetteer of Scotland, p 175.

of the materials of which they are made; comprising a globular snuff-box turned ont of the tooth of the spermwhale, which is employed in the colony for stick-heads and similar purposes; a turned snuff-box of irou-wood (Olea apetala); one of the huron-pine; and one of the musk-wood of Tasmanin (Eurebia argophyllum).

FRANCE.

The beautiful examples of sunff-boxes in the French Department are as peculiar in their style as the Laurencekirk snuff-boxes in their's, and the manufacture of them appears to be confined to France, if not to Paris. These boxes, which are quite remarkable for the accuracy with which the hinge is made, and the close fittings of the lid, are usually lined with a vencer of tortoiseshell very highly polished. The outside or body of the box is composed of various materials, as ivory, tortoiseshell, and rhinoceros-horn, and also of petrified wood and other woods, as the maple, the olive, rosewood, and several sorts of palms out across the grain. Some examples are very tastefully, not showily, ornamented with neat gold and silver mounts, but none, perhaps, are more elegant than those made of the palm-tree cut across the grain. These contributions are from two manufacturers, in the excellence of whose work only a very trifling difference was discernible.

GRAND DUCKY OF HESSE.

The examples from Hesse consist of papier-mache snnff-boxes, very similar in character to, but not so numerous or various as those of Austria and Bavaria. They were sent by one exhibitor (61), who has been rewarded for walking-sticks, and is mentioned in the section relating to them in the present Report.

The snuff-boxes and other articles of small wares sent from Prussia are also entirely of papier-maché, and are principally imitations of the various descriptions of Scotch, of tortoiseshell, and Russian boxes. They deserve com-mendation for the workmanship, but they are higher in price than similar goods sent from Austria and Bavaria. The following are some of the prices which were quoted as those at which the goods are sold wholesale; but judging from the examples from other parts of Germany, junging from the examples from the prices:—Souff-boxes, plain, 15s. per dox; marbled boxes, 15s, per dox; dox; dsmasked, or engine-turned boxes, similar to the "Scoto-Russian," 15s. per dox.

Reventa.

The contribution from Russia is the produce of one manufacturer, and consists of papier-maché snuff-boxes, creditably made, but exceedingly high in price. The most common snuff-boxes sell at 2s. 10d,, and the dearest at 38s, each: and the cigar-boxes range from 22s, 2d, to In 1842 the government of Moscow possessed five manufactories of papier-maché snuff-boxes, which employed eighty workpeople, and produced goods valued at 3,000/.

From Saxony there is also a contribution of papiermaché sauff-boxes, ranging in price from 1s, 10d, each to 2s. 6d., the latter being an imitation of the Scotch box, There are likewise some boxes of buffalo-horn, lined with tortoiseshell, all which productions are commendable for their finish.

TUBREY.

The snuff-boxes in the Turkish Court consist of three examples: One of the bituminous-hale, a well-carved mother-of-pearl souff-box from Bethlehem, and a box made of enamelled silver, the latter of which does not, however, belong to this Class.

UNITED KINGDOM.

Class XXIX., the exhibitors of snuff-boxes are only four in number, and those deserving of especial mention are contributors of Scotch snuff-boxes. The most important display is that to be hereafter noticed in the list of The other principal collections are that of Mesers, Clarke and Davidson (p. 545), of Class XVII., No. 135, and that of Mr. Stiven (Class XXIX., 35, p. 79), which are both deserving of favourable notice,

The snnff-boxes from Wurtemburg are of two kinds, and were contributed by two exhibitors. One of them has sent papier-maché snuff-boxes inlaid with mother-ofpearl and imitation gold and silver, which are very commendable as of the better description of papier-maché work; and the second has supplied some carved ivory snuff-boxes inlaid with mother-of-pearl, which are also deserving of praise.

The number of exhibitors of all nations in this division is twenty-one; of these, there are:-

- 5 Holders of a Prize Medal. 16 Unrewarded.

The classification according to the various countries is as follows:-

Austria (in addition to another Contributor, who exhibits a souff-box of glass) - -2 British Colonies :-Van Diemen's Land - - --Prussia - - - - -. Russia Saxony - - - - - - -Turkey United Kingdom (beside Three Exhibitors Rams'-head Mulls in Classes I. and XXIII.) Wurtemberg -2

Total - - -

- 21

LIST OF AWARDS. ADT BROTHERS, Eusheim (Bavaria, 66, p. 1101), Prixe Medal, for an assortment of very cheap papier-maché small wares, comprising cigar-boxes, glove-boxes, cigar-cases, snuff-boxes, and memorandum-book-covers, which are well manufactured; and although artistic merit is not aimed at, the less elaborate are creditably orna-

mented COLETTA-LEFEBVRE, Paris (France, 458, p. 1200), Prize Medal, for beautifully-finished snuff-boxes, made of wood or ivory, and lined with tortoiseshell, and remarkable for

or vory, and inset with forcestedell, and remarkance for the close fitting of the hinge and joint. Horatturas, C., Reicheman (Anstria, 644, p. 1040), Prize Medal, for a very large assortment of Papier-maché sunif-boxes and other popier-maché small-wares, comprising 167 varieties, which, taking the price into consideration, are remarkable for their cheapness and goodness of manufacture. As an example of cheapness may be cited the imitation Scotch snuff-boxes, which

may be cited the imitation scored shutt-wave, when wary in price from 4d. to 7d. each,
Mencius, C. V., Paris (France, 1658, p. 1256), Prise
Medal, for tortoiseshell, palm-tree lined with tortoiseshell, and other kinds of smift-boxes, in all of which the workmanship is most excellent; the accuracy of the hinge, and the close fitting of the joint being points particularly commendable.

SNITH, WILLIAM and ANDERW, Mauchline, Ayrshire, Scotland (Class XXIX., 280, p. 816), Prize Medal, for a great variety of articles ornamented with Tartan patterns, engine-turned patterns ("Scoto-Russian"), and paintings, Independently of the manufacturers who sent the engine-turned patterns ("Scoto-Russian"), and paintings, ram's head mull, before alinded to as not belonging to and comprising sauf-boxes, hiotting-cases, cyar-cases and several other descriptions of Scotch small-wares, which are remarkable for the great accuracy of the workmanship, high degree of finish, and the heauty of the varnish.

E. MANUFACTURES RELATING TO AMUSE-

I, MANLY GAMES.

Cricket and Arehery are the only games of skill and strength which are represented to an extent worthy of notice.

Cricket. UNITED KINGDOM.

The exhibitors of bats and other implements used in

cricket are nine in nomber, and, as might be expected, they are all British; indeed the articles they contribute are scarcely intelligible to any but Englishmen. The implements and appliances in the nature of gloves,

guards, &c., which the present mode of playing the game, and especially the practice of swift overhand bowling, has brought into use are so various, that there is more room for ingenuity in the manufacture of them than might at

for toperative the season of t lighter than those which are thickly waided or lined with Indian rubber, whilst they farnish a stiffer and more effectual defence against the ball.

So also in regard to the gloves which protect the fingers of the band that holds the bat; by a tube of Indian rubber fixed along the buck of each finger, an improvement is apparent in those enhibited by Messrs. Dark and Sons, inasmuch as a second and smaller tube is fixed within the first, thereby materially increasing the resistance to a hlow from the ball without sensibly adding to the weight or diminishing the pliancy of the glove. The bate schibited by R. Dank (198) are of excellent wood and very well balanced.

DUKE and Son (191, p. 800), contributed a collection of all the implements used in cricket, remarkable for the The number of exhibitors is oine; of these, there are

LIST OF AWARDS.

DARK, MATILDA, and Soxs, Lord's Cricket Ground (Class XXIX., 197, p. 800), Prize Medal for a collection of bats and wickets.

DARK, ROBERT, Lord's Cricket Ground (Class XXIX 198, p. 801), Prize Mcdal for gauntlets, leg-guards, spiked-soles, balls, and other implements, used in the game of

DUKE and Sox, Penshurst (Class XXIX., 191, p. 800), Prize Medal for implements used in the game of cricket.

Archery

UNITED KINDDOM.

In archery the British exhibitors are five in number. P. MUR and AINCE and ALDRED exhibit articles of excellent workmanship. The bows are well halanced, excellent workmanship. The bows are wen nanneca, and the materials from which they are made well se-lected, some of the woods being of great value and arrity. A bow of Spanish yew, exhibited by the last-named firm, is valued by them at 35 guiness. The arrows also of both exhibitors are beautiful specimens of intaid wood.

BRITISH COLONIES.

There are several contributions of bows and arrows from the dependencies of Great Britain, but as they are the only distinction between their work appears in be in really used as weapons, they do not belong to Class the amount and character of the ornaments attached to

XXIX. The reader is, however, referred to the follow-ing: - British Guiana (144, 145, and 145A); the Indian Court, which contains specimens of bows and arrows from Assam; bows and arrows from South Africa; and several contributions from Western Africa.

SWITZERLAND

One exhibitor sends a variety of bows; and a case of arrows remarkable chiefly for the number of separate pieces of wood of which they are framed. One arrow is stated to be composed of no less than a thousand

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The number of exhibitors is six : of these there are-
              2 Holders of a Prisa Medal.
4 Unrewarded.
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The classification according to the various countries is as follows:-Switzerland

AINDE and ALDRED, 126 Oxford Street (Class XXIX., 180), Prize Medal for bows, arrows, and archery-accoutre-

ents, and also for fishing-tackle. Muta, P., Edinburgh (Class PXIX., 150, p. 798), Prize Medal for bows, arrows, and archery-implements.

Rockets

UNITED KINDDOM.

A small selection of Rackets is contributed by one exhihitor to Class XXIX. The manufacture of these, especially of the heavier and stronger, such as are used in the game of tennis, is hetter understood in France than in England; indeed the rackets used in the few tennis-courts which still exist in England are mostly im-

ported from France. AWARD. JEFFERIES, ISAAC, Woolwich (Class XXIX., 184, p. 800), Hononrable Mentinn for a selection of rackets which

deserve to be mentioned as promising to compete successfully with those of French manufacture.

II. FISHING-TACKLE. University Kingson

The articles exhibited under this head are, as might be

expected, almost entirely of British manufacture, the sport of angling being but little pursued in other countries, and nowhere with the same study and scien-tific skill as in the United Kingdom, Probably there is no other country in which the manufacturers of fishing-tackle constitute a trade in themselves, certainly none in which so much money is annually spent upon the implements which they produce. The British exhibitors twenty-five in number.

The merits of many of their articles, especially of the rods, could not be completely tested within the limits of the Exhibition. The most valuable properties of a rod consisting in the thorough seasoning of the wood, its capability to resist weather and wear, without warping or twisting, and its retention of an even spring and pliability under constant use, can be ascertained only after prolonged trial; a test which it has not been in the power of the Jurors to apply. The same may, to a great extent, be said of lines, artificial flies, and baits, the dara-

hility of which, one of their most valuable and rarest mitty of writen, one of tents most valuatine and rarest merits, must be proved by experience.

The articles exhibited by C. Fanzlow (176, p. 800), Alvor and Aldren (180, p. 800), J. K. Panlow (181, p. 800), and Jahrst Jowes (181, p. 800), may all claim much credit for execution and high finish. In this respect

But it should be observed that a profuse expenditure of silver and gilding in the meml-work of a fishing-rod, the application of precious stones in the reels and joints, the inlaying of the huts with ivory and rare woods, and the use of velvet or silk, embussed and gilt, in the place nf leather or other more appropriate materials, of which the books and cases for containing fishing-tackle are more usually and properly made, cannot be considered as im-

LITTLE and Co. (174, p. 800), exhibit some improvements which combine practical utility with excellent work-manship. A multiplying reel, in which, hy an ingenious arrangement of the cog wheels (the teeth of the driving-wheel being internal), the handle of the reel retains its place in the centre instead of being fixed, as is usually the case in multiplying reels, at the edge of the side plate, thereby being more convenient to wind, and less liable to entaugle the loose line. Also an application of sliding rings to the nater ferrales of the joints, which are slightly split, and, by the pressure of the rings, made to gripe the inserted joint more closely, whilst the inconvesieuce of the joints becoming fixed when swollen by wet, is obviated. Also a mode of forming and fixing the ferrule on the joints, whereby the modden transition from plant would to stiff metal, which renders a rod, when strained, mpt to give way in those parts, is in great measurements. sure avaided

AINGE and ALDRED (180, p. 800) exhibit some spliced rods of excellent construction, each joint being composed of three pieces, bound together longitudinally, and thereby less liable to twist or warp, whilst it retains an even

spring and elasticity throughout.

J. BERNARD (177, p. 800) and J. K. FARLOW (181, p. 800) exhibit articles of considerable merit. Rods of similar construction to those last mentioned, and an improvement in the construction of ferrales; the lower and larger joints being fitted into the upper, instead of the upper into the lower. This mode has the advantage that water is less likely to find its way between the joints and make them swell.

FRANCE

With the exception of some lines for float-fishing, of very fine and even texture, which are exhibited in the Department of France (141), there is no contribution from foreign manufacturers.

The number of exhibitors is twenty-six; of these, there are-

2 Holders of a Prize Medal, 4 Who obtained Honourable Mention,] 20 Unrewarded,

The classification, according to the varians countries, is as follows :-

United Kingdom -

LIST OF AWARDS

AINGE and ALBRED, 126 Oxford Street (Class XXIX... 180, p. 800). Prize Medal for fishing-tackle and also for

180, p. 860). PTRE Medial für Bafing-tackne ann ano tor archery implementa. C. F., Paris (France, 141, p. 1178). DELAGE-MONTIGMAC, F., Paris (France, 141, p. 1178). Honourable Mention for fishing-lines. Fantow, C., Strand (Class XXII., 176, p. 800). Hotourable Mention for fishing-rods, fishing-tackle, and artificial baits.

Fantow, J. K., Crooked Lane (Class XXIX., 181, p. 800). Hanourable Mention for fishing-rods and fishingtackle.

Jones, J., Jermyn Street (Class XXIX., 182, p. 800). Honourable Mentinn for fishing-rods and fishing-tackle. LITTLE, G., and Co., Fetter Lane (Class XXIX., 174, 800). Prize Medal for fishing-rods, fishing-tackle, artificial baits, and an improved winch.

III. TOYS.

One of the most eminent of modern physicists* has remarked that "boys' toys are the most philosophical things in the world," and a renowned statesman, taking another view of their importance, affirms that they are an index to the character of a nation.

In illustration of the first position, a few examples may be cited. A child's kite, in the hands of a Franklin and a Romas, has served to identify lightning with electricity; and conveys an instructive lesson on the composition of mechanical forces. The pea-shooter not only affords evidence of the elastic force of gases, but also of their economical employment when used expansively. The sucker illustrates the weight of the atmosphere, and its equal pressure in all directions; and the sling, the hoep, and the top show the property of centrifugal-firre; when the top is in rapid motion, it converts for the mument, every spot and hruise on its surface into an relegant zone; and thus also imparts a good lesson in physiological optics. To a reflecting mind toys affired ample food for thought; and they might, perhaps, be made to yield much salid instruction to the child, were it not generally far more wise, for a certain period, at least, to limit its inquiries rather to the discovery of the weakest

parts of its plaything.

With regard to the assertion that toys indicate the genius of a nation, it is evident that, as the natural tendency of children is to imitate the employments of their elders, they will always take the most interest in such toys us will assist them in this propensity, and lead them in their sports to do that which they see those around them doing in earnest. Hence, in countries which are of a military disposition, flags, drums, trumpets, gnns, swords, and the accontrements of soldiers, are much in demand for the pastime of even the youngest boys. In a maritime nation toy-ships will be esteemed; and thus the very pastimes of childhood might be made available in promoting the welfare of such services as the partienlar state most requires. The Exhibition might, therefore, have afforded an in-

teresting opportunity to statesmen and philanthropists for studying the diversity of character exemplified by the contributing nations, had they been all as well represented in their toys as they were in their rather manufactures. This, however, was far from being the case, as will be seen from the subsequent detailed Report,

The only contributions from the United States consisted of India-rubber toys, which belong to Class XXVIII.

AUSTRIA.

The toy-trade of Austria is exceedingly well and very pionsly represented in the Great Exhibition. From Vicuus there are two exhibitors, one of whom sends a great variety of automaton-toys; and the other a general collection of ordinary toys, military-accontrements, guus, and swords, holding a very prominent position among them. From Bohemia are sent excellent and very numerous examples of those very beautiful boxes of toys far which it is famous, and which form a large item in the export-trade of the country. From the mountains of Tyrol, J. B. Ponora (655, p. 1041), contributes unmerous specimens of carved white wood toys, which are deserving of favourable mention, both on account of their cheapness and the goodness of the workmanship. The specimens supplied by the other three exhibitors will be found noticed in the List of Awards.

BAVARIA.

The chief contributions from Bayaria consist of mechanical toys, which will be noticed in the List of Awards; and also of numerous magnetic toys, exhibited by J. M. INMAYER (26, p. 1099) which are deserving of com-mendation for their ingenuity and variety. Both collections are from Nürnberg, in which city large quantities

. Dr. Michael Faraday. † Mr. Richard Cubden. of these descriptions of toys are made for exportation. Besides the exhibitors of the foregoing specimens are two others, one of whom sends dressed dolls, and the other carved toys, which do not call for any particular

Barriss Colonius,

British Guiana sends only a single example.

Johns.—The Indian Court commins a very here colors of very chair from frequent of blinds. Bighly greater part of the display has there are also some line to the colors of very chair from frequent of the display part there are also some line. The coloriest competes also several impraison Many and the coloriest competes also several impraison. Many the coloriest competes also several impraison Many and the coloriest competes and the coloriest frequent and the coloriest frequent coloriest. Figures many approach is placed to the coloriest frequent and the coloriest frequent common are in India, on which second they can most valuate contribution to the Central Exhibition of the coloriest frequent frequent frequent and the coloriest frequent frequent coloriest frequent frequent frequent coloriest frequent fr

FRANCE.

One of the French Exhibitors sends two ingenious drowing-room ornaments, containing automaton hirds, which are toys rather for adults than children. Another exhibitor contributes some excellent wax-figures for hairdressers, which are made hy processes similar to those employed for producing the best description of dolls; and they are, therefore, enumerated with toys. But although France manufactures enormous quantities of toys of many kinds, only one description of them has been sent, and that by a single exhibitor from Paris, who been sent, and that by a single exhibits dressed dolls only. "In that capital alone," according to the Statistique de l'Industrie à Paris, says M. Natalis Rondot, "there were, in 1847, no less than 371 manufacturers of children's toys, employing 2,099 workpeople (641 men, 1,345 women, 80 boys, 33 girls). workpeople (1-41 men, 1,342 women, 30 opt), 33 girts), who, in that year, produced 172,800, worth of goods." The men earn, on the average, 2s. 8d. per day, and the women is. 3½d. per day; but some of the men earn 2s. 3½d., 3s. 3½d., 4s. 9½d., according to their skill, or the description of work they are employed on. Many of the masters employ only a single assistant, or work alone, and very few employ more than ten assistants. Thus, of the 371 manufacturers only 52 employed more than 10; 142 employed from 2 to 10; 77 employed 1; and 90 employed no assistant, but did all the work with their own hands. Competition has, it appears, brought down prices so low, that dressed-dolls, incloding a bonnet, are to be bought for cight pence per dozen; and undressed composition dolls at two-pence half-penny per dozen. It is to be regretted that none of the very excellent automaton toys, boxes of games, of kitchen ntensils, &c., find a place in the French Department, as they are exported from France to a considerable extent. Swords, guns, helmets, and other military accourrements, are also, as might be expected, produced in large quantities in that country; hat are disposed of chiefly for the home trade, Most of the toy-guns are beautifully made, and are generally furnished with percussion locks, which will fire off a cap. Conjuring-toys, for adults as well as children, ought most certainly to have been exhibited, as in the manufacture of these articles Paris has no rival. The nature of the toy-trade in Paris is thus given by M. Natalis Rondot :-

Number Masters.	Number of Work- people amployed,	Nature of Goods sunnufactured.	Value.
			£.
24	126	Military Toys	13,346
50	805	Dolls	48,358
25	151	Card-board Toys, games, hoxes.	15,782
12	123	Antomaton and mechanical	13,180
24	139	Manks	8,496
16	42	Papler-maché animais	5,431
16	43	Wooden carriages and horses	4,426
50	94	Balls, kites, and turned Toys	8.661
10	62	Toys of tio-plate and iron- plate, as kitchen ntensils, &c.	9,240
104	514	All other kieds	45,880
371	2,099		172,800

1018	Exported	from	Fran

Years.	To England.	All parts.	Valued at
1830	Cata.	Cuts. 1,583	12.861
1835	174	2,562	20,822
1840 1845	897	5,199	24,525 42,250
1850	2,269	8,581	75,852

FRANKFORT. J. V. ALBERT (p. 1122) exhibits, amongst philosophical

apparatus, Dolls and the Moor's-head conjuring-toy, which admits of a knife traversing the neck without severing the head. The mechanism by which this is effected, though simple, could not be made clear without a diagram.

Намиско.

The only contribution consists of Heads for dolls made of papier-maché and wax, which call for no comment farther than that they are largely exported to England and other countries.

PRUSSIA.

The principal Toys in the Pressian Department are those of Pewier Foun Berlin, which are solicide in the List of Awards. Pesides these there are positores of most and the properties of the properties of the same of the properties of the properties of the amenit six of these submiss (No. 253). A. Ellisterieckhildric of Class XXIX, No. 198, p. 277), ends a "Bellamonois-chandelite." This very humorous prowide the properties of the properties of the with the performer of his band seater bound the circles of the candelshrum, in a great variety of quaint and expressive astimptics; their features and varied action

SAXONY.

The contribution consists of a few Toys and husts made in pewter. Yet in 1846 there were six hundred and ninety-seven manufactories of wooden toys, which employed fifteen hundred and twenty workpeople.

SWITZERLAND.

There are not any carred white-wood toys exhibited in the Swiss Department, excepting some beautiful small models of oringes, who will call any of the control of the contr

[•] It would appear from the admired Indian drama of Secondade, without pile poet Collada in the first century B.C., that this has of the poet Collada. In the first century B.C., that this has of the poet Collada in the Collada B.C. "Go, I prox," says an attendant, in Act Vil., "to my cottage, where thou with find a plaything made for the hermit's shill Sencera: it is a pracease of carthen-ware, pationed with rich colours."— Works of Sor William Joses, vol. vi. p. 302.

When it is magnified about twenty times linear, all the various parts may be distinctly seen, and they then appear beautifully formed and perfect in their polish. Every part is, indeed, as complete and perfect as it is to be found in an ordinary precussion-pistol, so that the lock cases when the ringger is pulled. The second contribution is a Mechanical singing-bird from another Exhibitor, and will be found noticed in the List of Awards.

UNITED KINGDOM. Although the number of Exhibitors of toys in Classes XXIX, and XXX,, whose contributions have been examined by this Jury, is Twenty-noe; yet, as the greater part of their productions consists of large models and other special objects, the United Kingdom is scarcely represented in Toys properly so called. Even of Wax-dolls, which are made in this country in considerable numbers, there is only one contribution (Class XXIX., No. 123, p. 797) worthy of notice; and this will be found described in worthy of notice; and this will be found descrined in the List of Awards. Rocking-horses are exhibited by J. C. Dran (Class XXIX., No. 128, p. 797); and H. Lacas (No. 127, p. 797) sends an improvement on the Garden-hierse, which is made to rock by means of the motion of one which is made to rock by means of the motion of one of the wheel-axes as the horse is dragged along. A few Compressible-toys are exhibited (No. 216, p. 801); and a variety of Automaton and other toys, elicily foreign, are displayed by A. Borener (No. 124, p. 797). With respect to the models already referred to, those exhibited at (No. 126, p. 797), will be noticed in the List of Awards. The others, which are worthy of favourable mention, are: — a landscape, with elockwork giving mation to a railway train, &c., contributed by J. T. Curm (Class XXX., No. 146, p. 829); another mechanical land-scape-picture, by J. L. Barrett (Class XXX., No. 339, p. 842); and the model of an English villa (Class XXX., Nn. 213, p. 832), exhibited by M. A. SRITH. None of the ordinary strong toys of English manufacture are contributed, probably on account of the makers of these sorts being generally very poor. For most of the English wooden-toys are constructed by chamber-masters, who seldom manufacture goods to order; but, on the contrary, when they have produced a small number, hawk them about from shop to slop, or vend them in the streets, Without capital, and compelled to work almost literally from hand to mouth, they continue to exist only, without any material advance, but making much the same kinds having the same general degree of merit one year after another. That this is no exaggeration, must be conceded by every one who will recall to mind the toys of twenty years since, and mentally contrast them with those of the present day. That the progress has been slow, and requires long intervals for comparison to make it apparent, quires long intervals for comparison to make it apparent, arises from the fact that all the improvements must be made in the few lessure moments of the workmen, who are compelled to labour many hours each day to gain a livelihood, and who, probably, cannot even afford the time to carry out any suggestions which may be made to them That the poor workman does, nevertheless, endeavour to Inst the poor workman does, betermiests, eisdelvour to improve in his productions, is shown by Mr. Dickens, with touching humour, in *The Cricket on the Hearth*, when Caleh is made to asy, "You couldn't have the goodness to let use pinch Boxer's tall, numn, for hard a nument, could you?" When surprise is expressed at the question, he time explains his meaning: "Oh, never numl, numn! be mightn't like it, perhaps. There's a small order just come in for barking-dogs; and I should wish to go as close to natur' as I could, for sixpence. That's all. Never mind, mnm." Dolls'-houses, shops, brewers drays, waggons, common horses, the body formed of a sort of skittle with a slice cut off on the under side, and four round pins for the legs, are made in large quantities in England. Spades, wheelbarrows, garden-rollers, garden-rakes, skipping-ropes, caoutchoue-balls, topa, kites, and similar toys, are also made in great numbers. or composition dolls are made entirely in England, but wooden-dolls are imported, as are also papier-maché dolls'-heads, the bodies only being made in this country.

That very large quantities of boys' Marbles are also annually imported, we learn from the Hull collection (No. 290, pp. 816, 817), in reference to which it is stated, that 1,600 cwt. of these articles were entered at that port during the year 1850.

As toys are among those foreign productions which come under the enterproy of "Goods Non-enumented," the Reporters are unable to give a detailed account of the various kinds which are brought into Eugland, but the following list will show the extent of this trade, with respect to the various countries which send their toys believe. The Hamescuit Towns, it must be remembered, believe. The state of the parts of Germany.

Value of Toys of all sorts Imported into the United Kingdom in the year 1850:—

Denmark	-	-	-	-	-	323
Hanseatic	To	TIME .	-	-	-	33,828
Holland	-	-	-	-	-	6,201
Beigium	-	-	_	-	_	1,006
France -	-	-	-	-	-	4,209
Other par	te	-	-	-	-	513

From all parts - - 45,130
WUNTEMBURG.

Immense quantities of Top use the assume there are its interesting to the potentially on the border of the Black. Forcet, and are reported to England, America, and other forcet and are reported to England, America, and other most of the kinds which are manufactured in that country is, for example, Michanels-top (No. 8), p. 100. The country is, for example, Michanels-top (No. 10), and of copper, for a similarate-rook, historia-triansh, for, most of copper, for a finite state of the control of the

12 Holders of a Prize Medal, 2 Who obtained Honourabla Mention, 37 Unrewarded. Total 51

The classification according to the various countries is as follows:--

Austria	_	_	_	_	_	-	-	_	-	
Bavaria										
British (Colo	nles	end			iuis			_	
-	**			Indi		-	-1)		
France										
Frankfo		-	-	-	-	-	-	-	-	
Hambur	W.	-	-	-	-	-	-	-	-	
Prussia	-	-	-	-	-	-	-	-	-	
Saxony	-	-	-	-	-	-	-	-	-	
Switzeri		-	-	-	-	-	-	-	-	
United I	King	dom	(in	cludi	ng 8	in C	lass	XX	X.)	:

Total - - - 51

LITTO 7 AWARDS.

ALLIA, A. J., Paris (France, No. 6, p. 1169), PrizeMedal, for Ilair-dresser? Wax-6gures. These are modelled with conderpole skill, and present a very life-like
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consignition of the state of the state of the state of the state
of the state of the state of the state of the state of the state
are no closely resumble that of doll-making, Dut they

are noticed in this place.

BAUTTE, T. F. Genevn (Switzerland, No. 236, p. 1281),
Prize Medal (Honourable Mention accorded by the Jury of

Clau XIIII), for a Paper-weight of gold, the base being commenced with scovery panies id cusmad. From this a soun second, and is surmomented with a small being commenced with a small second particle of the When the cover is turned back a most beautiful and perfect first hard is discovered, which is apparently and twirting about in different directions. As soon as the song is finished the box closes. The bird is searcely decision of the contraction of the surmoments is not to warde is perfectly mixed in compass to its aim. The valuable primings for the water-banker, and they are

therefore descring of encouragement.

[Box7200., Pure Framer, No. 400, p. 1197]. Prince
[Box7200., Pure Framer, No. 400, p. 1197]. Prince
that just nediced, but considerably larger, the object
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price of one of these groups of antomats in 1171, and of
gless shades, and forwards are drawing drawing room
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[10] and [10] are size of the size

OTRAINERS, A., Baker Street (Class XXIX., No. 124, p. 797), Honourable Meation. The Toys exhibited consist of childreo's Armour, French boxes of Games. representation of the Great Exhibition, with moving

figures, Slope, and various Dolls.

ETCHUNG, G. Normelberg (Heartin, No. 80, p. 1107).

Prior Neela for Twenty Michaeland toya. These articles, education to the state of the

and abouter frames specimens, "Societ-Law, Virman (Authi, Xi. 62, p. 1941), Prins Medla for a cellection of rapwards of Three hundred Children's Toys, comprising Dolla, drassed and modressed, ministrust Furniture, Neso, Drunss, Plags, Swords, Guns, Lances, Shakos, Helmets, and other military accontenents for children, the commoner descriptions of Mechanical-toys, many of which display much ingenity. There are also numerous other sorts of toys in this collection, which are arranged in the Exhibition.

JUNEAU, P., Paris (France), Prine Medal for Dolls' dresser. The dolls on which these dresses are displayed present zo point worthy of commendation, but the dresses that the point worthy of commendation of the prevailing fashions in indicate dresses, but the under garments are also in untop case complete face-induce of those articles and in interface complete face-induced on the prevailing fashions in indicate dresses, but the under garments are also in untop case complete face-induced on the prevailing fashion in indicate the same of the prevailing fashions in indicate terms for children to imitate, and that to acquire the use of oldern and material; in the latter respects they shight indicated driven values for the prevailing the properties of material face of the prevailing the properties of the prevailing indicated driven values in values from the contraction of the properties o

KIETAIOL, F., Vienna (Austria, No. 653, p. 1041). Prize Mild for a collection of Thirty-aine Automaton-toys, These toys, which are all mored by good metallic clockwork, are most iogenious productions, but they appear to be more expensive than similar manufactures produced in France, with which, nufortanately, the Exhibition afforded no opportunity of comparison. The following

are among those descring of especial notice:—Male and female figures sulting, 12a, the contrivance for effecting the occasional rapid rotation of the German waltz being very ingenious; i Planiste, (31a) who plays, or rather appears to play, "God save the Queeu," and "Rud Brittania;" an Elepante carrying a Howdab, and four walking Indians carrying a Palanquin. This collection is the only one of detached becometive-figures.

MONTANARI, AUGUSTA, Upper Charlotte Street, Fitzroy Square (Class XXIX., No. 122, p. 797), Prize Medal, The display of this Exhibitor is the most remarkable and beautiful collection of Toys in the Great Exhibition. It consists of a series of Dolls, representing all ages, from lofancy to womanhood, arranged in several family groups, with suitable and elegant model-furniture. These dolls have the hair, eye-lashes, and eye-lids separately inserted in the wax, and are, in other respects, modelled with life-like truthfulness. Much skill is also evinced in the variety of expression which is given to these figures in regard of the ages and stations which they are intended to represent. From the prices of these dolls, however, they are adapted rather for the children of the wealthy then for general sale; since the prices of the undressed-dolls are from 10s. to 105s. each; the dressed-dolls, which are attired with much taste, are much more expensive, and vary in price according to the richness of the material of which the robes are made. In a small case adjoining that which contains the toys just ennmerated, are displayed several Rag-dolls, which are very remarkable productions, considering the materials of which they are made. They consist entirely of textile-fabrics, and the dolls which are intended, and are well adapted for the nursery, are reasonable in price, varying from 6s. 6d. to 50s, per doll, including the dresses.

MCLEAR, C. A., and C., Oberbetsesselerf, Ebernia (Actatin, No. 64), p. 1001, Hisconomic Mentions for Actatin, No. 64, p. 1001, Hisconomic Mentions for Bible vite careflest figures representing men and sains), which are modelled in a sort of paper mends, with rever and reals, the former being made of wood and the latter Chopical-parkens, Heard of entits, and numerous other group Hisconomic of the Company of the Company of part commendations, air redder the tops will adapted to affect interaction as well as amounteen. The whole of part commendations, air tender the top well adapted to affect interaction as well as amounteen. The whole per loss, according to the number and are of the objects contained in it. For instance, the box for the dolpen contained in it. For instance, the box for the dolpen of reals of the control of the dolpen of reals of the control of the control of the dolpen of reals and the control of the control of the dolpen of reals and the control of the control of the control of the period of the control of the control of the control of the period of the control of the control of the control of the period of the control of the control of the control of the period of the control of the period of the control of the control of the control of the period of the control of the cont

positions, 3 huisamee, and 3 dogs.
Bore and Gapan, Bilberach (Wartenburg, N. e. fe.
Bore and Gapan) (Wartenburg, Wartenburg, Wartenburg, and there toys, some made of timed from-plate, and other toys, some tende of timed from-plate, and other toys, some tende of timed from-plate, and the bore, to see the bore, to see the bore, to see the bore, and the bore, to see the bore, and the bor

being charged 6e, 8d; and numerous other strictes. SORITAX, G., Phelini (Prasias, No. 256, p. 1053). Prize Medial, for a collection of Pewter-toys; the principal example being a representation of the review at Window, on the occusion of the visit to England of the Emperor which this well-exceeded model contains. Besides this specimen, there are several miniature Dianer and Tes services, also can it powter.

services, also dail to per life. Street (Class XXIX., No. 126, p. 175). Pitts Medal, for two Models, one repositing to English farm-yard, and the other Guilliver to Lilliput. The Farm-yard is no lapsenions model, representing with fidelity the various buildings and the every-needing with fidelity the various buildings and the every-purpling of water for extile, thanhaling of comp by horse-power, winnowing of grains, &c.; the various figures being mored by clock-work.

The second model was executed by A. Fleischmann,

of Sonnenberg, who also exhibits a comic chandelier in stacks, do not belong to this Class, and were, therefore, wakes in the country of Lilliput, and finds himself "unable to stir," "As I happened," he continues, "to lic ou my back, I found my arms and legs were strongly fastened on each side to the ground, and my hair, which was long and thick, tied down in the same manner. I bkewise felt several slender ligatures across my body, from my arm-pits to my thighs," Such an iacideot affords ample scope for the imagination of the artist, and he has proved himself quite equal to the undertaking. There is much humour evinced in the physiognomy and expression and action of the Lillipations, some of whom are bold enough to pash their inquiries so far as to pry are some enough to pass their inquiries so har as to pry into Gulliver's waistonat-pockets, a piece of temerity which is nigh coating one philosopher-looking individual his life. Others of the unkives, however, are far more cautious, and mounted, in funcied security, upon the becauches af trees which Gulliver night blow dawn with a breath, they content themselves with a more distant view of him; others again prefer trusting to the ground and their own legs, and some of them are already on the start at the first sigus of waking on the part of the manmonster; some slow, dull-headed individuals, not knowing what is taking place, are eagerly climbing up on his body, whilst others are precipitately sliding down; and even the Lilliputian horses seem to have their presentiment of danger, and are becoming unmanageable.
Wittien, Kennel, and Co., Geisslingen Wurtemburg,

No. 52, p. 1119), Prize Medal, for upwards of two handred Boue and Ivory small-wares. The chief part of this collection consists of very small and exquisite Models of furniture, in which there is much minute pierving and carving which, in this respect, exhibit great skill on the part of the workman: these miniature works are much used as chimney-ornaments in Germany. There are also numerous children's Toys; as, rattles, 64d, each; spelicans, 2s. the set, in which those with figures are fairly carved, considering the nature of the goods and their prices. Umbrella and stick-handles form also an item of these productions, and present several examples of good carving, as, for instance, one representing bears climbing a pole, valued at 22s. Lastly, there are several small articles, such as ladies' brooches, and ladies' companions ur cases, containing bodkins, crochet-needles, &c., which are sold for is, each. The whole of the productions are well manufactured, and reasonable in price.

F .- MISCELLANEOUS.

In addition to the various manufactures already noticed in the previous remarks, there are productions from no less than Eighty Exhibitors, of so miscellaneous a character that they do oot admit of being classified under racter that they do not admit of being etassisted under any one of the numerous subdivisions already specified. Of these, however, it must be remarked that braid, sewing-cotton, felt, wire-buttons, bone buttons, pins, uccilies, fish-hooks, printers' type-cases, black-lend pencils, large flating-inchke (including large unets), easks and models of vats, shocmaker's-lasts, gig-whips, hot-water and steam-apparatus, assh-line, sheets of woven-wool, cotton and worsted bobbins, and the covering for

London, March 1852.

the Praising Department. It represents one of the inei- not examined by this Jury. Of these various manofac-dents in Swift's well-known romance, when Gulliver tures there are Tweaty-one exhibitors, leaving still Fiftytures there see Twenty-one exhibitors, leaving still Fiftynine belonging to the present Class XXIX, there are:-

The contributions of these Exhibitors were carefully xamiued, but no Awards were made in their favour. The following, in Class XXIX., are nevertheless worthy of notice.

Burnishing-Stones.

T. CHAMBERLAIN (231, p. 802) exhibits specimens of Burnishing-stones for the use of silversmiths, of which both the rough and the finished stones are displayed.

Confectioners' Moulds. LEALE and ALBRECHT (108, p. 796) exhibit several

well-made jelly and cake moulds.

Letters for Sticking on Glass and Door-Plates.

H. FLETCHER (240, p. 802) exhibits Letters to be fixed on glass; and, also, Engraved door-plates filled with a composition said not to be liable to erack in the san, a very valuable improvement which, buwever, can be only tested by time. G. Lucas (277, p. 816) exhibits brass and zinn door-

plates engraved by machinery, and also filled with a com-position said to be not liable to crack in the snn, nor to position said to be not made at be acted upon by the atmosphere.

Glass and Emery Paper, and Cloth. BARSHAM, Son, and Co. (213, p. 801), and R. and

II. Romers (215, p. 801), exhibit excellent specimens of Glass and Emery cloth, and glass and emery paper; and also of the powdered glass and emery of different degrees of fineness, which are used in their manufacture.

Ornamental Paper-Work.

There are several examples of Cut-paper urnaments both in Class XXIX. and Class XXX. The only contribution, huwever, which need be noticed, is a very beautiful Paper Transparency, representing Chepstow Cattle, Moa-mouthshire, by moonlight, which is exhibited by S. Hrs. near (Class XXIX., 301, p. 817). The effect, which resembles very closely that of the porcelain pictures, is produced by many over-laying sheets of tissue-paper, cut out in the proper form with scissors, a work requiring much patience as well as skill.

Wafers,

H. THUNDSON (209, p. 801) exhibits very beautiful specimens of Cameo-wafers, a manufacture, to a great extent, superseded by the very general employment of envelopes having their seal-flaps gummed and emboased, The remaining contributions are too unimportant to require enumeration in this Report, especially as they are amply described in the *Illustrated Catalogue*.

WARREN DE LA RUE, Pn. D., REPORTER.

A. W. HOFMANN, PR. D., JOINT REPORTER.

CLASS XXX.

REPORT ON SCULPTURE, MODELS, AND PLASTIC ART,

(The Figures after the Names (between parentheses) refer to the Exhibitors' Numbers and lo the Pares in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE, I

Jury.

RICHARD REDGRAYF, R.A., 18 Hyde Park Gate South, Kensington Gore; Artist. Y. D. C. Ser DROMF, Holland; lats Master of the Mint at Utrecht. Dr. C. Wanger, Zollverein; Director of the Museum of Fine Arts at Berlin.

W. WYON, R.A., Her Majesty's Miut; Medallist.

True Jury of Class XXX, assembled for the first time on Monday the 12th of May 1851. In compliance with the instructions received from the Council of Chairmen, the Jury proceeded to elect a Deputy-Chairman, to make arrangements as to the time and place of their future meetings, and to nominate Sub-Committees, who should lay before the Jury detailed reports upon the several points of joquiry specially assigned to them. Lord Col-borne was elected Deputy-Chairman; and at a subsequent meeting the undersigned had the honour to be appointed Reporter,

The Suh-Committees having brought their investigations to a close with the ntmost dispatch consistent with the due performance of the arduous duties entrusted to them, severally laid their reports before the Jury, who, after the most mature and anxious consideration, have agreed upon their awards now submitted to the Royal Commissioners through the Council of Chairmen. As the Jury of Class XXX, forms a group by itself, and is not part of any other group of Juries, its awards have not been submitted to any other Jury or Juries for confirmation, as would otherwise bave been the case, according to the 12th Instruction from the Conneil of Chairmen. The Jury, however, considered it expedient to hold a special meeting as a group, and at that meeting the owards previously made were reconsidered and finally settled by Jurors. It is therefore upon the Jury of Class XXX. Class of Fioe Arts resta

Class of Fice Arts rests. In making these awards the Jury have seted strictly in accordacce with the principle laid down by the Council of Chairmen in their 18th Instruction. They have been guided solely by the merit which they have recognized in the individual works exhibited, without reference to countries, and considering the Exhibition as a whole.

And in compliance with the 20th Instruction, the Jury of
Class XXX, have made the proportion of the Council to
the Prize Medal, a very small one. Even had this instruction not been laid down in such precise terms by the Council of Chairmen, the Jury of Class XXX, would have felt it their duty to exercise great reserve in awarding Council Medals, knowing, on the one hand, that superior excellence is but very rarely attained, particularly in such works as fell within their jurisdiction, and

being aware, on the other, that it was only " for very pre-emittent merit" that the Great Medal was intended.

It baving already been explicitly stated that the Jury in making their a wards were guided solely hy the merit which they have recognized in the works exhibited, it might be deemed superfluons to add more on this point; there are, however, one or two facts, obvious indeed, but yet of sufficient importance to be recalled to the minds of such persons as might be led by the decisions of the Jury to draw invidious comparisons between one country and another. It is an obvious but most important fact to be borne in mind, that with respect to the principal branch of the subjects falling under Class XXX. (Sculptore), foreigners have laboured under peculiar difficulties in having had to bring over from distant parts, and at considerable expense and risk, statues in marble or bronze for the Exhibition. Again, all foreign artists have not njoyed the same means of overcoming these difficulties. many cases their Governments have given facilities In many cases their Governments may a sure and assistance towards this object, but, even then, this and assistance towards this object, but, even then, this Jury could not moreover but feel and regret the ab from the list of exhibitors of the names of some of the most distinguished artists in Europe. It might be invidious to meutiou iodividuals, hat it would be najust to pass over the fact unnoticed. Among the works, bow-ever, by natives of the United Kingdom, to which Medals have been aworded, there are two deserving notice on account of their being exhibited among the Romao sculp-tures — a graceful acknowledgment of the advantages derived by the artists from that school on which their eminent success reflects so much credit.

The scope and nature of the works on which the Jury of Class XXX, were called upon to adjudicate, gave to their position and duties a special character, and most necessarily impose a peculiar line of conduct upon the Reporter.

There is no doubt, for instance, that a history, however

rapid, of the rise, progress, and present state of most classes of industry represented in the Exhibitioo, will, in the majority of cases, form a part of, and add considerably to, the value of the several Reports, but to attempt such an historical sketch with reference to the Fine Aris must, of necessity, prove unsatisfactory and worse than usedon. The Jary believe, however, that their availes wife two just of the proon that of the pine. Are at all they have the wife two just in the proof that the pine. Are at the proof that they are the propose their particular in observing the navierally maintain in which they are held. They have saided with equal pleasur, that industry directed by science faster expenditure to the propose of the proof that the proof the proof the proof the proof that the proof the proof the proof the proof that t

The Jury of Class XXX, have been most anxions not to pass over any of the numerous objects in the Exhibition, which it might properly be considered to be their duty to examine. They think it unlikely that any article deservand diligent inquiries. On the other hand, this Jury have occasionally abstained from examining objects, respecting which, owing to the necessarily uncertain limits of the several classes, doubt might be entertained whether they strictly belonged to Fine Arts or not. Should the Jury of Class XXX, have been led, in some few instances, to limit their jurisdiction too much, they have the satisfaction of feeling that ample justice has been rendered to exhibitors by those Juries, to whose judgment such objects as have not been considered to belong to this Class have been finally submitted. Thus the Jury of Class XXX, have purposely abstained from judging of such metalcasts as they conceived to have been exhibited merely for the purpose of showing either the successful result of a new process, or the novel use of a particular metal. In case they were aware that another Jury were about to take these points into their consideration, and judge of these objects as specimens of mechanical industry. In some few exceptional cases, such, for instance, as those of Messes. Peace, Weishaupt, &c., certain objects have appeared to possess so strong a claim to be noticed in this Class, that the Jury have not hesitated to distinguish them by an award, although aware that they had been rewarded by other Juries; but whenever such instances of double awards have been made known to this Jury, the fact has been noticed in this Report.

The Jury would willingly have endowoured to state, and directed by the 20th instruction of the Conneil of Continue, the several grounds upon which four of the Great form of the Great found impossible to comply with the har instruction win respect to objects of sculpture, although the Jury felt how the continued of the continued

nite and more uniformly appreciable nature.

At a meeting held on the 5th of June, long before the question of individual awards came under consideration, the Jury agreed upon the following resolution:—

"That it is not desirable to assign the Council Medal

to every depict of art pre-emisently beautiful or excellent of the Clove or too, it to that it should be retailed inside to the highest works of the highest class." This results to the highest works of the highest class." This results the highest works of the highest class. "This results the highest become to any but works of art of the highest the highest become to any but works of art of the highest the highest become to any but works of art of the highest with those of other pairs guided by different pulmpiles. Class XXX have but does are their which the Janous via the highest class of the high works of the high works of highest properties of the high was to be a secondary to the high value of the properties of the properties of the high value or tipon there exercile many the proposition by those who conformed down. It is the high value or tipon there exercile many the proposition by those who conformed down. It is the secondary of the high value or tipon there exercile many the proposition by those who conformed down. It is the secondary of the high value of tipon there exercile many the proposition by those who conformed down.

In forming their judgment upon works in the highes

branch of art coming within their jurisdiction, the Jury have principally looked for the embodiment of ideas, thought, feeling, and passion; not for the mere imitation of unture, however true in detail, or admirable in execution. They have looked for originality of invention, less or more happily expressed in that style which has for twenty-three centuries been the wonder of every civilized people, and the standard of excellence to which artists of the highest order have endeavoured to attain. Wherever the nignest order have endeavoured to attain. Wherever indications of originality, clustened by a successful adapta-tion of this style, have been met with, the Jury have acknowledged a corresponding amount of merit; and it is this originality of conception, improved by such style, which the Jury have recognized by the honours placed at their disposal. They have endeavoured to record, in the most emphatic manner, their auxious wish that artists should study to give their ideas that form and life which spiritualizes every-day nature, and elevates the work of art to the place of a type of nature itself. The Jury of Class XXX, would point to the remains of the Parthenous as embodying the result of the great principles which they have been anxious to inculcate, and which they sire to see universally adopted. The limited number of Council Medals awarded must not, therefore, be re-garded as a proof of deficiency of taleat in the hulk of the works exhibited, but as evidence of the severity with which the principles adopted by the Jury have been

applied.
It was agreed to recommend that Conneil Medals should be awarded to the following works:—
To Professor A. Kiss, of Berlin, for his group east in

To Professor A. Kuss, of Berlin, for his group east in sine, and brouxed by M. Gzuss, representing an Amazon on hurseback attacked by a Tiger. (Prussis, No. 279, p. 1065.)

To Haron Maraccurryt, of Tarin, now of London, for his coloscal equestrian statue in plaster of Richard Cour de Lion. (Outside West, No. 76, p. 118.) To M. J. Paaduss, of Paris, Member of the Institute, for his marble statue of Phryne. (France, No. 1407,

To M. J. Pradics, of Paris, Member of the Institute, for his marble statue of Phryne. (France, No. 1407, p. 1343.)

To the representatives of the late Mr. Richard J. WYATT, for his marble statue of Glycera. Exhibited by

Captain LAYLAND. (Main Average East, No. 104, p. 128-5.) If was the unaimous impulse of the Jury on the unards being taken into consideration, to recommend that the same high diffusive law should be conferred on Mr. Deg. exhibited by the Earl of Yannoncom. Their insteads was defined by Mr. (Globon himself, who, well knowing that should be accept the office of a Juror of Class XXx, he could no longer receive a prite from that Jury, preferred serving in the brother artists to his own receiving the honour which he had so well descreed.

DIVISION A.—SCULPTURE AS A FINE ART.*

Section A.—1. In Metals simple, as Gold, Silver, Copper,

Pron. Zime, Lead, fre.

In this section of the works calonited to their judgement, the Jury warded the Princ Media to the following work, it being, however, understood that for this class or reward, when meet than one article was exhibited by the same arist, the Jury might, if they thought it expedient, countable in their judgment the various species of merit "To Nears. C. M. WEINBARTY SOSS, of Hanna (p. 1073). To Nears. C. M. WEINBARTY SOSS, of Hanna (p. 1073), for a Set of Chess-men and Beard, in silver and gold,

for a Set of Chess-men and Board, in silver and gold, ornamented with enamed. Although aware that the merit of these articles has been asknowledged by another Jnry, the Jury of Class XXX. wished to record their opinion of them as objects of art. (Prussia, No. 412.) The Jury were of opinion that the following artists

were deserving of Honourable Mention:

Mr. A. Verntre, of London (No. 97, pp. 686-690), for his designs for silver works executed by him for the exhibitors, Mesars, Hunt and Rossetta. Although a

* The classification of awards is according to that a lopted in the " Head Juries."

Cooncil Medal has been awarded to the exhibitors by another Jury, the Jury of Class XXX. considered it just to record their opinion of the merits of this artist.

(Class XXIII., No. 97.)
The Jury of Class XXX. have heard with great satisfaction that another Jury have suitably acknowledged the excellent workmanship of the Shield presented by His Majesty the King of Prussia to H. R. H. the Prince of Wales, on whose behalf it has been exhibited by H. R. H. PRINCE ALBERT. They think it, however, their duty to add that the several eminent artists who have contributed to the execution of the design of Director Cornelins 110), deserve the special praise of the Jury of Class (p. 110), deserve the special photo of the respectively XXX, for the taste and skill which they have respectively displayed in this work. (Main Avenue East, No. 98.)

Section A .- 2. In Metals compound, as Bronze, Electrum,

The following Prize Medals were awarded in this To Mr. JOHN BELL, of London, for his Fagle Slav east in bronze by the Coulbrook Dale Company. (Main Avenue West, No. 53, p. 659.)

To M. Jean Debay, of Paris, for his bronze group re-presenting the Death of the Stag. (Main Avenue East.) To M. Fratin, of Paris, for a group of Eagles in bronze.

(France, No. 1235, p. 1236.) p To M. E. L. LEQUESNE, of Paris (?), for his bronze statue of a Dancing Faun. (Main Avenue East.)
The Jury were of opinion that the following artists were deserving of Honourable Mention :-

M. — Bonnassieux, of Paris, for a bronze figure re-presenting Cupid entting his wings. (France, No. 64, p. 1174.)

M. C. Cordier, of Paris, for his Head of a Negro in voice. (France, No. 460, p. 1200.) M. T. KALIDE, of Berlin, for his group in bronze of a Boy with a Swan. (Prassia, No. 285, p. 1066. Prize

Medal awarded, Class XXII.)
M. P. J. MENE, of Paris, for his several Animals in (France, No. 630, p. 1208. Prize Medal awarded, Class XX11.)

M. C. MOELLER, of Berlin, for two bronze groups representing a Boy with a Newfoundland Dog, and a Girl with a Balldog. (Prussia, No. 292, p. 1066.)

Section A .- 3. In Minerals simple, as Marble, Stone, Gens, Clay, &c.

The following Prize Medals were awarded in this To Mr. E. H. BAILY, of London, for his two plaster statues of a Nymph preparing for bathing, and of a Youth resting after the Chase. (South Transept, Nos. 6 and 7,

P. 84(.)
To Mr. John Hell, of London, for his plaster statue of Viscount Falkland, no Prize Medal was specially awarded, as he had already received one for his "Eagle Slayer," in bronze. (North Transept, Mo. 28, p. 847.) To M. Gto, MARIO BENZONI, of Rome, for his statue in marble representing Gratitude. (Rome, No. 16, p. 1286.)
To M. Augusta Debay, of Paris, for bis group in marble representing Eve, with Cain and Abel asteep in her arms, and designated as the "Premier Bereeau."

(France, No. 45, p. 1173.)
To Professor F. Drake, of Berlin, for a reduced cast in plaster of part of the marble pedestal to the monument

of Frederic William III. of Prussia. (Prussia, No. 273, p. 1065.) To M. A. ETEX, of Paris, for his various works of sculpture in plaster and marble. (France, No. 1215, p.

1236.1 To Mr. J. H. Folker, of London, for his plaster statue of a Youth at a Stream; also for his plaster group repre-senting Ino and Bacchus. (North Transept, No. 47,

Sculpture Court, No. 19, pp. 848 and 844.)

To M. I. Fraccanors, of Verous, for his two statues in narble, representing Achilles wounded, and David slinging the stone. (Austria, No. 710, p. 1043.)

To M. C. A. FRAIRIN, of Schnerbeck, near Brussels, for

a plaster group of Psyche carrying off Cupid. (Belgium, No. 465, p. 1166.)

To M. A. Galli, of Milan, for his marble statue of

10 at A. UALLI, of Milan, for his marble statue of Sessnanh. (Austria, No. 711, p. 1043.) To M. G. Gezers, of Schaerbeck, near Brussels, for a place group representing a Lion in love. (Belgium, No. 465, p. 1066.) To Mr. J. Hogan, of London, for his reclining figure

in plaster representing a Drunken Faun. (Sculpture To Mr. B. JENNINGS, of London, for his marble statue of Cupid. (Sculpture Coort, No. 81, p. 846.)

To M. J. A. JERICHAU, of Copeulagen, for a group in daster representing a Hunter energing off the Cub of a Panther. anther. (Denmark, No. 39, p. 1359.) To Nr. J. Lawlon, of London, for a statee in plaster

representing a Bather. (Sculpture Court, No. 22, p. 844.)
To M. A. Lechesne, of Paris, for his two casts in plaster representing two groups of a Child protected from a Snake by a Dog. (Main Avenue East, No. 573, p. 1205.) To Mr. LAWRENCE MACDONALD, now at Rome, for an To Mr. P. Markenck etasteration, No. 18, p. 1286.)
To Mr. P. Macrowetta, of London, for his plaster statue of Eve; also for his statoes of Cupid, and of a Girl

at Prayer, in marble. (South Transcpt, Nos. 22, 23, 24, p. 850.)
To Mr. William C. Marshall, of London, for his

plaster figure of Sabrina. (Sculpture Court, No. 15, p. 844.) To M. RAFFAELLE MONTI, of Milan, for his marble statue of Eve after the Fall, (Austria, No. 746, p. 1044.)
To Mr. Hinam Powers, from the United States of

America, for a statue in marble representing a Greek Slave. (No. 522, p. 1467.) To M. J. M. Ramus, of Paris, for bis marble group representing Cephalus and Procris, (France, No. 1419,

p. 1244.) To Professor FREST RIETSCHEL, of Dresden, for his plaster group designated as "La Pieth," representing Mary kneeling at the Dead Body of our Saviour; and for his bas-refiefs in marble. (Saxony, No. 186, p. 1113.)

To Mr. T. Suare, of London, for his marble figure representing a Boy frightened by a Lizard. (Sculpture

Court, No. 29, p. 844.)

To M. E. Sixonis, of Brussels, for his equestrian statue of Godfrey of Bouillon, in plaster; and for other

(Belgium, No. 464, p. 1166.) To M. G. STRAZZA, of Milan, for his reclining figure, in marble, representing Ishmael. (Austria, No. 713, p. 1043.) To Mr. E. THRUPP, of London, for his marble statue of a Boy catching a Butterfly; also for a marble figure representing Arethusa, (Sculpture Court, Nos. 56 and

58, p. 845.)
To M. J. TUERLINCRX, of Malines, for a statue in marble representing Giotio. (Belgium, No. 456, p. 1165.)
To the REPRESENTATIVES of the late Mr. M. L. WATSON. of London, for his marble statue of the sculptor Flaxman, exhibited by Mr. Franks; and for his two statues, like-wise in marble, of the first Earl of Eldon, and of his hrother Lord Stowell, exhibited by the present Earl of Eldon. (Sculpture Court, No. 60, and Main Avenue Eldon. (Sculpture C West, No. 81, p. 848.)

To M. ALBERT WOLFF, of Berlin, for his marble group a Girl with a Lamb, representing "Innocence."

(Prussia, No. 307, p. 1067.)
The Jury were of opinion that the following artists were deserving of Honourable Mention:— Mr. WILLIAM BEHNES, of London, for his marble thathe representing a Startled Nymph. (Sculpture Court,

No. 54, p. 845.)
M. H. W. Bissex, of Copenhagen, for his plaster status of Orestes, and for other sculptures. (Denmark, No. 38, p. 1358,)

M. T. CLESINGER, of Besançon, for his marble figure of a Baccbante. The Jury, for reasons totally inde-pendent of the acknowledged merits of this young artist, abstained, with regret, from awarding a high mark of approbation to this work. (France, No. 419, p. 1198.)

Profe sor A. Costolli, of Florence, for a marble statue of a Dying Gladiator, exhibited by the Rev. John Sandford.* The work by the same artist described under Tusesny, No. 106 of the General Catalogue, was not exhibited

Mr. J. Excer, from Hungary, for his marble group representing an episode in the history of the war between the Amazons and the Argonauts, (South Transept,

No. 15, p. 848.)
Mr. P. FRECUA, of Florence, for his marble statue of Psyche, (Tuscany, No. 110, p. 1292).
Mr. J. Green, of Antwerp, for bis plaster statue, "The

Faithful Messenger." (Belgium, No. 451, p. 1165.) Mr. Joseph Jaguer, of Schaerbeck, near Brussels, for his plaster statue representing Cupid disarmed. (Belgium,

o. 461, p. 1165.) Mr. J. Lern, of Munich, for his marble statue of a Girl currying a Nest of Cupids. (Bavaria, No. 89, p. 1102.) Mr. L. Manchest, of Milan, for his statue in marble representing Enrydice. (Austria, No. 716, p. 1043.)
Mr. F. M. Miller, of London, for his marble group, "The Orphans." (No. 98A, Main Avenue East, p. 854.) Professor L. NESCINI, of Florence, for his reclining

marble figure of Bacchus. (Tuscany, No. 108, p. 1298.)
M. MICHEL PASCAL, of Paris, for his model in marble of a Friar presenting the Crucifix to two Children. (France, No. 1660, p. 1256.) Mr. A. Sandiongio, of Milan, for his marble bust of the

poet Vincenzo Monti. (Austria, No. 722, p. 1043.) Mr. E. B. STEPHENS, of London, for his plaster group representing a Deer-stalker and Dog. (North Trausept,

No. 29, p. 853.)
Mr. W. There, of London, for his sculptures in marble and plaster. (Sculpture Court, Nos. 13, 59, and 79, pp. 843, 845, 846.)

pp. 6-23, 6-16, 6-16, Mrs. T. Thomsvenort, of London, for their statuse in plaster of the Hoyal Children, represented as the Seasons. (Sculpare Court, No. 34, p. 844).
M. T. Wadyis, of Stuttgard, for a figure in marble representing Mary Magdales. (Wartenburg, No. 118,

p. 1130.).
Mr. H. Werkes, of London, for his marble group, re-presenting a Sleeping Child and Dog. (South Transcpt,

No. 21, p. 853.) Section A .- 4. In elaborate Mineral Materials, as Glass, Percelain, &c.

The Jury made no award in this section, Section A .- 5, In Woods and other Vegetable Substances

The following Prize Medals were awarded in this section:-To Mr. C. GEERTS, of Louvnin, for his high relief in wood, representing the Coronation of the Virgin Mary, (Belgium, No. 450, p. 1165.)

To M. J. LIENARD, of Paris, for his enryings in wood, (France, No. 1326, p. 1239.) The Jury were nware that the merits of M. Lienard had been acknowledged by

another Jury. (Council Medal, Class XXVI.)
To Mr. W. G. ROGERS, of London, for his cradle, earved in Turkey boxwood. (No. 353, p. 842.)
To Mr. T. W. Wallis, of Louth, for his carvings in wood, (No. 89, p. 825,)

Section A .- 6. In Avimal Substances, as Ivory, Bone, Shells. The Jury were of opinion that the following artists were deserving of Honourable Mention:-M. L. Bigotti, of Lucca, for his bas-reliefs in ivory.

 I. Dillovit, or Lifeca, for an asserties in vory, (Tuscay, No. 55, p. 1938).
 M. M. Haors, of Münich, for his goldet of carved vory. (Mexis, No. 58, p. 1102.)
 M. M. Hatta, of Darmandt, for his goldet of carved vory. (Heads, No. 78, p. 1122.) M. C. G. KLINOSEY, of Copenhagen, for his ivory

ornamented with bas-reliefs. (Denmark, No. 34, p. 1358.) M. L. LAUTE, of Paris, for his ivory carving, representing the victory of Charlemagne over the Saxons. (France, No. 293, p. 1191.) Mr. R. C. Locas, of the Firs, near Winchester, for his

ivory carvings. (No. 306, p. 840.)

* This object is not in the Catalogua.

DIVISION B .- WORKS IN DIE-SINKING, INTAGLIOS, Section B .- 1. Coins, Medals, and Models of a Medallie

character in any material. The following Prize Medals were awarded in this

To M. K. Fiscuer, of Berlin, for medals. (Prussia, No. 281, p. 1065. To Mr. L. C. Wvox, of London, for his medals and medallion portraits of the Royal Children, modelled by

command of Her Majesty. (No. 286, p. 838.)

The Jury were af opinion that the following artists were descring of Honourable Mention:—

M. Bernard Affinger, of Berlin, for his medallions, (Prussia, No. 309, p. 1067.) M. L. J. Hart, of Brussels, for his medals. (Belgium,

No. 441, p. 1165.)
M. C. Jenotte, of Liège, for his medals. (Belgium, No. 447, p. 1165.)
M. C. Preverra, of Berlin, for his medals. (Prussia,

No. 286, p. 1966)
Count T. Totsrov, of St. Petersburg, for his medal-hous. (Russis, No. 328, p. 1381.) The Jury having the honour to number Mr. W. Wyon, of London, among their members, were prevented from expressing, by their award, the opinion which they enter-

tain of the works exhibited by this distinguished artist, Section B .- 2. Impressions struck from Dies for Ornamental purposes.

The Jury made no award in this section, Section B .- 3. Gens, either in Cameo or in Intaglio, Shell

Cameos. The Jury were of opinion that the following artist was deserving of Honourable Mention:-M. THOMAS SAULINI, of Rome, for his shell cameos. (Rome, No. 24, pp. 1286, 1287.)

Section B .- 4. Seals, &c. The Jury made uo award in this section,

DIVISION C .- ABCHITECTURAL DECORATIONS. Section C .- 1. Integral, in Relief, Colour, &c.

The Jury were of opinion that the following artist was erving of Honourable Mention: Mr. N. J. COTTINGHAM, of London, for his model of a ndril for Hereford Cathedral, (Main Avenue West, No. 63, p. 852.)

Section C .- 2. Adventitions, as Stained Glass.

Tapestry, &c. The following Prize Medals were awarded in this

To M. G. Bertini, of Milan, for a painted glass win-dow, representing Dante and some of his ideas. (Austria, No. 737, p. 1044.) To M. A. GERENTE, of Paris, for his painting on glass

of the history of Samson. (France, No. 231, p. 1187.)
To Messrs. J. Hardman and Co., of Birmingham. ingham, for their painted glass windows. (Class XXVI., No. 532, p. 761.) To M. S. KELLNER, of Nuremberg, for a copy in painted glass of a window by Volkamer, in St. Lawrence's Church

in that city. (Bavaria, No. 86, p. 1102.)

To Messra, Markehal and Guynon, of Metz, for their painting on glass, representing St. Charles administering the Communion to the Plague-stricken. (France, No. 329,

p. 1193.) The Jury were of opinion that the following artists were deserving of Honourable Mention:

M. P. Bao atti-Valsecchi, of Milan, for his painting on glass. (Austris, No. 616, p. 616.) Mesers, Chance Brothess and Co., of Birmingham,

for their painted window-glass. (Class XXIV., No. 60, p. 706.) Messrs, Holland and Son, of Warwick, for their life

of Christ, painted on glass. (Class XXIV., No. 63, pp. 706, 707.)

Mr. J. G. Howg, of London, for his imitation of ancient inted window-glass. (Class XXIV., No. 67, p. 707.) M. A. Lesson, of Paris, for his painted glass window.

(France, No. 565, p. 1205.)
Mr. GEORGE MYERS, of London, for the tomb in stone of Hishop Walsh. (Class XXVI., No. 533, p. 761.)
(Prize Medal, Class XXVII.) Mesara, M. and A. O'Connon, of London, for their

painted glass. (Class XXIV., No. 65, p. 707 The Jury gindly seize the opportunity which now offers itself of residering justice to the taste displayed by their

colleagne, Mr. Pugiu, in the arrangement of the Mediaeval Court in the Exhibition. (p. 761.) Mr. W. Walles, of Newsatle-upon-Tyne, for his painted glass for York Cathedral. (Class XXIV., No, 73, To the Government Manufactory of Gobelin and Beauvais Tapestry (No. 1367, p. 1241) the Jury award a Council Medal jointly with Class XIX.

DIVISION D.-MOSAICS AND INLATE WORKS.

Section D .- 1. In Stone. The following Prize Medals were awarded in this section:-

To the CAVALIERE BARDERS, of Rome, for a mosaic table, designed and executed by him, representing views of celebrated cities in Italy. (Rome, No. 15, p. 1286.) (Council Medal, Class XXVII.)

To Mr. G. BIANCHINI, of Florence, for his tables in pietra dura, one of them exhibited by R. S. Holford, Esq., and not entered in the Catalogue, the other entered (Tus-cany, No. 113, p. 1299). The Jury were much pleased to learn that the merits of this distinguished artist, with respect to the second table, and been suitably acknow-ledged by another Jury. The table described under No. in the same page of the Catalogue, has not been exhibited.

To M. RAFFAULLE CASTULLINI, Royal Mannfactory of St. Peter's, Rome, for his copies in mosaic of a medallion portrait of Boniface II., by Bompisni, and of the head of St. John the Baptist, by Guereino. (Rome, No. 23, p.

The Jury were of opinion that the following artists were deserving of Hononrable Mention :-M. BENEDETTO BOSCHETTI, of Rome, for two mosaic ables.

(Rosne, No. 17, p. 1286, Prize Medal, Class XXVII.) M. DOMENICO MOGLIA, of Rome, for his mosaics. (Rome, No. 21, p. 1286. Honourable Mention, Class XXVII.)

The Cavaliere Luigi Moglia, of Rome, for his mosaic view of the Temples of Pæstum. (Rome, No. 20, p. 1286).

Prize Medal, Class XXVII.) M. ANTONIO ROCCHIOIANI, of Rome, for his mosaic view of the Temples of Prestum. (Rome, No. 22, p. 1286.)

Section D .- 2. In Tiles.

The Jury made no award in this section. Section D .- 3. In Vitrified Materials.

The Jury made no award in this section,

Section D .- 4. In Wood. The following Prize Medal was awarded in this Section :-To MM. PEREZ and Co., of Barcelons, for an octagonal table of inlaid wood. The Jury have beard with pleasure, that the distinguished merits of this work have been suitably acknowledged by another Jury. (Spain, No. 271A.

Section D .- 5. In Metal.

p. 1346,)

The following Prize Medals were awarded in this Sec-To M. J. FALLOISE, of Liège, for various inlaid objects. (Belgium, No. 384, p. 1163.) Prize Medal, Class XXIII.) To M. J. Rotcot, of Paris, for his inhald work. (France, No. 1689, p. 1257.)

The Jury were of opinion that the following artists were deserving of Hononrable Mention —
Messis, S. H. and D. Gass, of London, for a niello bracelet, designed by Mr. Macfise, (Class XXIII., No.

83, p. 683.)
The ROYAL ORDNANCE MANUFACTORY, of Toledo, for various inlaid arms. (Spaiu, No. 266, p. 1346.) M. E. ZULDADA, of Eibar, for his inlaid ornaments on

stols and other arms. (Spain, No. 264a, p. 1346). Prizo Medal, Class XXIII.)

DIVISION E.-ENAMELS. Section E .- 1. On Metals

The following Prize Medals were awarded in this Sec-To M. - BONNET (of Paris?), for the head of St. John.

in cuassel. (France, 1369, p. 1241.)

To Mr. W. Essex, of Loudon, for his enamel paintings.
(No. 241, pp. 435, 436, Class XXX.)

To M. — HARON, of Paris, for an enamelled casket.

(No. 1369, p. 1241.) To Madame PAULINE LAURENT, of Paris, for her three enamels in copper, two after Enphael, and one repre-

senting Venus. (France, No. 1369, p. 1241.)
The Jury were of opinion that the following artists Mr. W. C. Braa, of London, for bis enamel pointing of the "Ecce Homo," after Correggio. (No. 249, p. 836,

Class XXX.) Mr. H. P. Bone, of London, for his enamel paintings on gold. (No. 238, p. 835, Class XXX.) Mr. J. Harlen, of London, for his caumel paintings on

gold. (No. 237, p. 835, Class XXX.) Section E .- 2. On China.

The following Prize Medals were awarded in this Sec-

To M. ANTOINE BERANGER, of Paris, for his portrait of Prince Albert, life-size, painted on china, after Winterhalter. (Main Avenue East, No. 97, p. 109.) Also for a Head, printed by him on china, after Rubens. (France,

To M. H. BUCKER, of Dreeden, for his paintings on china. (Saxony, No. 176, p. 1112.)

To M. J. Dierkelle, of Paris, for the general good taste displayed in the painting of chins in the Manufac-tory of Sevres, of which he is co-director. (France, No.

tory of serves, of small me is conducted. Printer, 100.

1806, p. 1241. Declarated (of Paris?), for her portrait of ler Majesty, life-size, painted on china, after Wisterhalter. (Main Avenue East, No. 96, p. 109.) Also for ber painting of a lloly Family, on china. (France, No.

1369, p. 1241.)
To M. Jaconnen, of Paris, for his pointings of flowers on china, after Van Huysum, (France, No. 271, p. 1189.)
To Mme. Jacotor, of Paris, for the Head of Raphael. painted by her on chins. (France, No. 1369, p. 1241.)
To M. N. Konnilorr, of St. Petershurg, for a landscape
after Berghem, on china: executed at the Imperial China

Manufactory, St. Petersburg. (Russia, No. 318, p. 1376.)
To M. — Schilt, of Paris, for his painting on a china
rase. (France, No. 1369, p. 1241.)
To M. O. Wustlich, of Hamberg, for his portrait of

Charles IX, on chim, Exhibited by Mr. Schmidt. (Bavarin, No. 92, p. 1102.) The Jury were of opinion that the following artists were deserving of Honourable Mention:

Mr. - BRADLEY, of Stoke-upon-Treut, for his painting of Ducks on china, exhibited by Mr. Copeland. (Class

XXV., No. 2, p. 711.) Mr. S. Chesters, of London, for his specimen of painting on chins, after Murillo. (No. 246, p. 836.) MM. ECKELMANN and WUSTIAN, for their portraits of the Queen with the Prince of Wales, and of Prince Albert,

painted on china from ministures after Thorburn. (Main wenue West, No. 140, p. 109)

MM, F. E. HENNERERG and Co., of Goths, for their aintings on chins. (Prussis, No. 772, p. 1093.) M. MARIETTE DE CHASSAONE, for a painting on china

after Hornce Vernet, exhibited by M. Boyer, of Paris. (France, No. 1554, p. 1251.)

M. — Nucc., for a Flower-piece and Holy Family, on

china, from the Imperial China Manufactory at Vienna.

cuins, room the imperial China Manufactory at Vienna.
(Austria, No. 615, p. 1003).
Mine: Tengan, of Paris, for her painting on china,
(France, No., 1304a, p. 1264).
Mr. G. Walthers, of Deceden, for his paintings on
china. (Sxony, No. 177, p. 1112.)

Section E .- 3. On Glass.

The Jury made no award in this Section.

DIVISION F.

MATERIALS AND PROCESSES APPLICABLE TO THE FINE ARTS GENERALLY, INCLUDING FINE-ART PRINTING. PRINTING IN COLOUR, &c.

Section F .- 1. Encaustic Painting and Fresco. The following Prize Medals were awarded in this Sec-

To M. J. DEVERS, of Paris, for a Holy Family in enamel paste, paioted on lava. (France, No. 818, p. 1219.)
To M. J. N. vox Fucus, of Munich, for his specimen of a stereo-chromic method of producing indestructible paintings on walls, exhibited by Mr. Muhr. (Bavaria, No. 91, p. 1102.)

Section F .- 2. Ornamental Printing, Chromo-Typography

Gold-illuminated Typography, Typography combined or uncombined with Embussing. The following Prize Medal was awarded in this Sec-

To M. G. SILBERNANN, of Strasburg, for his chromo-

typography. (France, No. 374, p. 1194.)
The Jury were of opinion that the following artist was deserving of Honourable Mention:— Mr. J. Harnes, of London, for his imitations of ancient typography. (No. 244, p. 836.)

Section F.-3, Lithography (Blach), Chromo-Lithography, Gold-illnminated Lithography, Lithography combined

or uncombined with Embousing The following Prize Medals were awarded in this Sec-

To Messrs. Day and Son, of London, for their specimens of tinted lithography and chromo-lithography, (Fine Arts Court, No. 80, p. 825.)
To Mesars, M. and N. Hanhaar, of London, for their

ehromo-lithography in graduated tints. (Fine Arts Court, No. 64, p. 823.)
To Messes, Hullmandel and Walton, of London, for

10 Means, Holl-Braches, and the stump, and for their lithmints. (Fine Arts Court, No. 71, p. 824.)
To the Internat Puntrinn Orpice of Vienna, for the "Paradisans Vindobonensis" in chromo-lithography.

(Austria, No. 362, pp. 1025-1028.) To Mr. Owen Jones, of London, for his chromo-litho-

graphy. (Fine Arts Court, No. 54, p. 823.) To M. R. J. LEMESCIER, of Paris, for his lithography and chromo-lithography. (France, Nos. 587 and 588,

pp. 1205, 1206.)
To MM. WINCKELMANN and Sons, of Berlin, for their

colonred lithography. (Prussia, No. 306, p. 1067.)

The Jury were of opinion that the following artists were deserving of Honouruble Mention:— The fac-similes of ancient MSS, and illuminations by

Comte Auguste de Bastard, of Paris, have been duly appreciated by the Jary. As it appears, however, that the most important parts of the several objects exhibited are finished by the hand, the Jury abstained from a more special inquiry into their merits. (France, No. 1717, p. 1258.) Mr. G. BAXTER, of London, for his printing in colours.

(No. 115, p. 828.)

M. F. Dadoza, of Moscow, for his chromo-lithography.

(Rassia, No. 362, p. 1393.)

Mr. T. Underwood, of Birmingham, for a new process

of lithography. (Fine Arts Court, No. 77, p. 825.)

Section P .- 4. Zincography, or other modes of Printing, The following Prize Medal was awarded in this Sec-

To Mr. R. Appel, of London, for his anastatic printing. (No. 274, p. 838,) The Jury were of opinion that the following artist was

deserving of Honourable Mention:Mr. J. Hanistaenoki, of Müoich, for his galvanography. (Bavaria, No. 85, p. 1102.)

To the processes applicable to the Fine Arts generally, belong those employed by the next three Exhibitors, whose claims the Jury of Class XXX, have acknowledged in the following manuer:

Prize Medals were awarded To Mr. B. Cheventon, of London, for his process of reducing sculpture by machinery, as exemplified in the

heseus. (No. 194, p. 832.) To M. A. Collas, of Paris, for his process of reducing sculpture by machinery, as exemplified in the Gates of the Battisterio at Florence, and other works. (France,

No. 1709, p. 1258,) The Jury were of opinion that the following artist was ing of Houourable Mention :-

Mr. B. E. Durra, of London, for specimens of a new process of executing floe-art designs on detached tiles; the design being hurst in on the separate pieces, and then put together. Exhibited by Messrs. II, Minton and Co. (Class XXVII., No. 51, p. 767.)

DIVISION G.- MODELS.

Section G .- 1. In Architecture.

The Jury having been directed to include architectural models in the range of their inquiries, were naturally led to reflect upon, and then to feel it a most agreeable duty to acknowledge publicly, the merit of the Building in which they met. The originality of the construction, and the rapidity with which it has been carried to completion would, in comparatively recent times, have induced popular enthusiasm to ascribe to fairy ageocy the power of overcoming obstacles hitherto considered to be insurmountable by human ingennity. The noble simplicity of the whole edifice, the striking grandeur of its proportions, the novel and ingenious application of the materials of which it is constructed, and the admirable adaptation of all its parts to their multifarious purposes, gave to the person who conceived it, as well as to those who, with so much zeal and success, carried out the constructor's design, a right to the highest award in the power of the Jury to recommend. The Jury had, therefore, the hunnur to propose that a Conneil Medal be awarded to Mr. Joseph Parton, and a similar Medal to Messrs. Fox and HENNERSON. And although the Jury Means, FOX and HENDERSON. And although the Jury had already rendered justice to the chins of Mr. Owen Joxes, by awarding him a Prize Medal for his chromo-lithography, they felt it to be their duty to record her their opinion of the advantages resulting to the Building from the simple and tasteful style of decoration which Mr. Owen Jones has so skilfully suggested and so successfully applied.

The following Prize Medals were awarded in this

To Mr. J. C. Boesche, of Magdeburg, for his models of Magdeburg Cathedral and of the Nuremburg Foun-tain, excented in limewood. To this artist the Jury have nlso made a money award of 30l sterling. (Prussia, No. 785, p. 1094.) To Mr. JABEZ JAMES, of London, for his model in

various materials of the Britannia Suspension Bridge. To Mr. S. Salter, of London, for his model executed in card of St. Nicholas' Church, now being rebuilt at Hamburg. (Class VII., No. 221, p. 331,)

The Jury were of opinion that the following artists were deserving of Honourable Mention: Mr. J. H. Cassenon n, of Oldenburg, for his model of

* Since the Award Book was closed, it has been ascertained that the two entries No. 257 and 258 refer to the same person.

Heidelberg Castle, carved in cork. (Oldenburg, No. 1, 821), J. Kyd (No. 10. Class XXX., p. 821), and J. Raw-Mr. S. Cundy, of London, for his restoration of the

Monument of Philippa of Hainault, in Eaglish alabaster, from drawings by Mr. G. C. Scott, (Main Avenue West, No. 60, p. 848. Prize Medal, Class XXVII.) Mr. T. DUNHILL, of Loudon, for his model in plaster, and other materials, of a Metropolitan Cattle Market,

with abattoirs, &c. (Class VII., No. 90, p. 318.)

M. J. LEEMAN, of Berne, for his model of the Nuremberg Fountain, carved in wood. (Switzerland, No. 258, p. 1283.,*
M. J. LEEMAN, of Zürieh, for his model of the Cathedral of Strasburg, executed in eard. (Switzerland, No.

p. 1282. Prize Medal, Class VII.)* Mr. W. Stuart, of Plymonth, for a model of the VII., No. 28, pp. 311, 312.

Section G. 2.—In Topography. The following Prize Medal was awarded in this sec-

To Mr. John Grantham, Secretary of the Liverpool Local Committee, for a model of the Docks and comm eisl portion of the Towo of Liverpool, in various materials. (Main Avenue West, No. 95, p. 851.)

Section G. 3, - In Anatomy.

The Jury of Class XXX. abstained from examining models in Auatomy, as such objects were transferred to another Class. (Minute of May 26th, 1851.)

Designe.

The various designs for decoration, tapestry, em-hroidery, mixed fabrics, &c., not having been submitted to the examination of any other Jury, the Jury of Class XXX. appointed a Committee of their own body, which, together with members of Juries of other Classes, were instructed by the Royal Comoussioners to report on the articles thus overtooked. This mixed Committee having reported accordingly, the Jury of Class XXX, proceeded to award the following Prize Medals:—

To MM. Branus Baothers, of Paris, for their general shility in designs for shawls. The Jury wished, however, to guard thenselves from being supposed to approve of the introduction of landscapes in such designs, as exhibited in frames Nos. 1 and 2. (France, No. 55, p. 1174.)

To M. J. Cheneaux, of Paris, for his cotton and calico prints, spart from their taste. (France, No. 1146, p. 1233.)

To M. C. E. CLERGET, of Paris, for his designs generally, and his exhibited works in ornameut. (France,

No. 799, p 1219.)
To M. A. Couden, of Paris, for his Shawl Designs, and for his skitful execution of his Designs generally, apart from their taste. France, No. 1566, p. 1251.) To the GOVERNMENT HEAD SCHOOL OF DESIGN, esta-

hlished in London. (Fine Arts Court, No. 10, p. 821.)
The mixed Suh-Committee examined the Designs intended for Manufactures, exhibited by this School, directed by Messes, J. R. Herbert, R. Redgrave, and H. J. Townsd; the female department being superintended by Mrs. M'lan. The Sub-Committee reported that in these designs they had observed a parity of taste, a propriety and chasteness of invention, and a well-understood adaptation of style for the several objects, which do great eredit to the directors and to their scholars The Sub-Committee, therefore (Mr. Redgrave, one of its members and a Juror of Class XXX, having withdrawn), felt it to be their duty to propose to this Jury that a Prize Medal should be awarded to the Institution. They moreover recom-mended that Honourable Mention should be made of three of the pupils, and that six other pupils, viz., S. Asy-worm (No. 87, Class XVIII., p. 558), F. Cettherer Collins (No. 86, Class XVIII., p. 558), J. S. Cettherer (No. 10, Class XXX., p. 821), A. Tows (No. 10, Class XXX., p.

* Store the Award Book was closed, it has been ascertained that the two entries, Nos. 257 and 258, refer to the same person.

LINGS (No. 10, Class XXX., p. 821), should be meutioned with much approbation. The Jury of Class XXX., after due inquiry and mature deliberation, approved unani-mously of these suggestions, and adopted the whole of these recommendations. The names of the three pupils to whom an Honograble Mention has been awarded will be

severally found in their proper place.

To M. E. LABOCHE, of Paris, for his Manufacture of Designs. (France, No. 291, p. 1190.)
To LUKE LIMNER (Mr. Leighton), for a variety of

To LORKE LIDDER (AIR, Leggmon), 10s a valuely of Designs. (Class XVII., No. 24, p. 538.) To Mr. Diouv Wyarr, of Loudon, for good taste gene-rally in his Designs. (Fine Arts Court, No. 30, p. 822.) The Jury were, moreover, of opinion that the following artists were deserving of Honourable Mention :-Mr. W. Aldaidor, a pupil of the Government Head School of Design, for his Designs. (Fine Arts Court,

No. 10, p. 821.) M. C. Braux, of Paris, for his Designs for Calico riots. (France, No. 72, p. 1175.)

Mr. JOHN CARTER, of Crayford in Kent, for his Designa unapplied. (P. 821.)
M. F. Dider, of Paris, for his Designs for Shawls. (France, No. 820, p. 1219.) M. N. A. GALIMARD, of Paris, for his Designs for

Painted Glass. (France, No. 228, p. 1187.) M. GRUNTHAL, of Berlin, for his Patterns for Berlin

M. GRUINSTRAL Of Hevin, for his Patterns for Berlin
Wool, (Pruissia, No. 166, p. 1095, for his Designs for
Carpett, (Clina XIX, No. 1927, p. 567.)
Mr. B. Heatin Class XIX., No. 289., of the Government School of Design at Nothingham, for his Lace
Designs. (Price Medal, Class XIX., p. 579.)
Mr. Envil Steracts, a popular of the Government Ledo
Mr. Envils Berack, a popular of the Government Ledo
Nr. Envils Berack, a popular of the Government Ledo School of Design, for his Designs. (Fine Arts Court, No.

Mr. J. H. Méreaux, of Paris, for his Designs for Lace Manufacturers. (France, No. 631. Prize Medal, Class

XIX., p. 1208.)
M. MEVNIER, of Paris, for his Designs for Shawls. (France, No. 638, p. 1208.) MM. NAZE and Co., of Paris, for their Designs for

Cotton Prints. (France, No. 625, p. 1207.) M. E. Picasp, of Rosen, for his Designs for Woollen, Cotton, and other Printing. (France, No. 347, p. 1194.) Mr. C. P. Slocombe, a pupil of the Government Head School of Design, for his Designs. (Fine Arts Court, No. 10, p. 821.)
Mr. G. Taueritt, of London, for his Design of a

wrought-iron canonied Tomb. (Fine Arts Court, No. 75,

The Jury of Class XXX., having brought their labours to a conclusion, eannot refrain from expressing their hope that steps may be taken for rendering the Great Exi hition as useful after it has ceased to be, as it has proved gratifying and instructive in the course of its short existexce. It is the wish to see these hopes realized, that impels the Jury, even at the risk of overstepping the strict limits of their functions, to submit, with great deference, their views on this point to the Royal Com-

The foundation of a permanent industrial Museum in the heart of the metropolis of trade and industry, seems to the Jury the logical and practical consequence of this Exhibition. It is in the "Crystal Palace" that the great truth has been impressed upon us, that art and taste are henceforth to be considered as elements of industry and trade, of searcely less importance than the most powerful machinery. It seems also natural that this Museum should in the first instance consist of the objects to which the several Juries have called public attention as happy types and models for imitation. While such a Museum, on the one hand, would be a lasting depository of industry and of the arts; it would, on the other, serve as the best and ensiest standard of comparison by which human ingenuity night mark its progress, on the opening, ten years hence, of a new Great Exhibition; --it would serve nlike as a guide and as a beacon.

Thus the Great Exhibition of 1851, which already stands out so prominently in the past, would bear fruitful and lasting consequences for the future, and would acquire as additional claim to a grateful record in the amusts of mankind.

The Greeks, our masters in the nobler arts, did not trust to the historian and the poet alone for the record of their achievements, but committed to the greatest artists the task of immortalizing their military triumphs. The Great Exhibition deserves to be celebrated as the triumph of industry and invention over commercial routine and international jeniousies. Whether the "Crystal Palace" shall be removed or not, posterity will look for some so variously and so powerfully contributed,

mark of gratitude to the illustrious Prince to whom the present generation owe the realization of a gigantio thought; a thought which may have floated in the minds of others, but which received consistency and was brought

to maturity by his energy and perseverance.

The Jury of Class XXX, therefore, hope that on the site of the Exhibition Building a statue will be erected to Prince Albert. Ou its base should be recorded the beautiful to the prince Albert. share which statesmen and others have borne in hringing such an undertaking to completion. The Fine Arts would thus be called upon to perpetuate the memory of the Great Exhibition, to the attractions of which they have

A. PANIZZI, REPOSTER.

London, September 1851.

CLASS XXX.

SUPPLEMENTARY REPORT.

[The figures after the Names (between parentheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.

THE Exhibition of the Works of all Nations in the | had a claim to be admitted into the Exhibition; their Crystal Palace had for its primary and essential object the display of whatever could be characterized as a production of Industry. It comprehended every kind of nnwrought material, no less than the most ingruious nawrought masernat, no test than the most ingentous results of machinery, or the most exquisite examples of haudicraft. But this complete and absolute recognition of industry as the purpose of the Exhibition did not, in the view of the Moyal Commissioners, preclude from admission the productions of the Fine Arts; Painting admission the productions of the Fine Arts; Painting alone being excepted, because, being but little affected hy material conditions, it seemed to rank as an independent art. It was not without reason that such a course was adopted, when we consider how greatly, on the one hand, Architecture and Sculpture depend in the execu-tion of their details on mechanical dexterity, and, on the other, how intimately the Fine Arts are connected with many branches of manufacture. So closely, indeed, do their provinces border on those of certain other are that it is often difficult to decide in what rank or class objects should be distributed, in the production of which industry

and taste have been jointly employed. This is most strikingly apparent in the case of jewel-lery and other works in the precious metals, works in bronze, iron, zinc, porcelain, glass, terra-cotta, and also in avery description of faroithre; but it is not less true of earpets, tapestries, and embroidered and coloured stuffs, in all which the taste and beauty of the design depend upon the manner in which the material has been

treated and its special conditions observed, In the great markets of the world the preference will invariably be at once given to those productions which combine, with other indispensable requisites, the recommendation of good taste in their design and treatment. Among the many good results which we may venture to anticipate from this Exhibition, it may not be too much to hope for a foller revival of that happy alliance

between the Fine Arts and Industry which subsisted in the middle ages, when the artist was more of a craftsman -the craftsman more of an artist-than is the case at Indeed, even in our own day, such a system of co-peration has been established with regard to one object,

the technical application of materials; and of the signal results thus obtained many striking examples may be cited from the Exhibition.

Among these may be mentioned the wonderful speci-mens of casting in bronze, iron, and zinc; no art which, as regards the two latter metals, has only been brought to perfection in a recent period.

To the present age are also due two most valuable and

original inventions, by which works of sculpture may be reproduced, in the one case by means of Galvanoplastic deposit, in the other hy the mechanical processes of M. Collas, in France, and of Mr. Cheverton, in England, The cheapness with which the noblest works of art can be multiplied by means of these inventions cannot but tend to the more general development of a feeling for the beautiful. Such then are some of the results of the connexion between Industry and the Fine Arts.

But it was not only on account of their intimate asso-ciation with the interests of Industry that the Fine Arts

presence there, as was anticipated by the enlightened views of the Royal Commissioners, conduced essentially to the impressiveness of the general spectacle. It was the variety and beauty of the works of art that lent to the scene its peculiar grace and charm.

In this Report the objects contributed by the several nations will be considered in succession, commencing with Great Britain.

In the survey of each nation, its productions will be noticed in the following order:—

- A. SCULPTURE AND WORKS OF PLASTIC ART-1. Sculpture on a large scale, and in various mate
 - rials, whether marble, metal, or wood, 2. Sculpture and its varieties on a small scale, in
 - metal, "biscult," ivory, wood, precious stones, shells
- B. GRAPHIC REPRESENTATIONS ON PLANE SURFACES-
 - 1. New processes of painting.
 - 2. Enamels on porcelain or metal,
 - 3. Painting on glass, 4. Mosaics,
 - 5. Designs for woven and printed stuffs. 6. Various processes of printing, such as lithography, lithochromy, zincography,
- C. ARCHITECTURAL DESIGNS-
 - 1. The Exhibition Building. 2. Architectural and other models.

THE UNITED KINGDOM.

From the first introduction of the Fine Arts in this country to the present day they have received little or no notice from the Government as such; their encouno notice from the travernment is seen; their encouragement, fise that of many other important objects, has been left to the public. The foundation of the Royal Academy itself is of comparatively recent date, and the lustitution is self-supported. The collection of sculpture and antiquities in the British Museum, and that of point-and antiquities in the British Museum, and that of pointing at the National Gallery, have been formed only within the last half century, and many of their most valuable treasures are donations or bequests of private individuals. Before the building of the New Honess of Parliament the distinguished artists of this country had rarely been employed by the Government on works of a Monumental character, and such commissions were, from their nature, not the objects of private munificence. This is one principal cause why, in the English school of painting and sculpture, no true Monumental style has been as yet formed

Again, it was only in the year 1836 that the Schools of Design were formed; institutions by means of which the Fine Arts have exercised a most beneficial influence on the vast productive energy of Great Britain. Much improvement in every branch of industry has been accumplished by means of these schools, but it must be acknow-ledged that in many kinds of manufacture the English productions, both in regard to their form and colour, show far less taste than those of other nations

Both the Government and the nation, however, are now becoming conscious of the great importance of Art, not only in its Monumental character, but in its relation to Industry.

The vast range of comparison which the Exhibition has no forded, by the justapoint on the products of so many nations, has directed the English mind to more enlightened views; and, from the energy of the national character and institutions, these newly-awakened ideas may ultimately prove of the greatest benefit in regard both to the Fue Arts nud the Manufactures of the country.

A. SCULPTURE AND WORRS OF PLASTIC AST.

Sculpture on a large Scale. No other nation has exhibited so many works of this

No other nation has exhibited to many works of this elses as Great Britain. This may be partly accounted for by the fact that the Eaglish seniptors have not been embarrased, like those of other countries, by the cost of transporting their works from a distance; but the far greater wealth of the Eaglish, as compared with other nations, is another cause of this numerical superiority.

With regard to the quality of their sculpture, it must be enufessed that the productions of the modern English school, till within a comparatively recent date, have not been such as to command the approbation of the most competent judges.

In the earlier periods of English art the name of

Flaxmat stands alone; and, fertile as this great genius was in its entition, the execution of his works hardly was in its entition, the execution of his works hardly all his influence seems to have been scarcely felt for a considerable period; the strong tendency to fixelism *in the Eartlist elseviol of endputing found its natural expression in partrainture. Ciuntrey, long pre-emittent annual his consumeraries, renduced a creat number of nathribble his consumeraries, renduced a creat number of nathribble inconsumeraries, renduced a creat number of nathribble consumeraries, renduced a creat number of nathribble consumeraries.

sion in portraiture. Chantrey, long pre-emittent among his contemporaries, produced a great number of admirable busts; but in all the works of this period which have a higher pretention, and claim to rank as Ideal sculpture, there is a striking deficiency, not only in scientific knowledge, but in taste and in genuine Plasite style.

"A work is called Resistic when the arrist restricts himself to the tack of rendering an individual model in all its parts, form, character, and the like, just as they appear before him. On the other hand, a work of art is called blest when the arrist modifies the figure in these same respects, according to his own feeling for its inner significance and outward beauty of form—attributes which uccessarily vary in each case.

When we say of a work of snalphure that it possesses "wire," the following qualities cought to be implied. The surlays the most have so treated the solid material, such as stoom, metal, wood, with which he has to deal, as not to played, but so as rather to suggest to the eye the character of the object instanced, field, shapers, ow whatever it may be. Further, as we learn from the antique endpaire, in the treatment of rather is surface, the surfaces of shall not be treatment of material surfaces, the material shall not be impair the general here it is, but should be rather indicated by moderate depressions in heat suffersions in heat surfaces.

In drapery, again, to attain the same general breadth of effect in the larger surfaces, which are supposed to be defined by the forms and action of the body, the details of the fiblis should be represented not by big, heavy projections, but by numerous continuous channellines or merkines.

The scalepor most, moreover, take circ not to already.

The scalepor most, moreover, take circ not to already more of the fold materials recapity voted already all scales and the should a logic a travened more can more conventional in about 18 along the scale more conventional in adoption, for the folding more control most farther in the folding materials. The scale materials was deliver as in exercised most farther in the solid materials of the scale materials was deliver as in exercised most farther in the solid materials where the scale materials was delivered in the scale materials where the scale was the scale materials where the scale in its first delivered in the scale materials. The scale materials was along the scale materials where the scale is in high, missible, or scale materials was scale materials.

To this general criticism E. B. Baily (p. 847), in his best work, form a distinguished exception. Among these, however, we can hardly recken the three statues in the Exhibition, of a llunter, a Yonng Girl, and Ecc. of the latter a cast in sine only was exhibited. But the merit of these works was not overlooked by the Jury.

who have awarded them a Prize Medal. (P. 8, 6 and 5). Since the period referred to a new mee of complore Since the period referred to a new mee of complore degree the qualities in which their predecessors were dedicted. Along the chief cames which have combined to produce this school may be reckness the influence of the produce the school may be recknessed the influence of Greek at preserved to us in the Eigin markles, and the example of the great Thorwalden, with whom many of the Eighth sculptors at Bone had constant

Among the most distinguished of contemporary scalposes we have percellal mention the name of Gibson. In his Hunter and Dey a lively and imaginative ecception his Hunter and Dey a lively and imaginative ecception lines, and with through knowledge. The treatment is strictly Plastic; the details carefully and conscientiously wrought out. The manimous award of the Jury would have bestored the Conneil Medial on this week had not distinguished the Conneil Medial Med

Next should be mentioned the name of Mr. RICHARD J. WYATT (Main Avenue, East, 120, p. 1286, and Illustration), whose death, in the full maturity of bis powers,

we have to deptore.

His statue of Glycera represents a girlish figure, slight

and full of simple grace; the characteristics of femiline beauty are indicated in the modelling with great delicacy; the drapery is treated with good taste, and with a due regard for style. One feeling pervades the whole design, and imparts to it a peculiar charm. This work, therefore, united all those qualities which entitled it to receive as the following temperature of the pervadent of the total control of the pervadent of the pervadent of the total control of the pervadent of the pervadent of the total control of the pervadent of the pervadent of the total control of the pervadent of the pervadent of the total control of the pervadent of the pervadent of the pervadent to the distinguished names already noticed:—

J. H. Posks, of London (p. 1885, and Himstripics). A Victor As Novem of the a cett in placing and conders the control of the c

style.

J. Bella, of London (Class XXII, 64), p. 66). The Eagle-alayer, east in bronze, and also in iron. This fearner represents a powerful man in very strong action, at the moment after shooting an arrow into the air. The violence of the exertion has brought the muscles into full play. The artist has admirably succeeded in expressing the momentary and transient character of the action, and

that the whole profile of the relief should be restricted within a given scale; that, again, there should not be more than two distances in the composition, so that two figures at the most can stand one behind the other; in attempt greater depth is to invade the province of picture-span composition, and by destroying the idea of relief from an actual plane, to cause inslittentenes of outline.

the form is modelled with a knowledge and truth of detail which are seldom found in the English school, His work bas, therefore, obtained the Prize Medal.

In the statue of Falkland in plaster, p. 847), executed for new Houses of Parliament, the same sculptor has displayed a mastery rarely attained in portraiture; the conception is very spirited, the treatment throughout strictly Plastier; the figure is remarkable for its uoble presence, and its attitude of calm and dignifical repore. The following artists also exhibit, in their styles, the

application of jūst principles of art:— The most remarkable work of this earliptor is his Dee (in platter, p. 80). This work of this earliptor is his Dee (in platter, p. 80). This graceful, and the expression of longing curiosity well rendered. We may also mention his Girl at Prayer in article, ladd, a, figure treated with simplicity and depth of feeling, and very carefully executed. His marble figure Deep (1004), has also considerable merit. Fraze

W. Calder Marshall (5, p. 844, Sculpture Court). The Sabrius of this artist is remarkable for the feminise grace of the motive, the bend has a fine character of individuality, and there is great beauty in the form and in the general expression: in marble. Prize Medal.

the geomic approximation in markle. Prize Medal.

"C, States, of London (19), 84-14. A by structured
in lizard. This is a remarkable work-spite unlike, in
a lizard. This is a remarkable work-spite unlike, in
continuous control of the prize and the little of the little

tion. Prize Medal.

J. Houax, of Ireland (14, p. 843). A drunken Satyr,
gorged with new wine, which has distended all bis veius
and muscles, makes a last effort to save binself from
falling. This work coatains evidence of careful study,
but the attitude has something violent and ungraceful:

in plaster. Prize Medal.

B. Jennings, of Loudon (81, p. 846). In his murble figure of Cupid this artist has been very happy in the

representation of youthful form.
The same may be said of the Arethusa of E. Thaure,
of London (58, p. 845, a recumbent figure leaning or
one elbow, though there is rather a want of like and individuality in the features. A Boy catching a Butterfy
(56, p. 845, by the same artist, is a carefully executed
and attractive work: in marble.
A Nymph batting, by J. Lawson, of London (22,

p. 841.), also deserves softer here; in mattle, All the three last-mestioned work have obtained Princ Medials. Warrow, or I Loudon; 100, pp. 843, ishers low greatly this artist excelled in Gone sculpture. The figure, which is executed out of a very beautiful block of mattle, is nested; and the second of the second of the second of the principle of the second of the with great spirit, and with constraints in bloom. The (p. 843) by the same artist, are also remarkable specimens of the same class of recipture, though not equal in large; in markle. Price Medial.

L. MACONALD, of Rome (Rome, 18, p. 1286). The leonic figure by this sculptor, executed in the manuer and costume of classical antiquity, shows that the artist has a just perception of style and sound knowledge: in marble. Prize Medal.

In conclusion may be noticed the following artists, as deserving the Honourable Mention bestowed on them by the Jury:—

W. Behnes, of London, for his Nymph startled by a Lizard: in marble 54, p. 945). W. Theed, of London, for his marble group of the

Prodical Sen (59, p. 845) embraced by his Father, and for his Narcissus (79, p. 846, also in marble. H. Weekes, of Loudon, for his Sleeping Child with a Dog: in marble (p. 853).

E. B. STAPHENS, of London (p. 853), for his Deer Stalker and Dog. F. M. Milles, of London, for Two Orphan Children

at Prayer: marble sp. 850.

Mr. and Mrs. T. Thounvenorr, of London, for the Royal Children, in the characters of the Four Seasons: in

noyal Conduct, in the cuntacters of the Poir Session: in plaster (34, p. 844).

G. MYERS, of Lendon, for the Tomb of Bishop Walsh, in stone; a monument in which the ecclesiastical style of the middle ages is well sustained, not only in the principal

the middle ages is well sustained, not only in the principal figure, but also in the accessories. Prize Medal. (Class XXVI, p. 761.) To this list the uame of HAXCOCK (p. 849) deserves, in my opinion, to be added, for his states in plaster of the Beatriee of Dante, in her beatfied state. The figure is distinguished by a pure and noble expression of the lessel, although many defects may be remarked in the drane; v.

In cookluding this notice of Finglish sculpture, it is right to mention that several highly distinguished artists have not contributed asy works to the Exhibition. 2. Sculpture on a small Scule.

To this branch of English art the remarks already made on sculpture on a large scale are generally a plicuble. Even at the present day many of the most distinguished artists who have executed and exhibited works of this class are foreigners.

1. Works in Metal.

(a.) Embossed (Reponesé) Work,

A. Yurra; of France (p. 66-2), at proves sceled in Explaind. The work of this sirt in strictures belong Explaind. The work of this sirt in strictures belong Explaind. The work of this sirt in strictures belong the part of the property of the sirt of the property of the sirt of the property of the sirt of the part of

J. V. Mozzz and Cn., of Paris, now settled in London (p. 693). This firm cashibit as et of cups, made of disferent kinds of precious stoses, decerated with small figures, animals, mask, and other community, explainly greated and properties of the contraction of the consumer reflect dates. In the expression of the heeds only there appears a somewhat to modern sentiment. The takent displayed in three works in so remarkable, dustant displayed in three works in so remarkable, dustant displayed in three works in so remarkable, that have been rewarded with a Council Medial, they cannot be passed in interes here. (Clans XVIII. No. 117.)

(b.) Medals and Coins.

W. Wvon, of London, Chief Engraver of the Mint* (p. 858). This artist is certainly one of the most distinguished of his class is the prevent day. He is endowed with a just perception of nature, and a refined sense of beauty in form and movement. His works are executed

 This notice was written a few days before the death of the distinguished strist to whom it relates. in mezzo-relievo, in that style which alone is admissible in Numisaatie Art, and which he has brought to great perfection. Both the Medals, and the enlarged models of Medals, which he has exhibited, fully bear out these re-marks. But I would particularly call attention to his models of the heads of Her Majesty and His Royal Highness the Prince Albert, for the obverse of the Prize Medal of the Exhibition. His office of Juror alone disqualified

him from receiving a prize. (Class XXX. Nu. 284.) L. C. Wyon, of London (p. 838). This young artist is a worthy ioheritor of his father's talent. His portraits of the children of Her Majesty and that of His Royal Highness Prince Albert, as well as his model for the reverse of the Prize Modal, are excented in a very good style, and the whole is wrought out with the carnestness of a labour of love, as well as with great simplicity and feeling for nature. Prize Medal. (Class XXX, 286.)

2. Works in Ivory.

R. C. Lucas, of the Firs, Winehester (306, ihid, p. 840) This artist has executed with great fidelity copies of several of the most celebrated autique works in the British Museum, such as the bronzes of Siris, the supposed head of Proscrpine on the medallions of Syracuse, and the admirable carving in hone-stone by Albert Durer, representing the Birth of Saint John the Bantist, also in the British Museum, Honourable Mention,

3. Works in " Biscuit

MINTON and Co. (Class XXV, 1, p. 709-11). The prouctions of this great porcelain manufactory properly belong to Class XXV., and have there been rewarded with a Council Medal; but so many of them deserve to rank as examples of Fine Art, that I think it right to mention them here. I would particularly notice the enpies of the celebrated silver cups in the Museo Borbonico at Naples, with groups of centaurs in relief, the copy of the Parnese Flora, and also two frieres. The ductions, by means of which the finest models of Art are

circulated, and a correct taste more widely diffused The same laudable endeavour to spread the knowledge of Art is apparent in the manufactures of Copelann (p. 711-14), Charles Meigh and Son (p. 720-22), and Josiah Wedgwood and Sons (p. 717-19). The manufactory of Ball and Co., at Glasgow (p. 724-25), deserves especial notice, on account of the judgment generally displayed in their choice of forms from the autique. The more sparing use of gold as an ornament distinguishes these works from those of most other English manufactories.

4. Carvings in Wood,

Wood carving was from a very early period much esteemed by the English, and has been diligently culti-vated among them. An extraordinary number of speci-mens, not only in the Gothic and Renaissance styles, but in the "Rococo taste" of the last century, have been contributed to the Exhibition, and many of them are of the greatest merit. Though the greatest part of these imens are articles of furniture, and therefore belong to Class XXVI., yet among them are two of such high artistic merit, that I cannot omit a passing notice of them artistic merit, that I have sideboard, exhibited by Cooke and Sons, of Warwick (p. 827). (2.) A bookease in the style of the Renaissance, by Holland and Sons, of London (161, p. 745, and see Hinstration).

of Löndon (16), p. 149, and see Hillstration.

Among the wood carvings which may be considered purely as works of Fine Art, nre—(1.) Those of T. W. Mallis, of Louth, in Lincolosbire (89, p. 925, and see Illustration). This artist has represented various kinds of the control o of dead game with a true feeling for nature, and with an extraordinary mastery in every kind of detail. He is extraordinary mastery in every kind of uccan. Are in also entitled to the greatest praise for his carving of a mass of viue-leaves, which is executed with the most minute and scrapulous imitation of nature, without losing the characteristics of a true Plastic style. Prize Medal. (Class XXX. 89, p. 825.)

toria, and richly ornamented with carved reliefs; also, a group of musical instruments, among which may be espe-cially noticed a violin. These works show an extraor-dinary dexterity in the treatment of the material, and the ornaments of the eradle are in excellent taste. Prize Madal

In concluding this notice of works of sculpture of the United Kingdom, I must mention the machine invented by Mr. B. Cheverton, of London (194, p. 832), for the reproduction, either on the same or on a smaller scale, of works of sculpture. The figure commonly known as the Theseus, in the Elgin collection of the British Museum, has been reduced by this process in alabaster, for the purpose of casting io plaster, with an accuracy which leaves the most fastidious critic nothing to desire,

The benefit which all lovers of Art, and more partienlarly artists themselves, will derive from this discovery, are so ohvious, that I need not further insist on them bere. Prize Medal.

B. GRAPHIC REPRESENTATIONS ON PLANE SURPACES.

1. New processes of Painting. B. E. Duppa, of London (Class XXVII. 51, p. 767),

the inventor of n new mode of monochronic painting on tiles. The painting has all the appearance of a chalk drawing, and is so united with the tile by the action of fire, as to bear any amount of exposure to the weather.

Among the specimens exhibited of this process is a head which appears exactly like a drawing in red chalk. Honourable Mention.

2. Examels on Porcelain or Metal.

W. Essex, of London (241, p. 835-36), exhibits a number of copies of celebrated pictures, such as the so-called "Gevarius" of Vandyke; Joseph and Mary with our Saviour, by Mnrillo—both in the National Gallery; and a Young Girl, after Sir Joshua Reynolds. In all these copies the drawing, colonring, and general character of the originals are rendered with the numer fidelity. Other specimens, however, such as the Portrait of Shakespere, and that of Her Majesty Queen Victoria,

of Shakesperc, and that if Her Majesty Quiese Victoria, are somewhat hard, patchy, and deficient in modelling. These channels are on metal. Prize Medal, S. Chenyras, of London (246, p. 830). The picture by Murillo in the National Gallery, mentioned in the pre-ceding notice, has been admirably copied by this artist on

ceding notice, has been admirably copied by this artist on poreclain. Every trait in the uriginal is rondered with the nimont delicacy; this work reflects the highest credit on its author. Honourable Mention. Lastly, the following artists may be noticed as fully deserving the Honourable Mention they have obtained: EXELPARSH and WOTLAH (Class XXIII., 140, p. 695.), for the potentials of the Queen, the Prince of Walker, and of H.R.H. Prince Albert, on a Jewel-case belonging to Her Majesty Queen Victoria; HASLEN (Class XXX., 237, p. 835), for his St. John, after Murillo, and also for his Ecce Homo, after Corregio, both which pictures are in the National Gallery; Bell (249, ibid., p. 836), W. C. Boxi (233, p. 835), and lastly, Branler, of Stoke-npon-Trent (Class XXV., 2, p. 711), for a duck enamelled on cbins, and exhibited by Copeland.

3. Painting on Glass.

In this branch of painting there are two very distinct styles. The one has been principally employed for the decoration of church windows, and being thus intimately associated with architecture, must rigidly conform to its laws. Thus, in this style the general character of the ornament should be Architectonic, the patterns should be very distinct, combining beauty of form with harmony of colouring; there should be great repose in the attitudes of the figures, and the draperies should be in simple masses. The other style of glass-painting attempts to give all the effect of an actual picture, strictly so called, and to heighten this effect by the gorgeousness and trans-parency of the colours. The former of these kinds of glass-mainting is to be regarded as of higher importance, W. G. Roccus, of Loudon (353, p. 842). A cradle and has more claims to rank as an original art than the executed in lox-wood for Her Mnjesty the Queen Vic- latter, which, however, is capable of being made very attractive. But it is of the greatest importance not to mix the two styles. This has been done in many windows executed in the 10th and 16th centuries, in which the arrist, abandoning the Architecturic laws, which onght to be his guide, has attempted those higher artistic effects, which are only to be sechieved in other materials, such as oil or fresso, and has consequently fallen very far short or his aim.

Very good works in both kinds of glass-pinning were to be seen in the Calibidion, hut there must by no means be taken as the best specimens which the art of our age is capable of pooling. It is much be regreted that the Lakebinson and the calibidion of the capable of the capable of pooling and the capability of the capability of the very at Munich, or of the initiation of pictures by Messr., Basseefe, of Bonn; in both of which enablishments works have been exceuted which have hardly been surpassed in the present age. If is right to add, that the training in the estilishment at Munich is useful oration.

It is of the greatest importance in the imitation of anomical gains, which is now so generally attempted, that the characteristics of different periods should be faith-the characteristics of different periods should be faith-the clottle style makes this discensionation of styles all the more necessary. But the study of ancient examples may lead to the perceivation of asts, if the artist period is adhering to the conventional forms of the mediarial styles, and choose in ignore the supporter knowledge of styles, and choose in ignore the supporter knowledge of stated be observed, they will be found perfectly compatible with natural forms.

(a.) Ecclesiastical Style.*

J. Hannan and Co., of Birmingham (Class XXVI), 522, p. 761). In the window-glass exhibited by this establishment in the Medizeral Court, the true principles of the style have been faithfully observed; and the accusion of the work is very careful. It may be noticed, however, as a defect in these windows, that the glass of observed; and therefore the plant of the work of the wo

Prize Medal.

Chance Baothers and Co., of Birmingham (Class XXIV., 60, p. 706). Two Gothic windows also executed according to correct principles. Honourable Mention.

The three following artists also deserve the Honour-

The three following artists also deserve the Honournble Mention which they have received: HOLLAND and Sox, of Warwick, for their "Life of Christ" (bids, 63, p. 706). I, G., Howe, of London (bids, 67, p. 707), for his imitation of an ancient painted window. W. WALLES (bids, 73, p. 707), for the decorative part in his design. The figures are not equal in merit to the rest of the work

(b) Pictorial Style.

M. and A. O'Conxon, of London (lihd., 67, p. 707). In his Itaising of Lazarus, this artist has been very successful in giving the characteristics of an oil painting; everything is in perfect keeping, and is drawn with great truth and care. In the richness of the colouring, he has turned his material to very good account, Hononrable Mention.

4. Works in Niello.

In this kind of art, which received the name of "Niello" work in the middle ages, figures or ornaments are first engraved on a silver plate, and the incised lines are then filled up with a paste coupounded of silver, copper, lead, sulphur, and borax. The dark colours so inialad contrasting with the highly surface of the silver, produce an effect not unlike that of a print from a copper plate.

This art, which had been for a long time neglected, was revived in the present day with great success by

"This style of glass-painting might be termed Architectonic, as it is applicable not only to churches, but to many other edifices, civil as well as religious.

Wagner, a silversmith from Berlin, established at Paris. In the exhibition was a gauntlet, on which a design by Maclise was engraved in niello, by S. H. and D. Gass, of Loudon (Class XXIII., 63, p. 683). The work is very skilfully exented. Honourable Mention.

Designs for Printed and Woren Fabrics, for Embroidery, and for Book-covers.

The primary law of all noch doigns is, that they must ome distance the fatness of the surface on which they are drawn, hist only diversely it with lines agreeable to the other control of the surface all perspective views not be Isoloinity rejected, as at all perspective views not be Isoloinity rejected, as at the surface of the surface of the surface of the controllay affected by the quality of the materials and such, though of a yielding sextame, pattern will be overtaken to the surface of the surface of the surface shows the surface of the surface of the surface of the necessaries of the body in a general series; hence the mercaneous of the body in a general series; hence the order insides chotten, cottons, on the century, and other insides chotten, or the century, and other insides chotten, or the century, and other insides chotten, or the century of the century, and other insides chotten, or the century of the century, and other insides chotten, or the century of the century, and other insides chotten, or the century of the century of the control of the century of the century of the century of the control of the century of t

M. Diony Wyart, of London (Class XXX, 30, p. 822), exhibits a considerable number of designs for various purposes. They are in very good taste, and in perfect necovikance with the principles here laid down. Prize Medal.

John Leiturron, jun., of London (Class XVII., 24, p. 538). The designs for book-covers exhibited noder this name have very remarkable merit, from the variety of forms in the patterns, and the happy choice of the colours. Prize Medal.

C. J. Richannson (Class XXVI., p. 208, p. 751). Out of the multitude of designs exhibited by this artist, some show a good taste. Prize Medal. The following names have also been Honourably Men-

The conowing names have also been Homonrahy Mentioned; John Cartra, of Cray fird in Kent (10, p. 821); J. K. Haavix (Class XIX., 197, p. 567), for the design of a carpet with a rich pattern; and Brist. Healin, for his design for lace (269, p. 570). Prize Medal.

The Government Hara School or Dissich in Lower In Losmon (10, p. 82). The designs for textife fabries contributed by the pupils, both male and female, of this estahilahment, were executed in such good taste, and with such correct knowledge of principles, that a Prize Medal was awarded to the Institution, and the names of several of the pupils were mentioned with approbation. These names will be found in the Report of Mr. Panils.

This seems to be the most fitting place to outlete the spectres of the Orivinal and a white he had. Turber, and present of the Orivinal and a white he had to be a support of the Orivinal and the spectra of the Orivinal and the spectra of the spec

What a lesson such designs afford to manufacturers, even in those nations of Europe which have made the greatest progress in industry!

In these remarks I have specially referred to the productions of India, Some of the fahrics exhibited by Turkey and Tunis display analogous qualities, but in the greater part of these we trace in the patterns an European influence, which has overhald or partly superseded the trace characteristies of the unitomal style of oroament,

6. Architectural Designs.

G. Tauefitt, of London (75, p. 834). A design for a Gothic tomh and canopy, to be executed in iron; the proportions in this design are very good, the style very correct, and the treatment suitable to the material. Honourable Mention,

nourable Mention,

7. Various processes of Printing, such as Lithography,
Lithochromy, Zinco-raphy.

The art of printing in colours has been brought to such perfection by the employment of several successive plates for the same impression, as in many cases to produce an effect quite equal to that of a painting.

(o.) Lithochrossy.

Day and Sox, of London. The specimens enhibited by this establishment are admirable for keeping, force,

by this establishment are admirable for keeping, force, and finish. Prize Medal. (80, p. 825.)

M. and N. Hashawr, of London. In the plates executed by these artists there is a eleganose, force, and har-

mony of colouring, combined in a degree which is very rarely attained. Prize Medal. (64, p. 823.) HULMANDEL and WALTON, of London. In the works of these artists we find similar excellences in a very high

degree. The specimens are executed partly with the stump, partly with lithographic chalk and the stump comhised, and finally by printing in colours. Prize Medal. (71, p. 82t.) Owry Joyze, of Loudon. In the establishment of this

artist flower and fruit-pieces are executed with great force and truth, and in his patterns he shows excellent save. In his initiations of ministures he has been less happy, though these works display considerable merit. Pure Medal. (54, p. 823.)

T. UNDEAWOOD, of Birmingham In the novel attempt to represent water-colour drawing by printing in colours, this artist has been most fortunate: the specimens exhibited by him are well worthy of Homographe Mention, (77, p. 823.)

(b.) Printing in Oil-colours.

G. RANTEN of London. The view of the exterior of the Exhibition Building, and a female portrait by this artist, show very great skill in a process which so seldom yields a successful result. Honourable Mention. (115, p. 828.)

(e.) Zincography.

R. Appel (274, p. 838). This artist is the inventor of a process, hy which he transfers to a zine plate nucleut or modern engravings, and woodent impressions, as well as drawings executed either with the pen or the pencil, A peculiar kind of ink is employed for the transfer; and not only is a perfect facsimile of the original thus obtained, but copies, to any extent, of this facsimile are again produced, at an exceedingly moderate price, and all of equal excellence. A woodcut by Albert Durer, taken from his " Life of the Virgin," the zine matrix to which this was transferred, and the impression from this plate, which were all exhibited, afford sufficient evidence of the value of the invention. Many years ago Messrs. DUPONT and Co. (France, 181, p. 1182), of Paris, obtained similar results by their process of transferring designs to stone: for this they have received a Prize Medal in Class KVII. (Printing). The advantages of such me-chanical means of multiplying rare and costly prints are too obvious to need remark. Every kind of drawing can be executed in Mr. Appel's prepared ink; his invention has therefore this great advantage, that it enables artists at once to fix and reproduce their sketches, instead of having recourse to lithography, woodcutting, or engraving on metal. The most rapid and evanescent expression of an artist's thought may thus be arrested, without impairing the spirit of the original sketch in the process of transfer. Prize Medal.

(d.) Facsimiles of Printing executed by the Hand. J. Haants, of London. The masterly imitation of old printing, by this artist, has received Honourable Mention, (Class XXX., 244, p. 836.)

C. ARCHITECTURAL DESIGNS.
1. The Exhibition Building.

In this most admirable edifice every kind of excellence appears to be combined, whether we consider the wonder-

fin adaptation of the whole hallings in its purpose, the superscipa skill discuss in the employment of gibes and superscipa skill discuss to seek, the large plantees of the tenmeration on very seek, the large plantees of the conmeration of the seek, the large plantees of the seek and extent of the whole plan, must have been exceedingly direct, the employed of the mood of construction, of of the colours with which the hallings is ormanested of the colours with which the hallings is ormanested of the colours with which the hallings is ormanested for the choice of the colours of the seek of the colours of the seek of the colours of the seek of the colours of the first the choice of the hallings; to Meser, Fox, Haxane, or, and Co., the Contractors, for the assumpty immune in the plantation. Control Mechal a webside to the two forms by Clant Villar seek and control Mechal a webside to the two forms by Clant Villar seek and control Mechal a webside to the two forms by Clant Villar seek and control.

2. Models.

The practical ntility of architectural models, and the instruction and pleasure that may be derived from them, have never been more sensibly felt than at the present day. This brauch of art was therefore very properly represented in the Exhibition.

John Grantham Secretary to the Liverpool Local Committee: A Model of the Town of Liverpool. This work is executed with great accuracy, the proportions are said to be very well preserved, and the details finished with great care. Price Medal. (Main Avenue West.

95, p. 851.)

Janus James, of London. A Model of the Britannia

JAMES at 1985, on a non-month of the control of the

N. J. COTTESSIAN, of London. A Model of a spandril of an architecture of Gulden architecture is preserved in this the elassates of Gulden architecture is preserved in this Hosomarke Mexicum. (Main Avenue West, Ch. p., 852.) S. Chrott, of London. A restoration of the tomb of Action of the Computer of the Computer of the Computer Administration of the Computer of the Computer of the Mexicum. (Main Areans West, 60, p. 818. Prize Mexicum Actions of the Computer of the Computer of the Computer of T. Drystut, of London. Model of a Metropolium

T. Dennetta, of London, Model of a Metropolitan Cattle-market, with abattoirs, and other appurteoances, as executed in plaster and other materials, and very skilfully planned. Honnarable Mention. (Class VII., 90,

p. 518.)
W. STUART, of Plymouth. Model of the Plymouth Breakwater in limestone. Honourable Meution. (Class VII., 28, p. 314-12.)

In coacheding this notice, I must also mention the Mediavard Coart, Sitted up by Professor A. W. Pears p. 764), one of the most distinguished among Fagish architects, as a designer of Gothle buildings and ornament. In this Coart he has endeavoured, with great coclessated art of the middle age, by exhibiting an assemblage of altars, shrines, topestries, painted windows, challects, and pastent, venturents, and other ecclesiastical

¹ It has been remarked by several distinguished authorities that, when its is painted, the author of the material should be indicated by the colours employed. This is, no doubt, runs, as a general principle, yet, in this instance, and the colours of the control of the colours of the co

furniture and objects. Most of these articles are executed from his own drawings. The merit of the collection has been duly acknowledged by the Jury.

THE ZOLLVEREIN.

1. PRUSSIA.

Since the year 1815 great efforts have been made in Prassia, by the successive monarchs and administrations of Prussis, to encourage the Fine Arts in that country. Museums, and other buildings of a similar character, have been creeted; sculptors, and more recently painters, have been employed in the execution of monumental works, and the cultivation of all those manufactures on which art can exercise any influence, has been greatly pronoted by the foundation of the "Iustitution for Trades" (Generic-Institute), under the energetic and judicious management of Privy Councillor Beuth. That these efforts have led to the happiest results has been proved by the Exhibition, which has furnished to Prussia long-desired opportunity of showing what progress has been made.

A. SCULPTURE AND WORKS OF PLASTIC ART.

1. Sculpture on a large Scale. Until the commencement of the present centory, the Berlin sculpturs continued to imitate the false and man-

nered style of the contemporary French school. The first who returned to the principles of nature, and to a careful expression of details, was the sculptor Schadow. But the Berlin school owes its present excellence to the auspicious co-operation of three great men, who de-voted themselves to its improvement. These were, the late architect Schinkel, the late sculptor Frederick Tick, aud Christian Rauch, a sculptor whose active energies still remain unimpaired outwithstanding his great age. These three artists had profoundly studied the master-pieces of aucieut art; the contemplation of these had imbard their minds with an intense feeling for beauty, and revealed to them the great laws of style. Inspired by these models, they did not attempt to reproduce them by a servile and spiritless imitation, but rather to apply the principles therein developed to works fitted for th wants of modern times, combining this reverence for antiquity with an earnest study of nature, and a most diligent and scicotific carefulness of execution. It is to be regretted that Rauch himself cuntributed uone of his works, if we except one or two copies from his Victories; and that many of his distinguished scholars, such as A. Fischer, Gustav Blaeser, Wredow, and Schievelbein were also absent.

But though the school of Berlin was thus only partially represented in the Exhibition, yet many of the works it contributed gave ample proof how great have been the results of the combined influences which have aided in the development of German art, A. K188, of Berlin (279, p. 1065). An Amazon on

Horseback attacked by a Tiger. With a ferocious bound the animal has leaped upon her horse, and fastened on him with teeth and claws. The Amazon is about to transfix her assailant with her spear. This work, which is on a colossal scale, has been cast in zinc by Geiss from the original model, and bronzed by electro-deposit. In this group the artist has, hy an original and powerful effort of invention, placed before our eyes the most eritical moment of the action. The whale expression and character of the Amazon are very nobly conceived; the anatomy displays consummate knowledge; great style is shown in the general treatment of the surface, and the details are wrought out with wooderful farce and truth. The whole work is full of soul; it seems the full earnest utterance of a true artistic nature. The great qualities of this work called forth, at the

time of its completion, the most unbounded admiration on the part both of artists and friends uf art. It was executed in bronze by a public subscription, and now ornaments one side of the staircase of the Royal Museum at Berlin.

where a work of art possesses striking merits, even considerable faults cannot counteract the favourable im pression which is produced. It is one of the fundamental laws of sculpture "in the round," that from many, but at all events from the principal, points of view the out-lines of the figures shall be distinct, and at the same time beautiful; and this rule is signally transgressed in the work of Kiss. The forms of the tiger and the horse are blended together in one confused mass, so that the front view is very unsightly, and even in the side views we lose on one side the head of the horse, on the other that of the tiger. Council Medal.

F. DRABE, of Berlin (273, Prassin, p. 1065). The pedestal of a statue of King Frederick William III, of Prussia, erected by the inhabitants of Berlin as a token of their gratitude fur the embellishments which this monarch has bestowed on their Thiergarten (Zoological Gardens). The work exhibited is in plaster, half the size of the original pedestal. In the reliefs with which it is oronmented the sculptor selected subjects which contain allusions in the local destination of his work. Thus he has represented a number of figures, of every age and sex, enjoying themselves in the open air. We see groups of children looking into a bird's nest or feeding the awans, young maidens weaving garlands, old people leading children to the scene of the sports, or contemplating their youthful gambols with an nir of calm enjoyment. There is much beautiful feeling in the treatment of this subject: the heads are full of expression, the movements of the figures very spirited, and the different groups are skilfully connected. The composition is executed in a very good style of alto-relievo, the details

finished with the greatest care.

On the whole, this work is deserving of the very great and general admiration that has been bestowed upon it. It may however be noted as a defect, that the artist has not throughout preserved the relative proportions of the figures. Prize Medal.

ALBERT WOLFF, of Berlin. A statue in marble of a young maiden holding a lamb to her arms. This figure is entitled by the sculptor "Innocence," and its purity and simplicity of character fully express such an idea. The drapery is throughout treated in a plastic style, and the exemption is very careful. Prise Medal. (No. 307. p. 1067.)

T. Kalide, of Berlin. A Gronp. A Boy, lightly grasping a swan and looking apwards, holds up his left arm as if to guard himself. The group is designed far a fountain, the water being meant to issue from the beak of the swan.

The figure of the boy is very prettily conceived, and the action very spirited. The whole work is executed with care, and in a good style. Duplicates of this group were exhibited; one in bronze, the property of His Majesty the King of Prussia, the other cast in zinc by Geiss. Honourable Mention. (No. 285, p. 1066. Prize Medal awarded, Class XXII.)

C. MOLLER, of Berlin. Several bronze casts of animals from models by this artist were exhibited: a Newfoundland Dog, east by Friebel, of Berlin; a smaller Dog, of the same kind, with a Boy, and a Bulldog with a Girl, by the same kind, win a roy, and a manage win a vira, of H. Fischer. These works are distinguished by great life and truth. They are very carefully executed, and in a good style. Honourable Mention. (No. 292, p. 1066),

LUDWIG WICHMANN, a pupil of Gottfried Schudow, LUNWIG WICHMANN, a papel of GOTTIFED SCENDER, A Young Maiden in the act of filling her pitcher with water. Cast in hronze, and tooled, from the model of the original, in the foundry of Count Liusided, at Lauchammer, in Saxony. This figure is distinguished by brunty iff proportions, good anatomy, and careful esecution. The Jury were, however, precluded from noticing it, because it was not exhibited in the artist's name, but

2. Sculpture on a small Scale.

in that of the foundry where it was cast,

(a,) in Metal.

Berlin.

The Shield of Faith. This work was a present from The approbation which it has received proves that. His Majesty the Kiog of Prussia to His Royal Highuess

the Prince of Wales. Though it belongs properly to Class XXIII., and has received a Council Medal from the Jury of that class, it is so exquisitely wrought, and the design is of so high an order of art, that I feel myself compelled to offer a few remarks on it here. In the execompetied to ofter a tew remarks on it here. In the exe-cution of this work the taleuts of several most distin-guished arists have been most felicitously combined. The architectural portion of the design is due to the Privy Councilor and Director of Architecture, Stifer, All the groups of figures are modelled from drawings by Cornelius, whose rich and fertile genius has here exressed in truly artistic language the cardinal idea of the Christian Faith, and happily combined with this principal motive an allusion to the immediate purpose for which the shield was executed.

The designs were modelled in low relief by the sculptor, A. Fischer, in a most masterly manner, and with a true perception of the principles of Piastic Art. The reliefs were then moulded, and the casts from them finally chased and tooled with consumnate skill, by the engraver,

A. Mertens. The figures of the twelve Apostles, which are from the designs of Cornelius, were beautifully cut in onyx by the distinguished gem-engraver, Calandrelli, who has long resided in Berliu; the fine enumels and ornamental work are executed by Klossauer, jeweller to the Prussian Court. The Council Medal awarded to this shield is presented to His Royal Highness the Prince of Wales, as its Exhibitor

J. WAGNER and Sons (840, p. 1006), Jewellers to the Court of Berlin. An ornamental piece of plate to serve as a fruit-dish in silver embossed work. This, like the preceding work, belongs in strictness to Class XXIII., in which it has received the Council Medal. I eannot. however, pass over in silence a work which shows to what perfection this class of art has been brought by the silversmiths of Berlin. In the whole design there is silversunths of Berim. In the whole design there is great hearty of form, and much invention is displayed These rein the subjects with which it is decorated. in the subjects with which it is decorated. I nese re-present the successive stages in the development of

civilization The first scene represents the simple characteristics of that primeval age which is still engrossed in supplying the mere physical necessaries of life, when hunting, fish-ing, and the tending of flocks and herds, are the only occupations of man. This forms the pedestal of the vase; round the columns a more advanced civilization is represented by figures, with the symbols of tillage, borticulture, and the vintage. In the reliefs upon the body of the vase, which are still unfinished, we have the characteristics of a still higher stage of social refinement; mining, commerce, pavigation, and the arts and sciences generally, are here represented figuratively.

As the apex of the whole composition, we have the genins of light overcoming a snake, designed to symbolize the highest form of civilization, when man has arrived at the government of those worst enemies, his own passions. Both the detached figures and the groups in relief which develope this train of ideas are disposed with admirable judgment about the vase; they are also executed with great knowledge, and a masterly finish of detail.

In the fruit, flowers, and foliage, which form the

subordinate ornaments, the combination of a close imitation of nature with a very good style, deserves the greatest praise. It may, however, be noticed as a defect, that the mass of the figure of the genius is somewhat too large, and that his wings appear ill set on, as if not originally united to his body. It is to be regretted that another Berlin artist, equally distinguished for his embossed work, M. Netto, contributed nothing to the Exhibition

JULIUS FRANZ. (1, Zollverein, 293, p. 1066). Two Victories modelled by this artist, from the figures by Rauch, on a reduced scale, of about two feet in height, east in broaze, and tooled by Fischer. These works are remarkable for the serupalona accuracy of their exeention.

J. Bennuard Armoen. Four medallion portraits east in hydre by this artist deserve praise for the truth of the general conception; but the execution, though always

careful, is occasionally somewhat feeble, and the treatment too picturesque. Hunourable Mention. (No. 309, p. 1067.)

(b.) Medals.

K. Fisches, Medallist of Berlin, exhibits nine medals. In the design of these, both obverse and reverse, good taste and feeling for nature are combined with correctness of style in the treatment of low relief, and a very careful and conscientious method of execution

The medal struck in honour of Alexander von Humboldt, as the anthor of Cosmos, is specially worthy of

mention. Prize Medal. (No. 281, p. 1064.)
C. Prizeres, Chief Medallist to the Cont of Berlin, exhibits 22 medals. These show a very careful execution, but the overcharged character of tho forms, which are sometimes too full and heavy, is at variance with the true laws of this branch of art, Honourable Mention. (No.

286, p. 1066.) The works exhibited by the ROYAL IRON FRUNDRY OF BERLIN full under Class XXII., and have there been rewarded with a Council Medal; they belong, however, so completely to the Province of Art that they deserve some notice here. The admirable taste shown in the ornaments of these works, and the good style of the sculptures, prove the extensive and abiding influence of the immortal Schinkel in this establishment. Among the works which specially deserve notice are, a large inlaid with silver and ornamented with a design by Hesse, chief architect of the Palace, after Thorwaldsen's Triumph of Alexander, and two stands ornamented in a similar style with small groups. (No. 271, p. 1064.)

B. GRAPHIC REPRESENTATIONS ON PLANE SURFACES.

Designs for Topestry. This kind of work has been more extensively practised

and brought to a greater perfection in Berlin than in any other place. Among the different designs of this elass, those of M. Grünthal deserve special notice for their general good taste. Hononrable Mention. (No. 166, p. 1057.) Lithochromy.

WINCRELMANN and Sons, Berlin. The specimens of Lithochromy exhibited by these artists are among the Latinonromy exhibited by these arcisis are among the most perfect that have been produced. By the employ-ment of a number of stones for the same impression, a ment of a unimper of stories not the reaching agreat variety of tints has been obtained, so that the most complicated objects, and particularly architectural orments, can be represented with all that refinement of gradation which they present in a perspective view. The grauation waste ties present in a perspective view. The most remarkable specimens are the views of the Castle of Orianda, designed by Schinkel for the Empeor of Russia, and several of the Plates in a magnifecent work on Architectural decoration, by M. Lewis Grauer, of London, Considering the excellence of these lithochromes, their price is proportionately moderate, which is an additional merit. Prize Medal. (No. 306, p. 1067.)

C. ARCHITECTURE,

J. C. Boysche, of Magdehurg. A model of the Cathedral at Magdehurg, of considerable dimensions; also a model of the beautiful fountain at Nuremburg. works are accurate in their general proportions, and the details are faithfully and earefully worked out. A model for another fountain is very neatly executed, and the design is pretty and original. Prise Medal. (No. 785, p. 1094.)
To this artist the Jary have also made a money award

of 30% sterling.

II. BAVARIA.

A. SCULPTURE AND WORKS OF PLASTIC ART. 1. Sculpture on a large Scale.

The Munich school of sculpture owes its importance to Schwarzhalen, whose untimely death in the flower of his years we have to deplure. The number of highly imaginative designs which the fertile invention of this artist has drawn from ancient mythology, from the middle nges, and modern times, has justly earned for him a last-ing fame. At the Exhibition he was represented only by a small number of his works. Though in the statues of Queen Libussa and of King George Podiehrad of Bohemia, east by Miller, of Munich, from Schwanthaler's models, the imaginative conception and noble proportions of the figures are well worthy of this great artist, they afford but a very imperfect idea of the whole range and compass of his genius. As they were not exhibited in the name of the artist, they could not enter into competition for a

It is to be regretted that the distinguished sculptor WIELMANN contributed nothing to the Exhibition JOHN HALBIO, of Munich. (2 Zollv., 90, p. 1102.) A Colossal Lion, cast in one piece by Miller; part of a group representing Victory in a Chariot drawn by Four Lions, and designed to be placed on the triumphal arch at The motive of this work is good, but the form is too heavy and clumsy. This overcharged appearance may perhaps be partly explained by supposing it to be calculated for the height at which the figure is to be

placed J. LEER, of Munich. A Young Girl looking at a Nest full of young Cupids, which she holds in her hands. This figure shows nutrete in its conception, and is carefully executed in marble. Hononrable Mention. (Ibid.

89, p. 1102.) 2. Sculpture on a small Scole.

M. Hagen, of Munich. A large Ivory Cup, on which are sculptured figures of children playing, in the style of Finningo; in a very good style, and executed with great care. Honourable Mention. (83, p. 1102.)

B. GRAPHIC REPRESENTATIONS ON PLANE SURFACES.

1. New Processes of Painting

J. N. vox Pocus, Professor in Munich, has invented a new mode of wall-painting, called stereschrony, which has many advantages over the freseo method which has been so generally adopted for walls. By the new process, the surface can be retouched to any extent, as in the case of an oil-painting, while it possesses far greater durability, or an out-painting, while it possesses far greater durability, heing protected by a varnish from the effect of exposure to the weather. A figure painted by M. Muhr, a pupil of Kaulbach, exhibited as a sample of this process, affords good proof of its merit. Prize Medal. (Ibid. 91, p. 1102.)

2. Enamels on Porceloin and on Metal. OTTO WUSTLICE, of the Fine Arts Establishment of

Schmidt, of Bamberg. A miniature of Charles IX. firing upon the Huguenots, on the night of the Massacre of St. Bartholomew, after a picture by Baron Wappers, of Brus-sels. This miniature is remarkable for its truth, its force and transparency of colouring, the goodness of its general tone, and its careful execution. Prize Medal. (Ihid. 92, p. 1102.)

3. Pointing on Glass.

STEPHEN KELLNER, of Nuremberg. A reduced copy of the celebrated painting by Volkamer, in the Chrich of St. Laurence at Nuremberg. In this work, which is executed with the greatest enre, the colours and every detail of the original picture are faithfully rendered. Prize Medal. (Ibid. 86, p. 1102)

4. Vorious Processes of Printing.

FRANZ VON KONELL, Professor at Munich, exhibits FRANK VON KOMELL, Professor at Munied, exhibits a new mode of multiplying Indian ink and other drawings, by means of copper-plates deposited by galvanic action: the investion is hence called galvanography. The process is as follows:—The drawing having been first executed either with encaustic colours. or with lithographic chalk, a plate of copper is preci-pitated upon it by galvanic action. By the contact of the particles of metal with the colours or chalk drawing, the plate receives, during its formation, an actual impression of the delineated surfaces, the lines being indented

on the copper as if by the ordinary process of the burin. The plate, thus cograved by galvanie agency, becomes a matrix capable of yielding other impressions.

F. HANTSTÄNGEL, of the Lithographic Establishment of Munich (Ibid, 85, p. 1102), has exhibited two plates as samples of this process; the matrix or plate impressed by Galvanography, and the patrix, or impression taken again from this plate. An impression in paper, showing the result, is added. These specimens are remarkable for the force, clearness, and evenuess of the print. Honourable Mention,

III. KINGDOM OF SAXONY. A. SCULPTURE AND WORES OF PLASTIC ART.

Sculpture on a lorge Scale.

ERNST REETSCHEL, of Dresden. This distinguished artist, one of the ablest pupils of Ranch, exhibits three works, the varied character of which shows the versatility of his taleuts. 1. A group of the Virgin weeping over the body of our Saviour, east in plaster, from a model executed for His Majesty the King of Prussia. In the figure of our Saviour, announiend truth is combined with nobleness of form; the countenance has a fine dignified nobleness of form; the countenance has a me digunite-character; its mild transfigured expression preclaims the triumph over the agenties of death. In the Mary, the triumph over the agenties of death. In the Mary, the has most resigned sorrow of non. The drapery of this figure is admirably composed. The execution is fully worthy of the invention shown in this group. 2. The Angel of Carist, a very noble relief in marble. The angel is represented in the form of a graceful youth, floating in the air, with the infaut Saviour in his arms; two infant angels attend his course. This group has a peculiar charm from the beauty of the heads and figures, the grace of the action, the suddenness of the movement impressed on the fiying drapery, and the masterly yet tender handling of the marble, 3, Love riding on a Panther, whose course he tries to arrest, eagerly grasping his neek with both his hands. This beautiful conception is quite in the spirit of ancient art, and is expressed with great vigour of hand. Prize Medal. (185, p. 1113.)

B. Graphic Representations on Plane Subfaces. Enamels on Porceloin.

HENRICH BUCHER, of Dresden. This artist exhibits a rich collection of miniatures on enamel, of which I will ren conection of miniatures on enames, or which it will only notice here the copy of the celebrated "Christ with the Tribute-money" of Titian, in the Dresden Gallery, in which the character and deep transparent colouring of the original are admirably rendered. The works of this artist are also remarkable for their very moderate price.

Prize Medal. (176, p. 1112.)
GUSTAV WALTHER. The six enamels, after well-known pietures in the Dresden Gallery, exhibited by this artist, are creditable works in this class of art. Honourable Mention. (177, p. 1112.)

IV. DUCHY OF SAXE-GOTHA.

F. E. Hennemeng and Co. A view of the Wetterhorn, in Switzerland, painted on china. This work has con-siderable merit. Honourable Mention. (772, p. 1093.) V WURTEMBERG

A. SCULPTURE AND WORKS OF PLASTIC ART. Sculpture on a large Scale.

L. von Hoffen, sculptor, of Stuttgardt. Casts in plaster from two Arabian thorough-bred horses, in the stud of the King of Wurtemberg. They are represented rearing; ench is held down by a naked attendant. The original groups are executed in marble, and are placed in the groups are executed in marble, and are placed in the garden of the palace at Mretenberg. Good Judges of borses are of opinion that in these works of Hofer the characteristics of a particular breed of horses are very accurately given. (105, p. 119.)

T. WAGNER, of Stuttgardt. The Penitent Mingdalen, a figure in marble. This work is characterised by truth of

expression and careful execution, but the drapery is drawn over the ridge of the leg so as to intercept its outline, in a manner not consistent with the laws of Plastio Art. Homograble Mention, (108, p. 1120.)

VI, ELECTORATE OF HESSE CASSEL.

C. M. Wessuaer's Son je vellen, of Huns., A chemical in gold and silver. The aids of the boul are such in gold and silver. The aids of the boul are such, biols, &c., in admirable tasts, and executed in an aid with the utilities of the silver and referenced the silver and referenced the silver and referenced the silver and referenced the silver and the silver and the silver and the silver of Frincis. The work people belongs to Class XXIII., and has been revealed there with a Consection of the silver and t

VII. GRAND DUCHY OF HESSE DARMSTADT.

C. W. Hert, ivory-curver in Darmstolt. A large goldet, on which is carved in reflect the battle of Armisias, after a design by Lindenschmidt. This work is entitled accurately a superior of the control of the control centure. The introduction, however, of several plates in the relief, and the videout foreelectricings, give to the with the principles of Platici Avi, whilst in some of the foreelectricings, particularly that of a borne, there is a with the principles of Platici Avi, whilst in some of the foreelectricings, particularly that of a borne, there is a p. 1129, 100 of drawing. Honorardic Mention. (15, p. 1129, 1)

VIII. OLDENBURG. Architectural Models.

J. H. Cassteons, of Oldenburg (1, p. 1135). A model of the castle of Oldenberg, correct in its general proportions, and carefully finished, though in the details of the architecture the character of the several members is not accurately rendered. Houourable Mention.

FRANCE

The French have been distinguished for many generations by the great encouragement they have bestowed, as a nation, on the Fine Arts. The French Government, under every change in its outward form, has not failed to regard Art as one of the most important instruments of eivilization; and recognising its great and beneficial in-fluence on the manufactures of the country, has, by the most liberal grants, placed it in a peculiar mauner under the protection of the State. Millions of the national revenue have, in consequence, been devoted to the erection venue nave, in consequence, next nevotres to the execution of great public edifices, and to the purchase of the heat works of native netists. Establishments like that of the Gobelin Tapestry, and the Severs China Manufactory, or the Ecole des Arts et des Métiers, have been not only founded but maintained by the State at an immense cost. In consequence of this encouragement on the part of the Government, the French school of Art has been most fertile io its productions; many branches of art have been brought to a rare degree of perfection, and the diffusion of an improved taste has exercised a most beneficial influence on a variety of trades and haudicrafts. By these means Paris has become an universal market, not only for the Fine Arts themselves, but for most of the branches of industry to which they are in any way allied.

A. SCULPTURE AND WORKS OF PLASTIC ART.

1. Sculpture on a large Scale.

During the first years of the French Revolution, commencing with 1789 ouwards, a reaction against the style of art, previously esteemed, was brought about by the painter David. This movement was followed up by the sculptors Chaudet and Bosio, who devoted themselves to

a diligent but cold imitation of the master-pieces of ancient Reman sculpture,

At a liner period, the style of many scalptons was directly by the paints bettagerous unforces of Custon a, a factor of the paints bettagerous unforces of Custon a, at a liner period still the influence of the best Greek Art has been flet in deep French as in other pariety enders enclosed, as the period of the property of the control of the period o

hate is any work.

J. Passinas. Member of the Basiletter, Phryse (1407, pp. 1407, pp.

ports transmission a group (Ibid.), east in bronze, of a crontribin a group (Ibid.), east in bronze, of a crontribin y tunes conversing with a Capid, who leasn against her. There is great originality in the conception of this group, and the artist has been for the most part very happy in the selection and treatment of the forms. The execution, however, is not equally careful through-

very happy in the selection and treatment of the forms. The execution, however, is not equally careful throughout. Council Medal for the Phryne. Avourte Denay, of Puris. "Le Premier Berceau."

This same is given by the sculptor to a figure of Exe, seated, with the Thands claspid over on knee, and supporting in her lap her steeping infinits, Calis and Abel. In the form and stitules of Exe there is great leastly, and the contract of the contract

elmany mass. Prize Medal. (46, France, p. 1173; and cell Illustration). G. La Jorgensov, of Paris (Main Avenue East). A Satyr, east in forome, represented after the manner of the ancients, dancing on a wine-okin, in a state of joyens and of the strong, hard mancles, quite correspond with the general Satyr type created by the imagination of the ancient artist. The motion is easy and natural, and the

carefalness of the execution is maintained throughout. Prize Medal.

A. EFEX (1215, Main Avenue, East, p. 1236). Of the three groups exhibited by this artist the most agreeable is that in marble of Hero and Leander, standing mournfully beside each other.

Coin and his Family. The characteristics of a buse, abaudoued asture are admirably expressed in the countenance and coarse clumsy limbs of Cain, which are very carefully studied from the life; in plaster.

The allegorical group (in plaster) of the City of Paris inpoling heaven to take away the plague of Cholera, is a less agreeable work, on account of the manner in which the subject is treated. The City is represented as a scated female figure, with an old man and a youth expiing of the pestilence, one on each side. In these figures the moment of death is expressed with wonderful truth. This work is a specimen of that class of art which, seeking to act on the feelings through the representation of more physical suffering, may be called the Revolting, n style which appears to be little cultivated or admired, except in France.

Toese works all show great knowledge on the part of the sculptor. Prize Medal.

J. Clestroga, of Beaugon (1709, p. 1258). chante, who is rolling on the ground in a state of drunken excitement. This figure is remarkable for the masterly chiselling of the marble, the great knowledge of anatomy, and the beauty of the countenance; but these excellences do not sufficiently excuse the sculptor for having in this work allowed his imagination to be perverted and degraded to the service of n low sensuality. Moreover, the treatment of the hair is at variance with the principles of a good style, and there is a great want of taste in the arrangement of the folds of the drapery. The Jury consi-dered this subject to be of an objectionable character, but have made Houourable Meution of the excellences pointed

J. M. RAMUS (1419, p. 1244). Cephalus, tenderly supporting in his arms the dying Procris. This group is, in its leading lines, very happily composed, and shows in the forms much knowledge of nature; but the modelling is not in a sufficiently large style, and is not sustained throughout. Prize Medal.

M. Pascat, of Paris (1660, p. 1266). A group, in marble, of a monk holding out a crucifix, which a little boy is eagerly kissing; a little girl stands by, steadfastly gazing at him. There is a charming feeling for nature in the expression of the heads: hat the general composi-tion, and particularly the drapery, may be termed rather Picturesque than Plastie in style, and, with the exception of the nude forms, the whole is only sketched out in the marble. Honoarable Mention.

C. Corder, of Paris (460, p. 1200). The head of n pegro, cast in bronze, by this artist, is a true example of characteristic portraiture; the conception is full of life, the execution most masterly, and well sustained through-

out. Honourable Mention.

JEAN DENAY, of Paris (573). A group of a young hunter, rushing forward to despatch a stag, pulled down by a hound. The hunter is naked, and the whole type is conceived in the spirit of ancient art. This group, from the natural manner of the action, forms a very pleasing composition. The hunter and the animals are modelled with great knowledge, and a good style is shown in the execution, Prize Medal, (Main Avenue East,)

Faarin, of Paris (1235, p. 1236). This artist, the most celebrated sculptor of animals in France at the present day, contributes to the Exhibition two cagles with n wild goat, which they have slain, a greyhound, another hound, life size, and several animals on a smaller scale, all in bronze. These works are fully worthy of the artist's reputation. The general conception is most spirited, the details of nature are most faithfully rendered, and the treatment throughout, particularly of the plumage and the skins, is most careful, and in a very good style. Prize Medal.

A. Lechesne, of Paris (573, p. 1205). Two groups, in aster. of does and children. In one is represented a plaster, of dogs and children. In one is represented a dog rescning a child from the attack of a snake; in the one reseming a custo from the attack of a smake; in the other, which forms the sequel to the preceding, the snake lying dead, the dog exhausted, and the child full of joy and gratitude for its researc. These works are very re-markable, from the extraordinary truth and spirit in the modelling and expression of the dog's head. The form of the child, on the contrary, is too swollen and coarse; and in the representation of the shaggy coat of the dog. the execution is too minute, and not in a legitimate style,

In another group, a woman is lying on the ground asleep, or denit. Above her hovers an eagle, about to entry off her child. Here, again, the treatment of the bird is very masterly, and by far the best part of the work. Prize Medal,

BONNASSIEUX, of Paris (64, p. 1174). brouze, representing Cupid, as a youthful figure, chipping the tips of his own wings; standing beside him is a dog. The form of the Capid is very graceful, but the head is too directly copied from the antique type.

execution is very unequial; the dog, in particular, is very carelessly modelled. Honournhle Mention, A. G. FORDINOIS (1231, p. 1235). A large sideboard, ornamented with figures and dogs, on a large scale, carved in wood. In these the artist has shown such a happy invention, and such power of execution, that this work must

be considered to rank as sculpture, and cannot be passed without a notice here, although it belongs to Class XXVI., and has been rewarded in that Class with a Council Medal. It may not here be out of place, after this notice of the works of English, French, and German artists, to compare briefly the intellectual tendencies which these three

great nations severally manifest in their schools of seuln-In each of these schools, though in the case of England only within the present generation, Greek sculpture has

been acknowledged as the standard by which all creations of ideal art must be judged. The English school has, on the one hand, sought to

attain the qualities of grace and loveliness of form; more recently this school has also aimed at strength and manliness of character, chiefly in strong action. The French have principally turned their attention to the representation of sensual heanty, to the tender feelings called forth by the relations between the sexes, to other forms of the Sentimental, or to the style which may be designated as the Revolting.

Finally, German art has been especially devoted to the representation of deep religious feeling, or of calm, idvilie scenes; it has also endeavoured to treat the most stirring oments of real life in a grand and impressive manner, Of the works contributed to the Exhibition by these three nations, those most distinguished in the foregoing notices may be fairly cited in proof of the socress with which each school has followed out its peculiar bent.

2. Sculpture on a small Scale. (a.) In Metal.

Among the French works in silver analogous in style to the productions of Veclite mentioned before, is a service of plate in the taste of the sixteenth century, executed by FEICHER, and exhibited by FROMENT MEU-RICK (1720, p. 1258). This work is the property of the Duke de Luynes. A Prize Medal has been awarded to it in Class XXIII. The French department of the Exhibition displayed an

extraordinary abundance of small groups of human figures and animals, and other small bronzes.

and animals, and other small bronzes.

Many of these are from the designs of distinguished artists, among whom may be noticed, Pascat (1660, p. 1266), who contributes a charming group of three children with hunches of grapes, designed for a dinner service, Fratux (1235, p. 1296), and also Mixá (630, p. 1298), who works in the same style as Fratin. In other bronzes we find copies from the works of cele-

brated sculptors, such as Rude, Duvet, and Pradier; these are often very well executed. A Daphnis and Chloc, after Gaylard, deserves special notice. But a great number of these specimens do not rise above the level of very pretty ornaments, executed without much style, and a notice of them here would occupy too much space. As the French medallists sent no specimen of their works to the Exhibition, no mention has been made of them in this Report, though the skill of many of these artists is very generally acknowledged.

(b.) Sculpture in Ivory.

L. LAUTZ, of Paris (295, p. 1199). A great cup, ornamented with reliefs, representing a battle scene. The composition of these is too picture que, and not treated in accordance with the principles of Plustic Art; but it must be admitted, that this is a work of extraordinary merit in the drawing and execution. Honourable Mention,

(c.) Sculpture in Wood

M. J. LIENARD, of Paris (1326, p. 1239). A Boar-hunt, carved on a clock-case. Although this work is treated in a manner atterly at variance with the principles of Plastie Art, it is nevertheless a perfect masterpiece for truth of imitation, drawing, and execution. This artist has re-ceived from the Jury of Class XXVI, the Conucil Medal, especially for a richly ornamented clock-case, but his merits have been also acknowledged in Class XXX, by the award of a Prize Medal.

The process invented by Mr. A. Collas (1709, p. 1258), for reducing sculpture by machinery, which has been already referred to in the opening of this Report, must be noticed here. Prize Medal.

B. GRAPHIC REPRESENTATIONS ON PLANE SURFACES. 1. New Processes of Painting.

It is now some years since a process of painting on lava has been perfected at Paris, chiefly by the exertions of the celebrated architect Hittorf. This kind of paint-ing is as durable as that on porcelain, and is barnt in the same manner. A copy of Raphael's picture in the Louvre, called La Belle Jardinière, executed by J. Dr.vens (818, p. 1219; was contributed to the Exhibition as a specimen of this process. It is very carefully and faithfully copied, but the flesh is rather heavy and deficient in transparency, Prize Medal,

2. Enamels on Porcelain and on Metal. Nowhere in Europe has the art of painting in coamel

been earried to such perfection as in the celebrated manufactory of Sèvres. The works of this establishment are distinguished not only by the extent of the cannelled surfaces, but also by the perfection with which facsimiles of celebrated pictures are executed, the drawing and colouring of the original being preserved with marvellous The Jury has therefore awarded a Prize Medal tu M. DIETERLE (1369, p. 1241), as the Director of an establishment where such great results have been attained. Although it is to be regretted that the celebrated Constantine contributed no specimens of his works, the Exhibition contained a great number of paintings of the greatest merit

Madame A. DUCLUZEAU, of Paris (1369, p. 1241). This most distinguished artist, whose recent decease I regret here to announce, contributed masterly copies of the fol-lowing pictures in the Louvre:—a. La Vierge au Linge, by Raphael; b. The portrait of Vandyke, by his own hand; c. A portrait of a male personage, recently ascertained to be a masterpiece of Johann von Calcar; d. The portrait of be a masterpiece of Johann von Calear; d. The portrait of Her Majesty Queen Victoria, after Winterhalter (96, p. 103). Jaconaux, of Paris (271, p. 1189). A Flower-piece, after Jan Van Huysum, thy his artist, is a perfect master-piece. Another flower-piece, after Von Spandonck, has also grout merit. Prize Medal.

A. BERANGER, of Paris (1369, p. 1241). The copy of a Portrait by Rubens, in the Louvre, and one of His Royal Highness Prince Albert, after a portrait by Winter-

halter (97, p. 109). Prize Medal.

Madame P. Lausent, of Paris (1369, p. 1241). Three remarkable enamels on copper, two of which were after Raphael, the other a Venus, were exhibited by this skilful

artist. Prize Medal. Madame Jacoror, of Paris (1369, p. 1241). This celehrated artist, now far advanced in years, contributed a copy of the portrait of Raphael, after the picture in the Portrait Gallery at Florence. The original is rendered

with great truth. Prize Medal. with great trius. Frace pressat.

Bonner, of Paris (1369, p. 124t). St. John enamelled on iron, of great merit. Prize Medal.

Schult, of Paris (1369, p. 1241). Paintings on two

orcelain vases, and on a table, very masterly in execu-

. Prize Medal. Mme, Turgan (1504a, p. 1248). A Holy Family, after Raphael, of remarkable merit. Honourable mention. MARIETTE DE CHARSAGNE (1354, p. 1251). A copy of the celebrated picture, by Horace Vernet, the meeting of Michael Angelo and Raphael, exhibited by Boyer, of

Paris. In this work every detail of the original is faithfully rendered. Honographe Mention. HAMON (1369, p. 1241). A casket of metal with figures, en grisnille. In this work there is a successful revival of

the process fur which the Limoges school of enamel was so distinguished in the sixteenth century. Prize Medal,

3. Painting on Glass. (a.) Ecclesiastical Style.

ALFRED GERENTÉ, of Paris (231, p. 1187). A window ALFRED GENERIT, of PRIN (231, p. 1187). A window in the style of the twelfth century. In the figures, which represent the history of Sampson, and particularly in the ornaments, the style of the period is rendered with extraordinary mastery and truth. Prize Medal.

A. Lesson, of Paris (265, p. 1285). In some windows.

in the taste of the thirteenth, fifteenth, and sixteenth centuries, the artist has given the style of each period with great knowledge and care. Honourable Mention.

(b.) Pictorial Style. MARKHAL and GUYNON, of Metz (329, p. 1193). The

sick of the plague receiving the Eucharist. The charac-teristics of a picture, keeping, truth of drawing, and expression, are very successfully rendered, and the advantages of a material admitting of such force and transparency of colorns as glass, are turned to the best account. These excellences are also exhibited in a very high degree in a male portrait. Prize Medal.

4. Islaid Works in Metal.

J. ROYCOF (1689, p. 1257). Different kinds of arms, such as pistols, inlaid with gold and silver ornaments, in very refined taste, and executed with rare mastery of d. Prize Medal.

5. Designs.

(a,) For Woven and Printed Fabrics. E. Laroche (291, p. 1190). A volume containing many designs for shawls, barbges, and muslins. The patterns show great taste and adaptation to the materials,

and are admirably executed. Prize Medal. BERRUR, BROTHERS (55, p. 1174). This establishment is one of the largest manufactories in France, and the designs for shawls which it exhibits have most remarkable merit both in regard to the patterns and the colours. The introduction of small landscapes, however, in some of these designs, is an infringement on the principle which has been already stated in this Report, that the pattern must not disturb the idea of flatness in the sur-

face. Prize Medal A. Courpe (1566, p. 1231). Designs for shawls and other stuffs. The execution of all these is very masterly, and those for shawls are in a very good taste. The others are very deficient in this quality. Prize Medal.

oners are very deneted in this quanty. Prize Medal.

J. Christopherax (1146, p. 1233). Some of the designs for cotton and calleto by this artist show a very happy invention, and are executed with very great skill. In his designs for other materials the execution is equally skilful, though there is a want of taste. Prize Medal. The fullowing artists deserve notice both for the taste

and execution of their designs :and execution of their designs:—
F. DIDISK (820, p. 1219) and MEYNIER (638, p. 1208), both of Paris, in their designs for shawls; NATE and CO. (625, p. 1207), and Barau (72, p. 1175), in their designs for cottoms; E. Pican (347, p. 1194), in his designs for ealices; J. II. MÉRATE (631, p. 1208), in bis designs for ealices; J. II. MÉRATE (631, p. 1208), in bis designs for lace. All these have obtained Henournhie Mention, and the last a Prize Medal. (Class XIX.)

(b.) For Painted Windows,

N. A. GALIMARD, of Paris (228, p. 1187). In these designs the artist has been very successful in representing figures according to nature, and under the conditions of Architectonie style. Honourable Mention.

 The Government Manufactory of Gobelin and Beauvais Tapestry (1367-68, p. 1241). This celebrated establishment, which has produced

such a number of copies of celebrated pictures, contributed two specimens of tapestry to the Exhibition. One of these is a copy of Raphael's freeco in the Farnesina, in which Psyche is represented carried through the air hy Geuii, and carrying the vessel which, at the behest of Venus, she has brought from the nether world. The other piece of tapestry is a copy of the celebrated picture hy Horace Vernet, representing Ali Pasha looking on at the massacre of the Mamelukes, who, at his command, were shot by his soldiers. In both these copies not only is the general effect of the original picture faithfully rendered, but the intention and feeling of the artist are preserved in a degree which could hardly be expected, when we remember that the process by which these copies are executed is a purely mechanical one. (Conneil Medal, jointly with Class XIX.)

7. Different hinds of Printing, such as Lithography and Lithochromy.

R. J. LEMERCIER, of Paris (558, p. 1205). This artist exhibits a number of lithographs, which from their force, depth of shadow, and fine gradation of tints and general tone, must rank among the most remarkable specim this art which have yet been produced. Prize Medal.

Lithochromy,

ENGELMANN (192, p. 1183). This celebrated estab-lishment has well sustained its reputation by the series of admirshly executed specimens of lithochromy, which it exhibits.

Printing in Colours from Wood Blocks.

G. SILBERMANN, of Strasburg (374, p. 1194), is the inventor of this node of printing, and the coloured impressions from wood blocks exhibited by this artist are in every way remarkable. Prize Medal.

Although the facsimiles of the illuminations and initial letters of ancient MSS., exhibited by the Count AUGUSTE DE BASTARD (1717, p. 1258), are worthy of the greatest admiration on account of the extraordinary truth and skill with which they are executed, yet these works ought hardly to have been admitted into the Exhibition, as most of them were finished by hand. Here ought not to be omitted the name of Mr. C. E.

CLEBORT, of Paris (799, p. 1219), for his designs gene-rally, and his exhibited works in ornament. Prize

AUSTRIA.

A. SCULPTURE AND WORKS OF PLASTIC ART. Sculpture on a large Scale.

The only parts of the Austrian dominious from which large works of sculpture have been contributed are the

large works of sculpture have been contributed are the Italian provinces, and especially Milan. In these works may be remarked a strong tendency to Realism. G. Syraxata, of Milan (718, p. 1043). Ishmuel. This name is given by the artist to the figure of a boy lying on the earth, expiring of thirst. The dry and meagre forms, characteristic of this period of boyhood, are rea-dered with a truth which borders on the expulsive. The dered with a truth which borders on the repulsive. The execution is masterly. The head, which is evidently studied from some type quite foreign to the subject of this work, conveys an expression of exhaustion which is almost painful. In the representation of this subject by painters, an angel bringing help to ishmael is always introduced, and from the absence of this figure the general impression produced by the wark of M. Strazza is most painful, and unrelieved by any mitigating cirenmstance. Prize Medal

R. Monvi, of Milan (746, p. 1044). Eve after the Fall, arrived at the full consciousness of her crime. This figure, which is in marble, is appropriately conceived; the motive is pleasing, and the execution is very careful. It has consequently obtained from the Jury a Prize Medal.

This figure was not so generally admired by the public In ingine was not so generally someter of the part of the same artist, representing a girl kneeling, with a thin veil thrown over her face, but the preference was not rightly given. Though extraordinary skill is shown in the execution of this veiled figure, trae judges of art must always esteem it a mere specimen of dexterons work manship, and they cannot but think, that in thus deviating from the undisguised representation of the buman features, the artist has renounced the only means by which beauty, character, and expression can be distinctly rendered in the countenance,

A. Galli, of Milan (711, p. 1043). A youthful female figure, to which the sculptor has given the name of Susanna. The forms are pleasing and the movement protty, and the work is very carefully executed in marble. But without the addition of the two Elders it would be

impossible to recognize the subject. Prize Medal, A. Sanotorgio, of Milan (722, p. 1043). A colossal hast, in marble, of the poet Vincenzio Monti; the conception of this work is very spirited, and the execution most masterly and careful. Honourable Mention.

1. Fraccasolx, of Verona (710, p. 1043). David in the act of slinging the stone at Goliath. The motive of this figure is very spirited, but a little strained; the features have a noble expression. The youthful character of the head does not accord with the rest of the body, in which the muscles are too strongly marked. artist also exhibits a statue of Achilles wounded in the

artist and extreme a season of common theol. Prize Medal.

L. Marchan, of Milan (716, p. 1043). Enrydice. In this figure, which is of marble, there is something very pleasing in the general expression, but the execution of the common theory of the desired. Honournble Menthe details leaves much to be desired. Honourable Men-

B. GRAPHIC DELINEATIONS ON PLANE SURFACES. Examel Painting

Noor (13. p. 1033, Painter in the unperial Procedure Manufactury of 1033, Painter in the unperial Procedure ture in the Imperial Gallery at Vienna, attributed to Raphael. In this copy the forems are rendered with tolerable fidelity, but the pale tone of the flow try tolerable fidelity, but the pale tone of the flow try the original picture. The artist has sacceeded better in a flower piece, in which the colours of the flowers are most carefully rendered in all their original truth and force. Honourable Mention,

Painting on Glass.

G. BERTINI, of Milan (737, p. 1044). A design, in the centre of which the poet Dante is represented scated: on his right hand is Matilda, on his left Beatrice. This picture is set in an architectural frame, in the Gothic style. It is very seldom that we find in glass painting so much artistic expression as has been attained in the figures, more especially the female figures, in this work; and their effect is heightened by the remarkable harmony of the deep soft colonring. But, an the other hand, the architectural frame is utterly at variance with the taste and principles of construction in Gothic architecture, and two great black spaces, in the upper part of the picture, have a very disagreeable effect, from their contrast to the rest of the design, which is meant to produce the imsion of a picture. From the arbitrary mixture of the Architectonic and Picturial systems of glass-painting in this work, its effect as a whole cannot be agreeable to the best judges. Prize Medal.

P. BAGATTI-VALSECCHI, of Milan (616, p. 1038). heroine of Manzon's celebrated romance, the "Promessi Sposi." As a specimen of course principle. minting on glass, representing Lucia Mondella, the Sposi." As a specimen of cenre painting on glass, this work is very remarkable in drawing, colour, general effect, and manner of execution. Hosouruble Mention,

Lithochromy.

The IMPERIAL PRINTING OFFICE OF VIENNA (362, pp. 1025-28). The work, "Paradisas Vindobonensis," exhibited by this establishment, contains a great number of lithographs of flowers and plants, which are represented in form, colour, and every other respect, with remarkable truth to nature. Prize Medal.

The Italian sculpture of the present day cannot be described as possessing any one general character; some of the modern school still imitate the style of Canova, as for instance, Bienaimé; others again, like Tenerani, follow rather in the steps of Thorwaldsen; others, like Marochetti, have devoted themselves, in conception and representation, to the romantic school,

SARDINIA,

D. W. Baron Marochetti (76, Outside West, p. 118). This arrist, though educated in France, and at settled in England, is by birth a subject of the King of Sardinia, so that it is most proper to place him under the latter country. He exhibited a colossal equestrian figure of Richard Cour de Lion, modelled in plaster, and bronzed, and placed in the open air at the west end of the building. Richard is represented in mail, mounted on a fine charger, The frank and noble conception of the chivalrous king, holding up his sword in his right hand, and the spirited action of the horse, make this a very remarkable work. In some parts, however, of the modelling of the horse there is a want of knowledge. The hind quarter and hind legs, especially, have rather a lame appearance, and the execution of this part of the horse is very imperfect; the disposition of the veins particularly is altogether arhi-The artist has, however, exhibited within the huilding a horse's head finished in detail, and from this sample we may see that certain farther modelling may much improve the general effect, Council Medal

Nicolas Lanny, engraver at the Royal Mint of Tarin, (60, p. 1304). This arrist exhibited nine microscopic dies of coins as examples of a process invented by hun-self, by which dies may be reduced with extraordinary accuracy to a scale, the minuteness of which is hardly

Though the inscription and design on these dies can only be discerned by the aid of a very powerful microscope, the details are rendered with extreme fineness.

TUSCANY.

Among the works exhibited by this country are a Bacchus by NENCINI (115, p. 1298), a Psyche by Fraccia (117, p. 1299), and a Dying Gladiator by Cos-toll, all in marble, These three works, though not rota, all in marble. These three works, though not without merit, must be reckoned of very subordinate rank, when we remember the great celebrity of Tuscany in art; they have, however, received Honourable Men-

Sculpture on a small Scale.

A wardrobe and jewel-casket, by Bannetts, of Siena (91, p. 1298), are, both in taste and execution, most remarkable examples of the rich style of decorative carving of the sixteenth century, commonly known as the cinque cento style; though these works, therefore, have already obtained a Prize Medal, in Class XXVI.,

they cannot pass annoticed here.

L. Bigorri (95, p. 1298). The ornaments carved in ivory by this artist show a good taste, and are carefully executed. Honourable Meution.

GRAPHIC DELINEATIONS ON PLANE SURFACES. Islaid Works in Pietra Dava

This kind of art has been carried to great perfection in Tuscany, and its cultivation there for so long a period

has supplied most of the palaces in Europe with works in Pictra Dara, which rank among the finest examples of decorative furniture. No first-rate specimen was contributed to the Exhibition; there are, however, several table-tops by G. BIANCHINI (119, p. 1299), which must be considered very remarkable works, on account of the taste displayed

in the composition of the flowers and leaves, and the care bestowed on the execution. They therefore received a Prize Medal from the Jury of Class XXX., as well as from that of Class XXVII.

ROME.

Sculpture on a large Scale, It is to be regretted that the most distinguished artists of Rome, and especially Tenerani, the greatest living sculptor of Italy, sent no specimens of their works to the

Exhibition

Two groups, of a little girl with a dog, by G. M. BEN-

ZONI (16, p. 1286), may be noticed here. In one of these the child is represented drawing a thorn out of the dog's foot; in the other the dog, after having killed a snake which was threatening an attack, seeks to awaken the child thus rescued. The motive of these works is attractive, and they are carefully executed in marble, but they are by no means of sufficient importance to be considered adequate representations of the modern school of sculp-

ture of such a city as Rome. Prize Medal.

1. Engra, of Hungary (p. 848). A group in marble, representing an incident in the myth of the Argonauts This composition is not happy in its lines, and the figures are somewhat deficient in character, but the execution is careful. Though this artist is not an Italian by hirth, yet, as he received his artistic education in Italy, this seems to be the most proper place for the notice of his work. Honourable Mention.

Fair specimens of this kind of art, which has been so

much esteemed at Rome, and cultivated with such great results, have been contributed to the Exhibition in a series of cameos, cut ou shells, by the well-known gemeugraver Sauliui. The greater part of these are copied from the most attractive works of the celebrated English sculntor Gibson, Honourable Mention, (24, p. 1286-87,)

This class of art, in which the artists of Rome have so long maintained the first mak, and produced such wonderful results, was far more abundantly and adequately represented in the Exhibition than the other branches of Roman art which we have already noticed.

Bannest (15, p. 1286). A table-top, on which are represented views of eelebrated cities in Italy, such as Rume. Flurence, Veuice, Pisa, &c. These views are arranged in a border round the table; in the central area thus encircled is a representation of the sky. Both in the choice of the subjects of the views, and in the force and refinement of execution, this work is smong the most remarkable specimens of mosaic that have been produced. There is, however, rather a want of taste in the form and colour of the ornaments which compose the outermost border of the design. Although this work has been distinguished by a Council Medal in Class XXVII., I have thought it necessary to notice it here, on account of its remarkable character as a work of art,

The Mosaic Manufactory at St. Peter's exhibits two excellent specimens by Castellini (25, p. 1286). One of these, representing a colossal three-quarter portrait of Pope Boniface II., is an example of the ancient style of mosaic, intended for the decoration of churches, and for distant effect. The other specimen is a half-length por-trait of St. John, by Gnercino. This work shows with what wouderful precision a picture, executed in a period when technical knowledge had been fully attained, may be reproduced in mosaic, with a perfect rendering of the forms, colouring, and general effect.

B. Boschettri (17, p. 1286), of Rome, exhibits two

mosaics for table-tops, remarkable for their taste and execution; these have obtained Hunourable Mention. Awarded Prize Medal.

Three Roman artists in mosaie, Dominico Moglia (21, awarded Honourable Mention, Class XXVII.), the CAVALIERE LUIGI MOGLIA (20, Rwsrded Prize Medal, Class XXVII.), and ROCCHIOLANI (22,- all these at p. 1286), have severally contributed to the Exhibition views of the temples of Pustum, this subject being a favourite one among the Roman mosaicists. These views are executed on a considerable scale. All these artists deserve praise for the truth and careful execution displayed in their works, but the mosaic of Rocchigiani is distinguished from the rest by the force of the effect, and depth and warmth of the colonring. An Honourable Mention has been bestowed on these three artists.

BELGIUM.

In this country, not withstanding its moderate size, there is so general a diffusion of talent and feeling for

tae Fine Arts that they have been more freely developed here than has been the case in other countries far greater here than has been the case in other countries far greater in extent of territory. Hence, within the last twenty-five years, side by side with the flourishing school of paining in Elegium, has grown ap a school of sculptors, among whom are many distinguished names. In she school of sculpture a tendency to the picture-sque, which is in conformity with the whole bent of the nation is arrivantally side of the composition of the co tion, and in a peculiar treatment of the surfaces, in which there is always a certain roundness and fuluess, and sometimes an exaggerated development. In many ideal subjects this treatment has a very attractive effect, but in some of the works of Belgian sculptors the want of a proper feeling for bony structure in the representation of the figure, and the affectation of the motive, show that the signe, and the alternation of the morree, show that the style of Canova has exercised an unfavourable influ-ence on this school. In portraiture the scalptora of Bel-gium have shown great ability; in this branch of art the whole Realistic tendency of the national mind has found

Nearly all the distinguished sculptora of this school sent works to the Exhibition, though in some cases it can hardly be thought that the merits of the sculptor were adequately represented by the specimens he contributed.

A. SCULPTURE AND WORKS OF PLASTIC ART. Sculpture on a large Scale.

E. SHRONIS (464, p. 1166). A colossal figure of God-frey of Bouillon ou horseback, raising the bauner with trey or assumen on nonscours, raising the banner with which he led the Crusadera to the Holy Land. Cast in plaster from the original in bronze, which is placed in the Place Royale at Brussels.

In this work the expression of the head is full of life and animation, the action very emphatic, the execution very careful. To compensate for the optical diminution which causes statues placed in the open air to appear meagre and deficient in mass, the artist has in this group exaggerated the forms both of the warrior and the horse. This departure from nature has perhaps been carried too far, and the principles of Plastic Art have been thus lost sight of in the treatment of the surfaces. It may also be presents two lines which are too parallel, and by no meaus happy.

In his group representing Truth trampling on False hood, the same artist has shown power in the represents tion of delicate feminine forms, and the work is carefully executed. The subject, however, is not indicated with sufficient clearness. Twn figures of boys, one of whom is crying over his broken drum, prove that M. Simonis has also been successful in that class of subjects called "genre," and which are altogether treated in a Realistic manner. Prize Medal. C. A. Frankin, of Schnerbeck, near Brussels (465,

p. 1166). A figure of Psyche moving lightly forward, and bearing a Cupid on her shoulders. The motive of this figure is spirited, the forms are expressed with great tenderness, and the group presents attractions from several points of view. There is, however, in the move-ment of the head of Psyche something affected, and in the style of Canova. Prize Medal. (4:5, p. 213.) G. Geers, of Schnerbeck, near Brussels (466, p. 1166).

G. Gerrs, of Schaerbeck, user Brussels (466, p. 1166). A groop, in which the power of beauty over savage nature is allegorically represented by a bon, who is allowing his claws to be cut by a pretty undraped female figure. This work, of which a cast is exhibited in plaster, is very carefully executed as a whole; the forms of the female figure are very pleasing, though the treatment is rather too soft.

The hust of His Majesty the King of the Belgian

The aust of the Support of the Rug of the Degians, exhibited by the same artist, is very spirited, and is carrefully executed. Prize Medal. (466, p. 213.)
J. Ternatsaccus, of Malines (456, p. 1165). A figure, in marble, representing the celebrated Giotto whan a boy, looking at his first drawing with an expression of Joy. The conception of this work is very spirited, and it is carefully executed. Prize bledal.

C. GEERTS, of Louvain (4:0, p. 1165). This artist, the most distinguished for wood-carving in Belgium, executed the carvings for the new stalls in Autwerp Carleedral. His chief contribution to the Exhibition is a "Coronation of the Virgin," executed in wood. In this work the artist shows a great knowledge of the Gothic style in the motive of the figures, the expression of the bends, and the manner in which the folds of the drapery are disposed. There is, however, samewhat too much of systematic uniformity in the character of the bods and drapery. Prize Medal.

Joszyn Gerrs, of Antwerp (45), p. 1165). "The Faithful Messenger." In the work so entitled the sculptor

ration resemper. In the work of entires the ecopor-has represented a dove perching on the shoulder of u young girl, to whom it has returned. This statue is very pleasing, but is hardly a work of sufficient consequence to give an idea of the distinguished merits of this utist. Houonrable Mention,

J. JAQUET, of Schaerbeck, near Brussels (461, p. 1165). J. JAGUET, of Schnerbeck, near Brussels (461, p. 1165). A group, in plaster, of Cupid asking Venas to restore his bow, which she has taken from him. This work is pleasing, though somewhat affected in motive. The exe-cution is careful, though the development of the muscles, particularly on the back and aboulders, is too strong. Honomerable Meution.

Sculpture on a small Scale .- Medals,

L. J. Haar, of Brussels (441, p. 1165). Thirty-nine Medals, among which a portrait of Rubeus may be particularly noticed. These works show very considerable skill in the class of art in which they are executed. Honourable Mention.

C. JENOTTE, of Liège (447, p. 1165). A series of Medals by this artist are also skilfully executed. Honourable

B. GRAPHIC REPRESENTATIONS ON PLANE SURFACES, Inlaid Works in Metal.

J. Falloise, of Liège (384, p. 1163). A shield, some drinking caps, a vase, an armlet, all in steel, inlaid with drinking caps, a vase, an armier, all in steet, minud with silver. The masterly execution, refined taste, and correct style shown in these works, place M. Falloise in the first rank in the class of Workers in Metal. Prize Medal, (Awarded Prize Medal, Class XXIII.)

SWITZERLAND.

J. Leymann, of Zürich, a bookbinder (257, p. 1282). The model of the Cathedral of Strasburg, executed in cardboard with a penknife. This model deserves special notice, on account of the correctness of the proportions, and the labour and dexterity shown in the execution, Honourable Mention. (Awarded Prize Medal, Class VII.) J. LEEMANN, of Berne * (258, p. 1283). The model of the beautiful Fountain at Nuremberg, executed in wood with the numost truth of detail. Hor ourable Mention

SPAIN. Inlaid Works (a.) In Wood.

PEREZ and Co. (271a, p. 1346.) A manufactory for inlaying wood at Barcelona. A table-top, inlaid with a variety of ornaments, in the centre of which are the Royal Arms of Great Britain. The patterns, with a few exceptions, are in admirable taste, the colouring exquisite throughout, the execution of extraordinary fineness, the most minute particles of wood being employed to express the faintest gradations of colour. Altogether this is a work of the highest rank in its class. Prize Medal,

(b.) In Metal E. ZULGAGA (264 and 264A, p. 1346). The proprietor of an establishment at Madrid for works in metal, from which were exhibited various specimens executed in iron

inlaid with gold and silver, and ornamented with reliefs, It has been already pointed out, in the Report of Mr. Pasizzl, that the model of the Fountain of Nuremberg is executed by the some artist as the model of StrasLung Cathedral, which precedes it. These works are of rare excellence in every respect, both as regards the taste of the patterns and the artistic style of the execution. Among the most remarkable are a clust, worthy to receive the muniments of the proud nobility of Cavile, two pairs of pissols, a contenu de chasse, mud a sobre, Honourable Mention. (Awarded Prize Medal,

THE ROYAL ORDNANCE MANUFACTORY OF TOLEDO (266, p. 1346) exhibits a number of works inlaid in the same namer, mong which may be particularly noticed a dagger. Honourable Mention.

DEVMARK

Sculpture on a large Scule.

It was for this country that the great Thorwaldson embodied his spiritual conceptions in such a number of masterpieces of sculpture, and there are not wanting in Deamark at the present day distinguished sculptors who

follow in his footsteps with greater or less success. J. A. Jentenau, of Copenhagen (39, p. 1359, and see Illustration). Group of a Panther and Hunter. The animal has fastened on the hunter as he is carrying off

one of her cubs; he is about to pierce her with his spear, This group is full of life, and finely conceived; the execution shows great knowledge, and careful minute labour in the details. It should, however, be noticed that the artist has missed the true proportions in the legs of the hunter, which are too short,

Another group by the same artist, "Eve after the Fall," leaning no the seated figure of Adam, has great merit, is just praise is due to him for a bas-relief intended to form part of a frieze; a drawing of the whole design gives a very favourable impression of it. Prize Medal. 11. W. Bissen, of Copenhagen (38, p. 1358). A figure of Orestes in rapid movement, and brandishing a sword.

In this work the conception is full of life, and the momentary character of the action well rendered; the ex-pression of the contenance is noble, the excention careful. Housarable Mention.

Sculpture on a small Scale,

C. G. KLINGSEY, of Copenhages (34, p. 1358). A jewel casket in ivory, ornamented with reliefs, after celebrated works by Thorwaldsen. The artist has shown a highly cultivated taste and correct feeling for style, not only in the general form of this casket, but in the adaptation of the reliefs to so small a scale, and in the architectural ornaments. This work is also to be especially commended on account of the great care shown is its execution. Honourable Mention.

DITESTA

It is to be regretted that Russia has contributed to the Exhibition ao specimen of sculpture on a large scale, although we could here mention two distinguished Russiaa names, that of R. M. Von Lausitz, now residing at Frankfort, a sculptor full of taleut; and the well-knows Baron Kloth, of St. Petersburg, who, in the representation of horses studied from the life, is one of the most distinguished artists of modern times. His groups of horses, with their trainers, at St. Petersharg and Berlin, may be cited in proof of his merits.

Count Turstor, President of the Royal Academy of Arts at St. Petersharg (328, p. 1381), exhibits plaster casts of a series of medallions, on which are represented in relief the jacidents of the successful war carried on by Russis against France, from 1813 to 1814. These works are well known to all commisseurs, and deserve notice on account of the invention shown in the designs, some of which are very happy; the execution is also careful. Hosourable Mention

N. Kunntlorr (318, p. 1376), a painter in the Imperial Porcelain Manufactory of St. Petersburg, exhibits a copy of a landscape with cows, by Berghem, in which the rendered with remarkable truth and admirable execution of the details. Prize Medal.

Lithochromy,

F. Daeger, of Moscow (362, p. 1383), for an illustrated work, in which furniture and other examples of medieval decoration are represented in a very masterly manner. Honourable Mention.

It is to be regretted that so distinguished an artist as Fogetherg, now living at Rome, did not contribute any work to the Exhibition on behalf of the school of his native country, Sweden; and that, in like manner, the Netherlands were not represented by Roger, the Director of the Academy of Art at Amsterdam, an admirable sculptor in the Bealistic style. The works of both these artists would have shown the great excellence of the respective schools of sculpture to which they belong.

THE UNITED STATES OF AMERICA.

The American States, which in the course of a few generations have established so vast a scheme of mnnicipal and political institutions, have attained to great perfection in many branches of industry, and are now beginning to turn their attention to the sciences, and also to those arts which minister to the spiritual rather than the animal wants of man, and which have for their high purpose the investigation of truth, and the expression of beauty through form.

All who have truly at heart the advancement of civilination, and regard it as the common good of mankind, this new movement of the American nond.

Sculpture on a large Scale, Several natives of the United States may be mentioned who have attained proficiency in this difficult branch of art, which cannot be acquired without a certain course

or training. I am acquainted with the works of two American sculptors, Greenough and Hiram Powers, of whom the latter alone contributed to the Exhibition, and whom to make a was only represented there by two specimens or his works:—1. The Greek Slave (923, p. 1467). In this work a youthful creature of very delicate form is represented in marble. The figure is studied from the life, and marble. treatment of the back, especially, is one of the happiest efforts in modern sculpture. It should be noted, however, that the manner in which the right hand of this figure is made to lean on the trunk of a tree, while at the same time the real support of the body is on the left leg, gives an appearance of uncertainty to the motion of the whole figure, and deprives it of that charm of contrast which the sculptors of antiquity imparted to their statues by throwing the weight of the figure decidedly on one side, so as to leave the other side free. It may be added, that the expression of gentle endurance and resignation which characterizes the head, by no means serves to indicate the subject represented by this figure; the sculptor has therefore been obliged to have recourse to the symbol of the fore been occupied to have recourse to the symbol of the marble chain, to justify more fully the title which he has given to this work. 2. A Flaher Boy, listening attentively to the naurmar of a shell (548, p. 1468). A youthful refined figure, sculptured in marble; the execution is careful, but on equal to that of the Greek Slave. Prize Medal.

FINE ART CASTING.

The art of casting sculpture in different metals is obviously of the greatest importance for the diffusion of the finest works. I should not be therefore justified were I to pass over the specimens of Fine Art casting in the Exhibition, though these have been already examined and rewarded by the Jury of Class XXII.

The following artists and directors of foundries may be

particularly noticed:-

(a,) Castings in Bronze.

ENGLAND. The COALBROOKDALE COMPANY, in Shropshire (pp. 659-661). The cast of Bell's figure of the Eagle-slayer shows great perfection, both in the easting and subsequent tooling.

J. A. HATHELD, of London (135, p. 829). "Folcy"s casting of size has been brought to remarkable perfections as remarkable specimen of casting.

ZOLLYMBLY. The foundry of Count G. EXMINDER.

SOLLYMBLY. The foundry of Count G. EXMINDER. of Lauchhammer in Prussian Saxony (1 Zollverein, 762, p. 1032), exhibits a great number of large and important

specimens of casting. Among them may be especially noticed the figure of a Girl at the Fountain, by Wichmann, a very good example of easting and tooling.

FRIEREL (1 Zollverein, 289, p. 1066). This artist has executed, at Berlin, the whole of the casts of Rauch's

coument of Frederick the Great, A Newfoundland Dog, after a model by Moller, and remarkably well cast and tooled, and a number of smaller figures were exand tooled, and a number of annuer against the hibited by this artist.

__C. U. Fischer, of Berlin (1 Zollverein, 296, p. 1066).

This artist also exhibited a great number of casts, among

which may be especially noticed an Eagle, and a Danaid,

Kerlen, of Greiswald (1 Zollverein, 299, p. 1066). The figure of the Muse Polyhymnia, in the Royal Museum at Berlin; a very successful specimen of raw casting. MILLER, director of the celebrated Royal Bronze Foundry at Munich (2 Zollverein, 90, p. 1102), an establishment which has accomplished much under his

estatissiment which has accompisated meet utsleer ins management, and which, under its late director, Stiglmayer, had already produced such an abundance of castings, and on so colossal a scale.

Those executed by Miller are the Lion, which has been already noticed in this Report, and the two soble figures

by Schwanthaler, the first of these being a specimen of raw casting, and the two figures being tooled. These works are most admirable for the sharpoess and clearness of the easting, and also for the beautiful sub-

dued colour of the brouze, FRANCE. Ecx and DUBANT, of Paris (1211, p. 1235) The Dancing Satyr, by Lequesne; an excellent cast, well tooled.

QUESNEL, of Paris. The Venus and Cupid, by Pradier, and the group of a Hunter killing a Stag, by Jean Debay, are also well worthy of notice, Stroom and Sons, of Paris (460, p. 1200). The bust of a Negro, by Cordier; a masterly specimen both of cast-

iog and tooling.

November 1851.

(b.) Castings in Zinc.

By a process recently introduced, copper is deposited

By a process recently introduced, copper a deposited on the zine by galvaniac textion; a become surface is thus produced, which is an beautiful as it is durable. The office of the casting of this establishment—The Amazon, by Kiss; the Hebe, by Canova; the Boy with the Swan, Kalide; Builty Eur; the celebrated fagure in the Apploathch at Manich, known as the "Hineaux," or the "Nobbill," two Sign, by Ranch; also a Colvinthian and

an Ionic Capital. I am of opinion that the Council Medal was quite as fully deserved by this establishment as by that of the

" Vieille Montagne Sr. DEVARANNE and Son (p. 1085). This firm has also brought the art of easting in zine to great perfection, and exhibited a number of works of the same kind as

those contributed by Geiss. Out of this great collection the following may be mentioned as most worthy of notice: the Venus, by Canora; a Lion and a Panther, life-size; and the Danaid, hy

Rauch. BELGIUM. The establishment called " La Vieille Mon-" in Belgium (pp. 161 and 1152), which has pro-Inche. duced a number of zine eastings of remarkable excellence. has exhibited one most masterly specimen, Her Majesty Queen Victoria, seated on her throne.

(e.) Castings in Iron.

ENGLAND, The COALBROOKDALE COMPANY (641, Class XXII., p. 659). A very successful cast of Bell's

Class XXII., p. 659). A very successful cast of Bell's Engle-slayer, The ROTAL IRON FOUNDRY OF BEALIN (I Zell'v, 271, p. 1061). The great importance of this establishment has been already pointed out in the notice of the several specimens exhibited by it. The process of Galvanoplastic deposit may be here also noticed, as another.

Galvanoplastic deposit may be here also noticed, as another mode by which sculpture may be reproduced with necu-racy, and at a reasonable cost. JULIEW MINCKLEMANN (I Zollv., 282, p. 1065), pro-prietor of a Galvanoplastic establishment in Berlin. The status of Fuederick William II., Electro of Brandesburg, ZOLLYKREIM. M. GRESS, of Berlin (1 Zolly., 267, 279, This work is very remarkable on account of the great pp. 1063-65). In the establishment of this artist the sharpness of the forms.

C. WAAGEN, REPORTER.

CLASS XXX.

SUPPLEMENTARY REPORT ON DESIGN.

By RICHARD REDGRAVE, R.A.

The figures after the Names (between purcotheses) refer to the Exhibitors' Numbers and to the Pages in the OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE.

was subsequently determined that it would be more advisable that this duty should be nodertaken by the Jurors of Class XXX., assisted by associated Jurors from the various classes of manufactures designed for. The awards on Design will therefore be found among those of the Jury of Class XXX.

With a view to the permanent record of the opinions formed on the careful examination entailed by their duty, Her Majesty's Commissioners directed a Report to be drawn up by one of the members of the Jury, which should not be limited to the merits of the "Designa" exhibited, but should have regard to the general state of design as applied to the various fabrics and manufactures in the Great Exhibition

Such then are the objects to be embraced in this Report, and they form an extensive and oncross duty to be fulfilled by any one individual. When the varied appli-cations of design and ornamental decoration called for by the different uses, materials, and modes of manufact are considered, and the vast multitude of objects to which they are applied (all more or less requiring examination), the task of the Reporter will be seen to be one of great difficulty and labour, in the execution of which he trusts

The desire evinced by the rudest as well as the most civilised nations for the decoration of their huiklings, nteusils, and clothing, almost raises ornament into natural want, and must render its proper application of the atmost coosequence to the manufacturer, since upon it the value of his manufactures in the various markets of the world greatly depends. It can hardly be possible, therefore, that any one should donht, on the present occasion, the importance of a careful review of the union of design and ornament to manufacturing skill, since all that the inventive powers, the fancy, and the handicraft of man can do, has this year been gathered into one clace, and the world been invited to consider and examine place, and the world been invited to consider and examine it. But without some critical guidance, some indicial canons, or some careful separation of the meretricious from the beautiful, it is to be feured that the public taste will rather be vitiated than improved by an examination of the Exhibition, as it will readily be allowed that the mass of ornament applied to the works therein exhibited is of the former character, and from that very cause mor likely to impose on the uninformed taste of the multitade than the simpler qualities of real excellence to im-press us with a just sense of their worth. Such con-siderations were, doubtless, among the reasons which influenced the determination of the Royal Commissioners on this subject. We have spoken of design and of ornamental decora-

These are two essentially different things, and it is highly necessary that they should, from the first, be con-sidered as separate and distinct. "Design" has reference to the construction of any work both far use and beauty, and therefore includes its ornamentation also. "Orna-"is merely the decoration of a thing constructed. Ornament is thus necessarily limited, for, so defined,

IT was the original intention of Her Majesty's Commissioners that all calabilities "Designs" should be referred a principal place; if it do so, the object is no longer a principal place; if it do so, the object is no longer a principal place; if it do so, the object is no longer a to the consideration of the affect of the representations when the control of the place of the representations of the present time is no reviews. The properties of the representation is not representation of the present time in the views of the representation of the presentation of the views of the representation of the views of views of the views this rule; indeed it is impossible to examine the works of the Great Exhibition, without seeing how often utility and construction are made secondary to decoration. In fact, when commencing a design, designers are too apt to think of ornament before construction, and, as has been said in connexion with the nobler art of architecture, rather to construct ornament than to ornament construc-This, on the slightest examination, will be found to be the leading error in the Exhibition, an error more or less apparent in every department of manufacture connected with ornament, which is apt to sicken us of decoration, and leads as to admire those objects of absolute utility (the machines and utensils of various kinds), where use is so paramount that ornament is repudinted, and, fitness of purpose being the end sought, a noble sim-plicity is the result.

The primary consideration of construction is so necessary to pure design, that it almost follows that, whenever style and ornament are debased, construction will be found to have been first disregarded; and that those styles which are considered the purest, and the best periods of those styles, are just those wherein construc-tive utility has been rightly understood and most tho-roughly attended to. A dissertation apon difference of styles would be ont of place in this Report, as well as an expressed preference for any particular one, since each, doubtless, contains some qualities of beauty or excellence which will justify its use when restrained and regulated by fixed principles. It may not, however, be improper to illustrate by a few remarks the opinion expressed above, since it involves important principles connected with a proper consideration of works coming within the scope of the Report,

To begin with the ecclesiastical architecture of the middle ages: when the style was purest, the construc-tion was most scientific, the arches were best formed for resistance, the groioing elevated and simple, the orna-ment modest and applied to the forms of construction As the style progressed with time, it departed from its primitive simplicity: it became more ornamental, it is true, but at the sacrifice of some of its constructive truth: the use of the arch was partly obscured by its being placed under an horizontal arrangement, and supported by perpendicular mullions, and it was gradually finttened to the worst form for sustaioing pressure. The groioing, at first simple, became a most elaborate system of reticula ion, by its numerous lines reducing the apparent height of the roof, to the entire loss of the sublime parent height of the root, to the entire loss of the sublime effect produced by its elevation and simple groining in the estlier period. At the same time the encomous pen-dants secenced ready to fall on the heads of the beholder, and to bring with them the flattened arch of which they were the key-stones. The exterior was everywhere decorated, effecting the ruin of the huilding by the dust and moss which this humid elimate soon engendered. its last period, decoration could be enried no further, and Gothie nechitecture, which had grown into glory and beauty, from its just and scientific construction, was thrown aside when a florid ornamentation had taken the

place of constructive truth. It was succeeded in this country by the Tudor style, a modification of the Renais-The Renaissance itself arose majoly from the stated. The meanismine tooti arose many from the study of Roman remains, and those often of the worst period of the Empire, when Greek science, skill, and pure taste had fallen before Inotatu magnificence and harbarism, and before modern discoveries had opened up the Athenian treasures of Greek art. It was introduced however, by men of enlarged minds, most of them great constructive architects, and by them it was constructively adapted; they embodied in it many of the just principles of the ancient styles; and if the stream of tradition had brought down much rubbish as well as treasure, still the muster minds of the fifteenth century gradually separated them, and applied with unrivalled skill and a fertile what was beautiful and good. It was, however, essentially pagan in all its details, and its ornament con-veyed no symbolic truths to the hearts of men. In the hands of less skilful masters it soon became decoration without a persading spirit, ornament merely used as ornament, without propriety as without meaning; and thus, as the Tudor style, it succeeded in this country to the Gothic, that style dying out, partly from the causes above stated, and partly from the change of feeling con-sequent on the reformed opinious which then prevailed. This debased form of the Renaissance, in its decoration, had already east aff all constructive truth and cousis tency: much that was bad in the late style was retained and mixed with it; whatever was good was as certainly forgotten. Colomns were reversed, the heavy and broad part being upwards, the small part below; they swelled alternately into enormous bands, and were contracted into severing rings, and sometimes they stood upon balls to give a further sense of insecurity. Terminal figures were introduced which had the weight of their entablatures borne on baskets of imitative fruits or flowers. The covering pediments were broken, contrary to all constructive application, or were placed successively one within another: entablatures were enlarged out of all proportion to the supporting columns; and the useful

was superseded by the ornamental. In France first, and afterwards in all the countries of Europe, the Renaissance was degraded into the style known as that of Louis Quatorze. In all that this style differed from the true Renaissance, it differed merely as arising out of decoration. As a style it never had a co meucement in construction, as the Gothie and Renaissance had, both of which were founded on an architectoral basis; this sprang from the love of the Grand Monarque for magnificence and display. In it, all that was constructively true was disregarded atterly and systematically; thus supports became curved and broken in line exactly where they require strength, bearing-rails were severed in the centre where the greatest bearing is, the union of horizontal and perpendicular forms was sup-pressed, styles and rails as far as possible hidden, veneera applied with the grain neross the framing, and every effort of invention strained, not to decorate the due cor structive truth of things, hat utterly to hide and alsolish construction altogether. The ruling principle of the style, as far as it can be said to have had une, was the avoidance of symmetry, and the search after variety by every possible means: for this reason, central forms had dissymmetrical sides, and the most unequal division of parts was the rule of composition. Nevertheless for the urpose which called it forth, for mere magnificence and display, it was admirably adapted, being one of the most suitable styles for the display of gilding, and for brilliancy and sparkle in metal and ormolu work, showy and glittering beyond anything attainable in the simpler forms of the Renaissance or of classic antiquity. From these qualities it has long maintained its hold on the public taste; and its florid and gorgeous tinsel still prevails in three-fourths of the works of the Great Exhibition, notwithstanding its gross contempt of constructive principles.

The personances of past ages in the tredities of the ornamentist, and trailine over headed down to us things good and bad, both equally conseverated to most minds by the unthority of time. But a monerate's reflection will show just of true tasks for which manufacturers are so conutativity of time. But a monerate's reflection will show just of true tasks for which manufacturers are so co-

how necessary it is to discriminate before receiving anything on such authority. A church or temple huilt in a rude age remains undisturbed by some happy chance, a villa or a theatre in a remote provincial town escapes the fitalities of accident or time, some temh is opened, some overwhelmed city exhumed from the debris of ruin that had gathered over it. The orunmental details found mad gathered over it. The ornamental details found therein are copied and illustrated by the notes of auti-quarians, or published in the proceedings of learned societies, and are at once regarded as authorities for imitation, it being forgotten that they were perhaps the works of obscure provincial artists, of a barbarous age perchance, or of a people with whom art, no lunger studied for its principles, had ceased to progress or had rapidly declined, Such traditional ornament moreover had or had not a local use, a consistent application to domestic, ecclesiastical, or funeral purposes, in fact a local symbolism; but even if it had, this, mostly overlooked, is sure to be soon disregarded; and not only have we ornament of a de-graded period, of a decliniog age, or by inferior artists, but to this must be added, that its symbolic life is totally extinct, and, perhaps, fortunately so, for when revived it is indiscriminately, for purposes totally at variance with its first application and original intent. Moreover, the ornament suited for one material is misapplied to a material different from that for which it was designed. Thus ornament originally carved in stone is used for metal or for wood, or, worse still, for carpets or for dresses. That which was intended to be carved in relief is imitated as the inlay of a floor or the hanging of a wall, and someless anomalies of all kinds speedily arise from undue reverence for and indiscriminate use of traditional orna-That this is no forced view of things a glance at the Exhibition will at once show, wherein are to be seen the sacred vessels of the church imitated for secular purposes; the funeral urns of the Greek revived as drinkingvessels for the table; the colomus of temples turned into candlesticks, and sarcophagi into wine-coolers; while tha decorations of ecilings are applied to carpets, and the carved frieze of an Ionic temple to a muslin curtain: all these errors arising from the indiscriminating use of those materials with which antiquity has supplied as.

Ornamentists may fairly be divided into two classes: the traditional, who superstitionaly reverence the remains of past ages and are wedded in practice to existing styles; and those who despise the past and feel themselves at liberty to adopt from the abundant sources of nature a mode and manner for themselves, without regard to the works of their predecessurs. The first class simply seek to follow where precedent lends them, and to be able to claim the sanction of authority for their works. These, even when taste duly regulates their choice, are men of limited ideas and small progress. Those of the second class, who pay no deference to authority, who think that ornament is governed by no laws, and who see no principles by which they are to be guided, are little likely to raise the art to the level of past times, and, still less, to advance its nim and widen its scope. The true ornamentist would seem to be one who seeks out the principles on which the hy-gone artists worked, and the rules by which they arrived at excellence, and, discarding mero imitation and reproduction of details, endeavours, by the application of new ideas and new matter on principles which he believes to be sound, or which time and the assent of other minds has approved to be fundamental, to attain originality through fitness and truth. The autiquarian organization, those very will always have a certain reputation, and justly, if he has the taste to select what is best from the great masters of post tiones. In any case the critic must be bold who speaks against the authority of the fathera of the art; and praise is safe when great names are on the side of the critic. From this class of ornamentists we may at least demand purity of style, that marked eras should be kept distinct, and that the adopted ornament should be fitly applied to fabrics or manufactures of the like nature, and, as far as possible, for the like uses, as those for which the ornament was first designed. From the labours of the second class of ornamentists, united to that constant search after novelty at any sacristantly urgent, there has arisen a new species of ornament of the most objectionable kind, which it is desirable at once to deprecate on account of its complete departure from just taste and true principles. This may be called the satural or merely imitative style, and it is seen in its

worst development in some of the articles of form.

Thus we have metal imitations of plants and flowers, with an attempt to make them a strict resemblance, forgetting that natural objects are readered into ornament by subordinating the details to the general idea, and that the endeavour ought to be to seize the simplest expression of a thing rather than to imitate it. This is the ease with fine art also: in its highest effort mere limitation is an error and an impertinence, and true ornamental art is even more opposed to the merely imitative treatment now so largely adopted. Let any one examine floral or folisted ornament produced in metal by electrotyping the natural object, whereby every venation and striction of the plant is reproduced, and compare it with a well and simply modelled treatment, where only the general features of the form are given and all the miuntest details purposely omitted; and if this latter has been done with a true sense of the characteristics of the plant, the meanuess and sense of the one mode will be perfectly evident, com-pared with the larger manner of the other. Int this imitative style is carried much further: or-molu steam and leaves bear porcelain flowers painted to imitate nature, and candles are made to rise out of tulips and China asters, while gas jets gush forth from opal Arums. Stems, bearing flowers for various uses, arise from groups of metal leaves standing tiptoe on their points, and every constructive truth, and just adaptation to use, is disre-garded for a senseless imitative naturalism. In the same way, and doubtless supported by great authority, past and present, enormous wreaths of flowers, fish, game, fruits, &c., imitated à serveille, dangle round sideboards, beds, and picture-frames. Glass is tortured out of its true quality to make it into the cup of a lily or an anemone: not that we may be supposed to drink neetar from the flower, but that novelty may catch those for whom good taste is not piquaat enough, and choste forms not sufficiently showy. In fabrics where flatness would seem most essential, this imitative treatment is often carried to the greatest excess; and carpets are ornamented with water-lilies floating on their natural bed, with fruits and flowers poured forth in overwhelming abundance in all the glory of their shades and bues; or we are startled by a lion at our hearth, or a leopard on our rug, his spotted cont imitated even to its relief as well as to its colour, while palm-trees and landscapes are used as the ornaments of muslin curtains. Though far from saying that imitative ornament is not sometimes allowable, still it will at once be felt that the manner wants a determined regulation to exclude it in most of the above-mentioned cases from all works aspiring to be considered in just taste, and to leave it to be adopted by those only who think novelty

better than chaste design, and show preferable to truth.

The constant scarch after novelty has just been alluded to as one of the sources of bad taste in modern ornament. Manufacturers are eager to obtain it at any sacrifice of truth and at any cost. The efforts of those past ages, when taste was most indisputable, appear to have been directed rather to the continually perfecting and refining their designs and inventions, than to creating new ones. Thus in architecture the robust simplicity and grandeur of the Dorio order remained nuchanged from age to age, architect after architect striving only to perfect its just proportions and the symmetry of its parts, rather than to add any novelty of feature or ornament, until, in the Parthenou, it seems to have arrived at the most perfect development that taste, science, and art could unitedly effect Even among the more voluptuous inhabitants of Asia Minor, at least notil the age when their artists became rvants and panderers to the coarser magnificence of servants and pandevers to the conserv magnifecture of aling is utterly extended from our manufactures; it is only in the conservation were few, and those partially on, making more painfully evident bor greatly uniterating, the college of the conservation of the cons

moner enryes rejected for those more varied, beancommoner chief refrection in the import given to their pro-iections. Proportion and symmetry being thus sought after instead of novelty, their ornament has come down to us with authority like that of Scripture, rather than of tradition, and all the after efforts of artists, who have adopted and adapted it, have failed to improve its elegauce, or to add to its beauty. Even in the eastern nations we find the same usage prevail; and to this day Indian ornament is composed of the same forms as it was in the earliest known works: the principles that governed ornamental practice in those works seem still to be a tradition with the artist and the workman, and still to produce the same beautiful results, as is abundantly seen in the fabrics and tissues of the Indian department in the Great Exhibition. Now, however, our efforts are of an entirely different nature, and the hunger after novelty is quite insatiable; heaven and earth are racked for novel quite insatishie; neaven and earin are rawees no sover inventions, and happy is the min who lights upon some-thing, however outef, that shall strike the vulgar mind, and obtain the "run of the senson." Such patterns as often result from the caprice of accident as from any effort of thought-witness what is called the diorama pattern in cotton printing, which was very popular, yet was the result of an accidental folding of the stuff on the eylinder in printing. Accepted for the season, these fautasies no sconer pass away than the world wonders how it could ever have looked upon them with satisfaction, or

strange incongruities, or gross absurdities. The ornament of past ages was chiefly the offspring of handicraft labour, that of the present age is of the engine and the machine. This great difference in the mode of production causes a like difference in the results. times the artist was at once designer, ornamentist, and craftsman, and to him was indifferent the use of the pencil or the brush, of the hammer, the chisel, or the punch: his hand and his mind wrought together, not only in the design, but in every stage of its completion, and thus there entered a portion of that mind into every minute detail, and into every stage of finish, and many a beaudetail, and into every stage of maiss, and many a centiful after-thought was embodied by the hand of the "cunning artificer," many a grace added to the work by his mastery and skill. He worked, not to produce a rigid sameness, but as Nature works:—she produces nothing exactly similar to its fellow, in every turn of every stage of growth, in every flower, and in every leaf, adding a changing grace, a differing beauty; so he varied his labours with every feeling of his overflowing mind. But this is not possible with the stamp, the mould, the press, and the die, the ornamental agents of our days: after the type or model is made, all the products are rigidly the same, whence arises a sickening monotony, a tiresome sameness, unknown in the works of nature and peculiar to these artificial works of man: the varying mind has no share in their production, and man himself becomes only the servant of the machine.

tolerated for an instant such solecisms in taste, such

Moreover, the old ornamentist worked generally from feelings of picty, from love of his labours, or from the desire of fame, motives hardly known to the artist of this desire of fame, motives marmy amountry. Who seeks elass in our days, at least in this country. Who seeks finne from the ephemera of a season? Who loves a labour that is so soon to pass away? Who cares for a work that is not to be the ebild of his own hand, but to be produced in thousands by the aid of machinery? The toil of him of old times was spent upon the thing itself, and not upon a mere model for it: the chalice, the cup, the lock and key, the reliquary, were to be without repetition, and without rivals: he sought to give them their highest excellence, and, labouring from one of the feelings we have described, threw his whole soul into his work, so that it became a thing for future ages to look apon and to prize. Not that handieraft or art-workmanship is utterly excluded from our manufactures; it is only

haudieraft is entirely or partially the means of producing the ornament, as in china and glass, in works in the precious metals, carving, &c. This partly arises from the facilities which machinery gives to the manufacturer, exabling him to produce the florid and overloaded as elecaply as the simple forms, and thus to satisfy the larger market for the multitude, who desire quantity rather than quality, and value a thing the more, the more it is ornamented. This state of modern manufacture, wherehy ornament is multiplied without limit from a given model, by the machine or the mould, ought at least to nwaken in the manufacturer a sense of the importance of the first design. One would think that what was to be pro-loced hy thousands and tens of thousands should at least be a work of beauty, and no pains be spared to insure its ex-cellence. The cost of the first design or model must in such a case be a mere atom when divided among its myrind prototypes. It would seem strange, too, that any one could be found to throw away great expense upon dies and moulds, to carry out a design which in itself was hardly thought worth paying far. Yet often in this was lardly thought worth paying far. Yet often in this country artists are paid little better than workmen, and a belief seems to prevail, that knowledge, skill, and taste come by nature; the artist has often no interest in the result of his labours, his name is nuknown, his pay is niggardly, and what there may be of beauty and excelleuce in his work is often spoiled by the alterations of the manufacturer, who makes no scruple of setting his own taste above that of the artist, and altering and changing a design at his sole pleasure. In France, and some parts of Germany, where taste has long been cul-tivated, and the value of nranmental design is better understood, these relations are better nuderstood also; and in this country, if good taste is to prevail, the manufacturer must learn to appreciate mure highly the value of the designer's labours, must seek to foster his talents and stimulate his amour proper. Society also must be prepared to contribute more largely than heretofore to public education in ornamental art, and taste must be disseminated by every available means; for it is not only truth, but a truth that should be told, that, notwithstandtrain, out a train total snouad oc tola, man, notwithstan-ing our skilled workmansbip and our excellent manufac-ture of most fabrics, we are sadly behind in the design applied to them, and greatly indebted to foreign arists even for what little is good. Moreover our greatest dif-ficulty consists even less in the want of designers than of skilled art-workmen to carry ont designs. A design for cotton printing may be spoiled by the "putter-on," or for silk by him who prepares it for the loom. The sculptur may design a statnette, but there are few able to chase the hrouse, or to retouch the clay, or to unite the parts when they come forth from the mould. Even where such are found, they are mostly men of slow minds, who cuter little into the spirit of the artist's labours, and who work without feeling as without fire. We find plenty of chance while it. We find plenty of chasers able to imitate the fur of animals, or the texture of draperies, but few who understand the boxes and the anatomy of the parts, and fewer still who carry an artist's spirit into their works. In painting, also, the painter on glass and china is generally a mere copyist, or he works too entirely by rote, and without feeling. The lily and the rose which he paints are always the same hily and the same rose, a work of the hand and eye, in which the mind has no share. There are honourable exceptions, no doubt, but with the many art is a mere handicraft. In France, in Germany, in Bavaria, in Italy, this is not the case. There the artist often carries out his own design, and, where he does not, has always at hand a band of skilled art-work-men to embody his ideas, or to complete his labours. The beantiful works in metal by VECHTE, WAGNER, and WEISHAUPT, the china paintings of Jacobnes, Schilt, Declezeau, Hanan, and a multitude of others, and the furniture carvings of Lienand, are choice examples of the above-stated truths; while the works in oxidized silver, such as seal and knife handles, paper-weights, cigar-cases, &c., exhibited by RUDOLPHI, with the bronzes of MENE, PRADIER, and a bost of other such works, show the skill, taste, and knowledge of the art-workmen of France. In France, moreover, there is a fitness and

fancy per ading ornamentation; the ornamout, especially where figures and animals are introduced, being specially adapted to the thing ornamented. In England the ornament designed for one work is made to do duty for twenty others: one figure truly plays many parts, and is often used with an inconceivable want of fitness. But the English public, and the English manufacturers as a body, are hardly yet awake on the question of design: Government has established schools of ornamental art in many of our large manufacturing towns for the purpose of spreading genuine taste, and educating our workmen; but they are as yet a forced product, and have hardly anywhere, after ten years of struggle, won the warm support of the local manufacturer. Even in this Great Exhibition, the question of design was nearly overlooked, and the works of the designer left without a place; has name was nut necessarily coupled with the fabries or manufactures his skill land designed or decorated, and his reward therefore was left to the good feeling of his employer. No special Jury was named to unite with monufacturers in the various classes in judging of the taste and art displayed in the ornamentation of their fubrics; and that art which, as we have before said, is calculated, when excellent, to raise the reputation of a nation's manufactures, was left to the judgment of those too likely to consider, not its real excellence, but what an untaught multitude would purchase and would prize. In France many large establishments bave well-appointed schools attached for teaching drawing and modelling, and the rudiments of science connected with their manufactures. In Germany also, and in Italy, schools and institutions have long been in operation for the cultivation of taste in design; and it will be necessary for this cannutry to enter seriously on the same course, if we are to maintain even nur manufacturing reputation befure the world. In estimating the progress of this country is ornament

and in art-workmanship as compared with the continental nations, there is one circumstance that must enter largely into consideration. In France, Germany, Italy, and Belgium, in addition to schools for teaching ornamental art, royal and national manufactories bave been established for many years. In these no necessary expense is spared to bring to perfection the fabries wrought in them, both as to the highest excellence of workmanship and materials, and to their embellishment by ornamental design. The best painters, sculptors, and designers, as well as men of the most scientific acquirements in botany, mi neralogy, and chemistry, are among their professors; and the works being carried on at the public expense for the attainment of excellence, the cost of repeated failures is unheeded. In such establishments a band of skilled workmen must of necessity be trained to the ultimate benefit of the private manufacturers, and those difficulties which science had found the means of overcoming, or those new processes and new materials which it had brought to light, be spread abroad for the common advantage of all. Moreover, the sight of excellence and of the products of skilled workmanship is one of the greatest stimulants to further exertion, since all art and all manufacture arrive at perfection by gradual advance on past labours. The duced such works in china and porcelain as are exhibited in the Sèvres room or in the hall of the Zollverein, must feel this stimulas in no mean degree. When it is remem-bered what one single artist did in this country for the same manufacture, and how greatly Wedgwood and bis workmen were indebted to Flaxman, we can well feel what influence a band of artists of like ability, exercising their talents to improve every department of the manu-facture, and of these a continued succession, would be likely to exercise over the taste and skill of those in contact with them. Nor is this all: the excellence of one fahrie awakens a desire for like excellence in others, and calls forth the same spirit of emulation. cannot be doubted, therefore, that the continental nations, and more especially France, in this manufacture, and through it in many others, have been largely benefited by such institutions; besides the amount of national reputation obtained by them from the display of the choice

works which are therein produced.

lo these remarks it is not intended to plead for the desirobleness of such establishments in our own country. but only to point them out as the means whereby other nations have attoined to great excellence. It is no answer to such an argument, although it is indeed true, to say that without these aids the general manufacture of such fabrics in Germany and France is behind our own; and that the private show of such works by Minton, Coresuperior to that of any private monufacturer of those e-untries. This may arise from various causes; but with the like advantages on our side it may well be imagined that much greater excellence would have been attaued, the want of skilled art-workmen being felt and acknowledged by these manufacturers as a great hindrance to the complete success of their manufacture. Moreover, it is but fair to remember that such royal and national as that fair to remomer that such roys, and assessed establishmeots, by the beautiful works produced in them, have added largely to the number of rewards won by other nations in this peaceful contention, and have placed at some apparent desidvantage the manufacturers and workmen of our own country. Let us hope, however, working apparent users among the instance was some apparent working of our own country. Let us hope, however, that the time is coming when England will seize engerly every proper means of improvement. Symptoms of it are already ahroad; and there seems a likelihood that the Great Exhibition of the Industry of all Nations will be valuable to oll in showing short-comings as well as excelleuces; and to none will it be more so than to the British nation, if it awakens us to a knowledge of our deficiency in ornamental art, and to a hearty endeavour immediately to remedy it.

It has already been stated that this Report originated in the consideration of "designs." It is proper, therefore, that the works of the designer should be examined and commented on, before the manufactures to the construction or for the ornamentation of which they were intended to be applied. From the artists we have a right to expect that tree taste, that scientific knowledge, and those sound principles, too often wanting in the manufactured works. The difficulties to be overcome in the various processes, or the limited resources of the manufacturer, together with the influence of the public taste on the demands of the market, may form some excuse for the manufacturer if his efforts are imperfect, or directed to sale rather than to excellence. But the designer has so long exclaimed against the bondage which has obliged him to please the public and the manufacturer at the sacrifice of his own better judgment, that he ought gladly to have seized on the present opportunity to exhibit a faith and practice of his own. Now at least he was at liberty to appeal to the few, and, untrammelled by any conditions, to exhibit his own powers, his own knowledge, taste, and better judgment, to lead men to the appreciation of the simple and the chaste as the true source of the beautiful. Another reason for community Another reason for commencing with the examination of the works of the artists was, that if the stream was pure at the fountain, the blame would justly lie with those who afterwards defiled it; or, in plain words, if the designer were proved to have set a good example in his works, false taste, where found, might be placed at the door of the manufacturer; while, on the contrary, some allowance might be made for him if the authorized teacher were wanting in taste and true principles.

Before proceeding with the subject, however, it is necessive for the existence, and application of design, which are to form the subject of this linguist. The largement of the design and manufacture are certified recorded, other very slightly slided to, and all imperfectly considered, the large mades of clauses and sub-dessering with the large number of clauses and sub-dessering with the large number of clauses and sub-dessering with the time and space allotted for such it, larger, to give more than a gament above of the subject. The attempt, the contraction of the subject of the subj

applicable to others, that, even thus generalized, the Report has reference to numerous manufactures which have not been specially considered, and to many individual cases that do nut range exactly under any one of the heads named in it.

use reconstrained in the been to declare the general principles as for an they can be arrived at, which ought to govern the design and ornamentation of any fabric, to to govern the design and ornamentation of any fabric, to the control of the state of

general nears; — Personal of Balanage Dongeste and other Farmiture — Donestie Utensils and objects of Personal Use — Garment Fabrics.

The general heads will be again subdivided as ful-

The general heads will be again subdivided as fullows:—

Decoration of buildings, consisting of—
 1st. Architectural decorations, painted, &c.
 2nd. Stone, carved wood, term cotta, carton-pierre.

and other relief decorations.

3rd. Stained glass.

4th. Inlaid floors, mosaic pavement, inlaid tiles, &c.
5th. Paper and other hangings.
6th. Metal-work,

 Domestic and other furniture, including cabinetwork of all kinds, and furniture of all meterials—

1st. Stoves, grates, fenders, lamps, gas-fittings, and other hardware. 2nd. Carpets, portières, table-covers, and floorcloths.

3rd. Curtains and hangings. 4th. Table-linen.

 Domestie utensils and objects of personal use— 1st. Porcelain, pottery, &c.

2nd. Table and ornamental gloss.
3rd. Works in the precious metals and jewellery, clocks, &c.

4th. Bookbinding.
4. Garment fabrics—

1st. Woven in patterns of any material, and handworked.

2nd. Printed 3rd. Loca

4th. Ribbons.

In recieving these varians classes it may happen this different materials, ornametric by the same means, and applied to the like uses, may be spaken of indifferently to even varied uses may be comprehended nader the same groomst remarks, where the same priorities of ornamentation are affectly applicable, since the object in view maintain the vice distinctions necessary under the several class Reports.

Drv. 1.—Decoration of Buildings. Architectural decoration, painted, &c.

Architectural decoration in casted wood, stone, terra cotta, carton-pierre, gutta percha, &c.

The objects in the Greet Echibides which range under two for the half of this section belong is almost every known with set forms made in the extension of the section of the product of the mass to being them under general refittions, or to define any principles which would be university applied to the contraction of parts of buildings, and of commentation on as to be advantationally applied. Properly speaking on as to be advantationally applied. Properly speaking contracting and interesting the contraction of the contraction

construction, be just, it will be apparent that it is hardly possible to judge of the one without the other. In works wherein the decorator makes his own sham construction in order to ornament it, as well as in those multiplied manufrictured "parts" which form the staple organises of n large class of workness in this line, we may admire the skill of the execution, the eleverness of the details, the excellence of the manufacture, or the imitation of early works of acknowledged merit; but to appreciate " decoration" we must view it as n whole in the place for which it was specially designed, and in harmony with the build-ing whose construction it ornaments. Moreover, it must mainly originate in local circumstances, and ought to have an individual significance. Here, however, the moment we euter upon the varied inspection we become sensible how impracticable it is to lay down any general canon for works which differ almost as widely as the beginning and end of time. In other ages of the world, pations have been forthunte in so adapting design to pre vailing wauts, and in sympathy with existing feelings, as to produce a national style. But in the present day men no longer attend to such considerations; they are wholly without such guiding principles, and consequently are totally without a characteristic style. They are satisfied with the indiscriminate reproduction of the architecture of Egypt, Greece, and Rome, or of Christendom in any, or all, its marked periods. Originality they have none. One man delights in a Gothic villa; another prefers the style of Italy: even India and China have their advocates, who never consider that climate and use should rule the choice, rather than fantasy and whim, and that there was be conditions arising from the present state of society, from fiscal regulations, modern habits, &c., which, duly attended to, would, in addition to mility, be likely to result in novelty and beauty.

It is this servity initially character of architecture which has no largely contributed decentrify alone, to the age of putty, paper manels, and gots percha. These the experiments of the service of the

From this monefactors of ornament arises all that mixture of styles, and that incomprainty of parts, which, perhaps, is itself "the style" of this characteriess age. Through it also, the plasterer and the paper-hanger too offen nursy the place of the arabitect, to the certain dismission of the place of the arabitect, to the certain dismission of the place of the arabitect, to the certain dismission of the place of the arabitect, and the place of the arabitect in tell another than the place of the place of the arabitect in such hinds to the place of the place

are few in number, and are very open to the foregoing criticism.

Those on the foreign side are in the French depart-

ment they even the very unprise of a faintein imagining and of the prise of the state of shiftliffy constructive tradit. Every when reasons it is cross-state or the state of
which is fitted up for its reception is badly lighted, and otherwise unsuitable, and the reverse of what is requisite for a library, for which the decoration is intended: but that matters little, since, under the best circumstances, it could be truly appreciated only in connexion with an architectural reality. It may deserve praise for its extremely dexterous and skilful execution; but this is quite a separate thing from exhibiting any just principles on which it has been designed. It may be said, however, that, as a ceiling, the decoration is too heavy, both in form and colour. This, which would be even more apparent in a lighter apartment, is a great error in a ceiling decoration, having the effect of depressing i', and diminishing the height of the room-a fault often seen in the richly gilt and massive ceilings of the continental It may, indeed, be laid down as a rule, that the decuration of a room should distinish it beavisess, in strength, and in gorgeousness as it passes into the ceiling. Theu again, as to the numerous ceiling decorations beneath the galleries on the English side; from the same causes it is only possible to speak of the skill of the decorative workman, since to judge of their local adaptation is out of the question: the light and graceful decorations being necessarily placed at the same height as the heavier and more richly treated ones, and of course their duo adsptation judged of equally by that height, although, perhaps, the one may have been designed for a much lower ceiling than the other. The like difficulties, arising from causes before enumerated, prevent the proper consideration of the various specimens of wall-decorations. The principles, however, which are given under the head of Paper-hangings, eminently apply to such

The restoration of parts of existing buildings calls for little originality in the designer, since it almost wholly consists in the careful study of the decoration which remains, aided by a knowledge of the traditional ornament of the period. Such are the carefully restored spandrel for Hereford Cathedral by N. J. COTTINGHAM spanares sor riereford Cathedral by N. J. COTTINGHAM (6.5, Main Avene West, p. 852), part of the tomb of Queen Philippa by S. CUNDY (60, Main Avenue West), and the wood-carving for the dining-room at East Stutton Place, designed by C. J. RITGARIJON (Class XXVI., 2074, p. 731). In such works the taste of the designer is shown in excluding the coarser characteristics of the style, and making use of those only which, if less marked are also less extravagant, adopting its general spirit rather than copying its individuality. Thus in the sister art the unskilful portrait-painter scircs on the most salient characteristics of his sitter, and dwells upon all the individual defects of form and feature: the result is a likeness indeed, but a caricature even upon the home original. The painter more skilled in his art avoids such original. The painter more stated in the account of the plainest face is refined and generalised. In the same way a 11/16 becomes degraded. The decorators who adopt it overlook the spirit of its general ides, and exaggerate its peculiar characteristics, until at length it is likely to become a mere distorted caricature. Thus it was that the Renaisneve amoures caracture. Thus it was that the Rensissance degenerated into the Tudor, and the oronment of Louis XIV, was further degraded into the roccoo and hizarre style which now goes by that name. A work, otherwise of much merit, may serve as a slight illustration of these remarks; it is the decoration, carved in tion of these remarks: it is the decoration, carved in walnut wood, for the end of a room, in the style of Francis I., exhibited by Messra, Holland and Foxs (Class XXVI., 161, p. 745). This skilful work is detracted from, in a degree, by want of due selection: thus the large shell-forms, used in the blocking course that the large shell-forms, used in the blocking course that the state of the above the cornice, are beavy and out of place in such a situation, and should not have been so used, however sanctioned by traditional authority. The ornamout of sanctioned by traditional authority. The ornament of the pilasters also, otherwise well designed and skilfully executed, ought in wood-carving to have been kept in lower relief, so as to have been within the surface of the pilaster Itself, instead of projecting beyond, by which it is at once evident that the ornament is applied, and not, as

Space will not permit, even if it were necessary, to speak of the numerous carved and other works in stone,

it should be, carved from the solid wood,

wood, and marthe, for descriptive abilitions to buildings, which did usering sures of the Lichtheim, were those children of the sures of the Lichtheim, where these of design, calls for regical notice. The errors of such as vis will other be found to organize in the construction that which explicit have been tobes in wrought in wood, we would remind the arrandor do in the same or metal. Ourst may be noticed as an example of this minute. Court may be noticed as an example of this minute, from the construction of the construction of the control of the construction of the control of the con-

It may not be amine here to advert to the error arising from excess which these works illustrate. Thus, the form excess which these works illustrate is supsistent to the control of the control of the supported on malachite polestals, groutly detecting from laving only the principal object made of the rare undetable of the control of the control of the control must which would arise from contrast is lost also, and the eye in fatigned with the quantity and sameones of of some homogeneous colour been used for the hoses of some homogeneous colour been used for the hoses

instead of the malachite.

Ornameuts manufactured from plaster materials, such as gutta-percha, putty, carton-pierre, &c., have nu doubt a substantial value in the Great Exhibition, commercially considered. As regards design, however, they are but dangerous subsidiaries, often doing greater injury, from the tasteless, misplaced, and false decoration arising from their use, than good, by ministering to decorative purposes. Apart from that monotonous multiplication of 1986. Apart from one necessarily resulting from the navarying productions of the mould and the die, which has been before allinded to, there are other evils sure to accompany nussifactured decorations such as those now under consideration. The great cheapaess of the substitute, com-pared with the real material, inevitably leads to excess. uch ornament always seems added or applied, stuck on as it were, and can rarely be made to appear as a part of construction; it therefore constantly carries with it a sense of natruth, till the mind and eye, from habit, become satisfied with it, and at the same time deadened to what is really true and good. Moreover, decoration of such materials must necessarily be patchy and incom picte: when the parts to be armamented are large, this evil is seen in its most exaggerated form; a florid and gandy centre has perhaps to be united with coarse corers, either hy other ornaments or hy the repetition of the centre portion, and all sorts of expedients must be resorted to "bring in" the parts so as to suit the architectural distribution of the apartment; it can indeed barely be possible that the quantities, or the geometrical arrangement in which the ornament has been originally constructed, will agree with the place to which it has to be adapted, and more or less of make-shift must be the One of the most important works in such materials is the centre compartment of a room in carton-pierre, by V. Caucher (810, France, p. 1219), which, with all the excellences of the manufacture, exhibits many of its prominent defects, and may serve to illustrate the general faults of such materials. Thus it is decidedly over ornamented, and this is shown not only in the excess of ornament, but in the want of relative scale between the ornament and the constructive forms of the architecture, the former being far too large, as well as too redundant. Scale also seems to have been quite disregarded in the parts themselves, since the fruit and flowers, the birds and game, of one part, are different in size from those of another part. The style, again, is mixed, one part being two centories earlier than the other. There part being two centories enrier man are is, hesides, far more pains taken with the exact rendering of fur or a feather, than in perfecting the form of a moulding, or the shape of a panel-the architecture has, in the designer's mind, been subordinate to the ornament and an ill-formed ellipse, or a course and unrefined moulding, appears of less importance to him than the mere

imitation of the feathers of his birds, or the fur of the animals of which his ornament consists. Carry this treat-ment a little further, and it will result in having the game, the fruit, the foliage, and the flowers out only modelled to the exactest imitation, but the skill of the painter called in to add to its naturalists, and the whole painted with the colours of nature; thus decoration will be thought perfect only when it competes with those strange relieved pietures which are exhibited in frames in close juxtaposition with the work in question. Of the artistic and skilful grouping, and of the merit of the modelling of the ornamental portions of this decoration of Cruchet's, there can be no question; but, as has been before said, even these excellences may merge into faults if they are too exclusively directed to mere imitation, and if the design to which they are applied has not the merit of a just perception of use and purpose, cause of evil in the use of the materials under consideration consists in the false principle of their application to decorative purposes. It is found, for instance, that peculiar qualities, which are difficult of attainment and an effort of great skill in other materials, can easily obtained by a new means; instead, therefore, of carefully studying its just adaptation to ornamental production, the effort is only to emulate in excess those peculiar qualities which are trials in the more intractable material. often happens, moreover, that the original works imitated were in false taste; and this becomes far more apparent in the copies, since the mind can no longer dwell on them with that admiration which is caused by a sense of diffi-culties overcome, and which compensated, in some degree, for the absence of good taste in the works they emulate: for instance, the exact imitation in wood or stone carving of the individual details rather than of the general clinracter of objects used as ornament, extreme relief, underentting, lightness, thinness, and picturesqueness of the forms of foliage and flowers, whereby their natural growth is attempted in carving rather than a due ornamental disposition of their forms-all tending to excess and exaggeration, and to be avoided rather than copied Another source of error consists in readering what should be true constructive forms into mere ornament: thus pilasters, and even columns, consoles and trusses intended to support weight, are manufactured in these imitative materials, and introduced only to decorate, until all sense of utility and construction is lost, and ornament becomes the principal instead of the subordinate. Such materials. however, are capable, under proper control, of useful application to ornamental purposes, both from their ready adaptability to various surfaces and forms, and from the cleanness and sharpness with which they can be monified, as is seen in the works of the GUTTA PERCHA CONPANY (85, Class XXVIII., p. 783), those of Jackson and Son (p. 750), of BIELEFIELD and Co. (157, Class XXVI., p. 744), and of others, as well as in the work above referred to. It is most desirable, therefore, that the errors to which a false application leads should be carefully pointed out, so as to bring these materials as much

as possible within their duly limited use.

Some of the above criticisms will apply to terra cetta
also; has this material, partaking largely of reality and
allowing of being perfected by the hand after the first
mechanical process of mostiding, would, under fitting
regulation, become a most useful and durable agent of
ornamental decoration.

STAINED GLASS DECORATION.

The set of painting on glass, or glass-staining, has come down to us on intumety mixed up with the ecclesization architecture of the middle ages, that it is sincet imposition architecture of the middle ages, that it is sincet imposition of the same pareat (the Church), and from the first both were equally devoted to her service. Of Gettion has always formed a necessary decoration: it follows, therefore, that its ornamentation is almost wholy traditional, and has relating to the survivous periods of the contains.

Not that it is necessary, or even desirable, that the spechs of the two arts should, in their revival, continue

to correspond; but the periods of each, whether simultaneous or otherwise, when utility and beauty were most fully nuderstood and attained, should be diligently studied in search of the principles that guided the actists of those times, and that which is best should be chosen, irrespective of mere correspondence of epoch or autiquarian authority. Moreover, the errors which the ignorance of an early age evidently occasioned should be carefully separated from the truths, and not considered as of necessity a part of the style of the period in which they are found-such, more particularly, as bad drawing and want of knowledge of the human figure; at the same time, that simplicity of treatment which is so highly characteristic of early works, which overhooks all details, and renders a composition from the Scriptures, or a single figure, more as a symbol than as a picture, should, if it is found to be a principle of excellence, be carefully

re-tained. As is the case with all other manufactures and fabrics. so it is with pointed glass: the question of utility, rightly considered, will lead us to some knowledge of what is most suitable in its treatment as a decoration. introduced into the numerous windows of Gothic architecture to temper the glare of light, and to serve in a manner as a blind, by preventing the direct entrance of the sun's rays, and also to shed that solemu religious light which so well accords with the sacred mysteries of religious worship. The mosaic glass of the early artists of the 12th and 13th centuries was most admirably adapted for this purpose: being composed of many small pieces of full and pure tints, with little white glass, the rays of the sun were broken and dispersed, the light lowered in brilliancy, and the whole effect was homo-geneous, rich, and solemn, sufficient light being still permitted to enter for the perfurmance of the religious services of the church. Even compositions of figures were subject to the principle that regulated the whole: the figures were small, so that the colour of their dirperies and accessories might be broken up into many pieces to give the same equal distribution as in the orna mental parts of the window. It would seem, indeed, that the painter did not intend to simulate a picture, but rather to symbolize a sacred text or thought, and the figures, therefore, were not so much pictorially arranged, as composed with extreme monamental simplicity; thus they not only partook of the general effect of the window, but the attention of the spectator, impressed with the solemn yet beautiful light, was, at the same time, filled with the holy thought conveyed by the subject, without being distracted by too great an individuality of parts. The representation of shadow, strictly speaking, was not admissible, the composition consisting only of flat forms of the greatest simplicity. For this, even, there would seem to be inst reasons: the light being transmitted through the glass to the spectator within, shadow would appear to be auomalous and out of place, since the illumination in such a case emanates from the figures themselves; moreover the simplicity of the shadowless forms was better suited to impress the eye from the distance at which such works must necessarily be viewed. Such would seem to be some of the principles which ought to regulate, and which in the best times did regulate, the design for painted glass. An entirely different view of the art has however sprung up with its revival, and has obtained many advocates, especially on the Continent, It has been felt how greatly art has advanced in the hands of the bistorical painter since the time spokes of that the principles of composition, of foreshortening, af perspective, of light and dark, and of the arrangement of colour, then quite unknows, have been discovered and developed; that drawing, then in its infancy and unaided by knowledge, has now arrived at maturity; and that science has given us power over the materials which they possessed not, and enabled us to conquer difficulties which they considered insuperable; and it is asked why the painter on glass should not avail himself of all these advantages, to perfect his art, and reader it as pictorial as the works of his brethren. By artists who entertain these views the surface of the window is treated almost as a canvas would be: the forms of the figures are large.

even us the size of life: the draperies are massive, and the heads painted with great instative skill and completeness. Chair-obseur and perspective are studied, not foreshortening and pictorial attateds in the figures supply the place of the unsumental and statuesque delineations of the earlier artists, in fact everything is done to treat

the window as a picture To the advocates of this style it may be objected, that a picture is specially intended to address itself to the a pacture is specially interested to an interest and send imagination only, while painted glass has a reference to use also; and that, apart from this consideration, each and every art has its own mode of rendering nature - not necessarily implying deep/ive or complete imitation; thus, for instance, the art of the sculptor is a generalized imitation of form, and even the painter of high art does not desire to make his picture deceptively imitative, but listens with impatience to the remarks of the ignment, who are apt to praise his work for this quality above others proper to it which they do not understand. An outline of Flaxman's fills the mind with a perfect sense of beauty and with the fulness of a poetical idea; sarely, then, the flat and simple treatment of subjects in glass-painting, if such treatment is requisite for its utility and most in consenance with its other qualities, may be found sufficient to give as complete an expression to the pictorial rendering of a Scripture trath as the material and situation of such works require.

Among the works in the Great Exhibition, both man ners are adequately represented. Thus the pictorial method is well illustrated in the ably executed window of Marschal and Guyson (\$29, France, p. 1193), of "St. Charles administering the Communion to the Plague-Here the forms are simple and broad, the masses of colour large, and the effect thoroughly that of a transparent picture, with all its details well drawn, carefully painted, and rounded by shadow; while the composition is arranged with regard to the laws of clairobscur. But instead of that general and harmonious effect of sobered light, which is so desirable in stained class for the windows of a religious edifice, the effect is painful to the eye from its extreme brightness, and the window would irresistibly obtrude Itself upon the atteation of the spectator, and rather distract his thoughts then induce that solemn repose of mind which is so con-sistent with the place. The great Dante Window, by G. BERTINI, of Milan (Main Avenue, West, p. 1644), is another example of this method. It is a very skilful work so far as regards the manipulative means, well drawn and painted, and exhausting the resources of the material. As a window, however, it is exceedingly sombre, and would far too much reduce the light in any sominee, and wound far too much reduce the light un any building to which it might be applied. The colouring is cool and pleasant, in which respect it is better than Marechal's window, which is too hot. It is to be observed, also, that the construction of the window is greatly in the way in these pictorial treatments, and that a false construction has been adopted in both these works, in the latter, indeed, without the slightest architectural fitness. The inher method of treatment has also many represen-tatives, some of much merit. Among these, the "History of Sumsou," by A. GERENTE (517a, France, p. 1203), a work of great purity as to traditional style, although in adopting the just principles of design the faults of the age have been adopted also, which must be objected to, The texture of colour in the glass, if such a term may be nsed, has been obtained with great skill by this artist. Lemon's window (565, France, p. 1205), competitive for the St. Chapelle, is also a good example of this manner—dust and time, and the corresion of the glass, have, however, been too much imitated, necessarily perhave, however, been too mach initiated, necessarity perhaps in a restoration, but rather interfering with this nthewise meritorious work. HOLLAND, of Warwick, "Life of Christ" (407, Chas XXVI, p. 700), I. M. Ginus (North-east Gallery, 75, Class XXVI, p. 707), and Messrs, CHANCE and Co. (60, Class XXIV, p. 707), and Messrs, CHANCE and Co. (60, Class XXIV, p. 706), have speciations of

glass of this style of various merit.

It would seem to be a great fault in glass to have a pervailing tint or hue, since by a truly hurmonious composition of colour such a result would be avoided.

his defect is visible in the glass exhibited in the Northeast Gallery, in some of which a prevailing green, in uthers a yellow har, is observable. This is often the ease also with the modern French glass, as seen in some of the restored courenes of Paris, more especially the pictorial glass, in which a hot red has is often present, sometimes to a painful extent : the flesh especially is hot, and dirty in the shadows. It is to be doubted, indeed, if, with all our knowledge of the harmony and complements of colours, we have yet attained to the principles by which the old glass-painters arranged their agreeable combinations. Whatever was the method, the effect was coolness of general tone: the flesh had little local colour, the prevailing tiuts of the draperies and accessories were blue, cool green, and amethyst, and even the red was cool, inclining to crimson. The hot browns of the fiesh in the modern glass, together with its opacity, are often very disagreeable, and the effect of scarlet instead of crimson may be seen in the work of Manzenat, before spoken of, where the robe of the cardinal who is administering the sacrament (a large mass) is of that hue, and greatly tends to increase the hot and plaring effect of the In the Parisian churches, where ancient and modern glass are both to be found, even when the former is not of the best period, as in St. Germain l'Auxerrois, fur instance, it is quite refreshing to turn the eye from the mode n to the old glass, showing how far more harmnnions the nue is than the other.

In artisating the excellences of the one or the other superior starting it the author method is the socioed, and the meads austher liability to accidents from the superior starting it the author method is the superior and the meads austher liability to accidents from the superior starting in the superior starting in the superior district destroy the fixed periors of a pietestial window. I are former to be possible to the superior starting in principle. These are ninner metric, but of them may be added by protuly increased brilliancy of colars central the superior starting in the superior scaled by the starting in the superior scaled by the superior of the leading and the latter occasional by the work of the protunt of the protunt of the protuntion of the superior scale of the protunt of the superior scale of the protunt of the protuntion of the superior of the protunt of the protuntion of the superior of the protunt of the protuntion of the superior of the protunt of the protuntion of the superior of the protunt of the protunt of the superior of the protunt of the protunt of the superior of the protunt of the protunt of the protunt of the superior of the protunt of the protunt of the superior of the protunt of the protunt of the protunt of the superior of the protunt of the superior of the protunt of the protunt of the protunt of the superior of the protunt of the protunt of the protunt of the superior of the protunt of the protunt of the protunt of the superior of the protunt of the protunt of the protunt of the superior of the protunt of the protunt of the protunt of the superior of the protunt of the protunt of the protunt of the protunt of the superior of the protunt of the protunt of the protunt of the protunt of the superior of the protunt of the protunt of the protunt of the superior of the protunt of the protunt of the protunt of the superior of the protunt of the protunt of the protunt of the superior of the prot

sure of the winds: thus, at Hoddon Hall, in the long gallery, glazed in the reign of Ellasteht, each window is waved iowards and outwards over the whole surface, and each piece of glass cut to adapt it to this treatment: the result has been great dismbility, even although the lead of uncoloured glass; but it may probably point to some such method being used in decorated windows, to enhance their brilliances and increase their effect.

INLAID FLOORS, MOSAIC PAVENERTS, INLAID TILES, &c. The ornament of this section seems the soundest and most satisfactory in the Exhibition—the most free from false principles, the most thoroughly amenable to true. Although this no doubt partly arises from the combitions of the manufacture, it is, in a degree, to be attributed to other causes. The modern introduction of such works in Eugland was at a fortunate time, when the attention of the ecclesiologists and of able artists was called to the revival of medieval art, and to the study of the best works of Greece and Italy. The designer, therefore, started upon just principles, and continues to adhere to them, even repudiating some of what must be considered errors in the ancient works which have been handed down to us, such as those arrange-ments of light and dark inlays, giving the appearance of relief, which are found occasionally even in the best asscient examples. The "designs" exhibited are almost wholly on the English side. Apart from those in con-junction with manufactured specimens, Mr. Digny WYATT's are the most important: they are varied and fauciful, thoroughly flat in treatment, and consisting mostly of combinations of simple geometrical form although there are some of Italian conventionalised They evidence the careful examination and study which the artist has given to the best antique and mediceval treatments of mosaic. Mr. Minton, of Stokeupon-Trent (86, Class XXVII., p. 770), makes the most important exhibition of such works from designs of Pugin, Gruner, Wyatt, &c., together with some copies of fine medieval examples and ancient works of great merit, The illustration No. 1 is of an enamelled wall-tile. imitated from one found at Salisbury, and is given here to show the mode in which flowers were used as orna-

ment in such works by the incideral artists. The flumer is displayed perfectly flat, in one colour, and arranged geometrically.

No. 2 is given as a more intricate treatment on the

same sound principles, and is from a design by Mr. Pugin. No. 2.





No. 3 is a intiglic and summitted the of a Moothis pattern, for evering the earlier of a sufficient pattern, for evering the earlier of a sufficient pattern, and with a look-in horosomium richness and the summary and the summary and the pattern of the summary and and prolescentry works in bright and many and and prolescentry works in bright and summary and and prolescentry works in bright and summary and the pattern of the pattern of the summary and the pattern of the designer with the skill of the thie-make real transportation of the summary and the summary and the summary and the summary and solven which the summary and the summ



tion of Loudon, bricks must strays be the pervaling material for building perpose a non-mass, therefore, material for building perpose and mass, therefore, especially desirable, and should be excelled smalled the most policies and sound principles of examples of the control of a new Holl into the smalletten, both as in swed forms and the application of echoused ormanust to their manufactures, both as in swed forms and the application of echoused ormanust as well as perfect in combinations, a circumstance which we have a support of the control of the system brick should be perfect in itself as well as perfect in combinations, a circumstance which makes a control of the system brick should be perfect in the state of the control of the system of the control of the system of the control of the system of the control of the c

From the goueral use of carpets, considered, as they are, as a necessary comfort in this country, inlaid floors are far less used here than on the Continent, and it is on the foreign disk therefore, that the base design applied metation, of course, is the same as that for nonsites and other inlays; care, however, should be taken to select wood without a strongly marked form in its grain, asine this is likely to interfer with the pattern of the inlay it is a likely to interfer with the pattern of the inlay continued to the control of the wood in cutting.

Many skilled and largenism combinations of generated from two was the west of that skill in Balgaine, the state of the state of the skilled skilled and the of the bed-chamber in the Austrian room, of which the of the bed-chamber in the Austrian room, of which the with maple words in simple and glewing in effects; and a flower by Dr. Kerr and Cu. (see, Feguine, p. 11cs., which may be a state of the state of the state of the conmitted of the way dever inkely as flower and Erniuser on the state of the state of the state of the state of the man laritant geometrical character, excellently covered, for bothers, peach, feet, & Rouge instand an excertisions has do most other sections of the Euklish which the state of the state

PAPER AND OTHER HANGINGS.

If the use of such materials is borne in mind, the oper decoration for them will at once be evident, since this ought to bear the same relation to the objects in the room that a background does to a picture. In art, a background, if well designed, has its own distinctive features, yet these are to be so far suppressed and subdued as not to invite special attention, while as a whole it ought to be entirely subservient to supporting and enhancing the prioripal figures—the subject of the pic-ture. The decoration of a walk, if designed on good rinciples, has a like office: it is a background to the furniture, the objects of art, and the occupants of the apartment. It may enrich the general effect, and add to magnificence, or be made to lighten or deepen the character of the chamber: it may appear to temper the heat of summer, or to give a sense of warmth and comfort to the winter: it may have the effect of increasing the size of a saloon, or of closing-in the walls of a library or study: all which, by a due adaptation of colour, can be easily accomplished. But, like the background to which it has been compared, although its ornament may have a distinctive character for any of these purposes, it must be subdued, and uncontrasted in light and shade; strictly speaking, it should be flat and conventionalized, lines or forms harsh or cutting on the ground as far as possible avoided, except where necessary to give expression to the ornamentation. Imitative treatments are objectionable on principle, both as introding on the senso of flatness, and as being too attractive in their details and colour to be sufficiently retiring and anobtrusive. Some of the best examples, as well of paper as of silk, velvet, and other hangings, are treatments of testure in a self-colour; as of flock on plain or satined ground in paper, of tabby and satin in silk hangings, of stamped forms or cutting in velvet, or the same contrast of pattern with the ground in various mixed stuffs. By these means the ornament is necessarily flat, and does not disturb the general effect. With the slightest attention to the choice of form it can hardly be in lad taste, whilst great elegance and beauty often arise from such treatments. Next to these, graduated tiuts of the same rologr produce a safe and quiet ornamentation for such fabrics; or gold upon a coloured ground, where the gold is sparingly distributed, and the colour not too strongly contrasted, since in all cases a general tone of surface is to be sought for rather than procounted individual forms. Further richness may be obtained by the judicious use of two or more colours, either, according to the auctent method of larmony, separated from each other by bands of black, white, or gold, or contrasted and cubanced by their comwante, or good, or contrasted and commerce by their com-plementaries, and curiebed by flock in either case, in the latter by gold. But it is everywhere apparent that the combination of many colours, though it may increase expense from the number of blocks, is far from producing richness in the same degree, while it has often quite the contrary effect, and results only in poverty and It is necessary, however, to advert to a perfectly different treatment of these materials quite at variance with these rules, and bound by no such prinreples, by which paper-hanging becomes a pseudo-decora-tion, the wall being divided into compartments often irrespective of architectural construction, and pilasters, friezes, and mouldings imitated in false relief on its surface, with compositions of pictures, statues, hangings, flowers, fruits, &c., skilfully designed and well drawn, and, it may be, often most ably blocked for the purpose of printing; it is, however, at best but a sham decoration, often constructively inapplicable, and always impertinent and obtrusive, and should be left to those who, desiring display, are too much wanting in taste to be annoyed at its nutrath and extravagance. It perhaps is not quite out of place in the saloon of a theatre, in cafes, or tuverus, but ought to be conflied to such localities, and only used there until the general taste is so far instructed that the multic will no largest teleprate multithat the public will no longer tolerate goody shams and false magnificence.

The same laws which enght to govern design for

raper-hangings would, therefore, appear proper to rega- | geneous, are less original, and equally wanting in a late hangings of other fabrics, tapestries, &c. Although far from looking at ornament in that exclusive spirit which would reject what is beautiful when it does not square with the requisitions of a theory, it must be obvious that pictorial and picturesque treatments for such falcies are wrong whenever they introde on the domain of another art. Thus figures, landscapes, fruits, and flowers, when rendered as they would be in works of fine art, are almost of necessity inferior to the pictures they imitate, even when they are as skilfully and wonderfally wrought as in the works exhibited by the national establishment of the Gobelius, where every effort of skill and science has been most successfully used for their manufacture and embellishment. Indeed, it is a matter of doubt whether custom, and the authority of great names and of past times, are not the causes of the continued admiration of such decorations, which perhaps we rather persuate ourselves we like than are fully satisfied with, With very few exceptions, the exhibited "designs" for hangings appear to be totally narrogulated by any perception of rules for their ornamentation, and, even when they hannen to be on just principles, would seem to be so by chance rather than by choice. They are mostly florid and gaudy compositions, consisting of architectural ornameut in relief, with imitative flowers and foliage. In some of the eleverest designs the flowers and foliage are perspectively rendered with the full force of their natural slores, and light and shade; moreover, they are often three or four times as large as nature, whereby the size of a room would be apparently diminished. The French are the largest contributors, and their designs are characterised by the foregoing remarks; they are, however, exceedingly skilful in their details, the flowers and foliage well understood and artistically arranged, and blocked with great skill and knowledge; but as to style they are most objectionable, and lead to the worst results, especially in the common manufacture of such goods.

The papils of the Government schools exhibit, among other designs, some meritorious ones for paper-hanging. It is evident that their general taste is controlled and regulated by the knowledge of the just principles which should govern the ornamentation of these as well as of the other manufactures for which they have laboured. Being students' works, they can hardly be expected to abound in fancy or invention, and it is sufficient to find that they are well drawn, skilfully executed, and amenable to just laws of composition. In examining the design applied to the manufactures themselves, the same want just principles is observable as in the works of the gners. It is true that manufacturers must produce works in every style, as well to suit those who are unable to appreciate what is good, as those of more informed taste; hut it might be expected, in an Exhibition of this unture—an Exhibition of skilled labour and of the strife after excellence -that excellence would be the rule, and error the exception, whereas the reverse is generally the Were it a part of the duty of the Reporter to enter iuto the clever and skilful execution, the treatment of the pigments, the excellent blocking, or the general manufacture of such fahries, there would be much to say of the foreign exhibitors, DELICOURT (France, 1715, p. 1258) and Zunez (France, 1536, p. 1250), Spountin and Zun-MERMANN (Austria, 651, p. 1041) of Vienna, and others, as well as of Townsend and PARKER (Class XXVI., as well as of Townson and Labour (1888), and others on the English side; but in the design of their papers there is little to commend, and works of passable excellence in this respect are the rare exceptions to their collections. One or two designs, delicate in colour and on just principles, are exhibited by FETTER and RAHN (262, p. 1375) in the Russisn Court, mixed up, however, with others in the usual false taste; and passable designs on the principles herein advocated are to be found occa-sionally in other collections, evidently resulting from a happy socident rather than a well-regulated choice. The English and foreign mannfacturers seem equally at sea: with the exception of a few simple diapers, which hardly call for individual remark, the works of the best ex-hibitors on the English side, while they are very bettersound knowledge of what is properly characteristic for

such works, There are, however, honourable exceptions to these There are, nowever, nonounsus exceptions to these remarks: after passing in review the paper-hangings of the various countries, it is quite refreshing to meet this clever wax-cloud decorations exhibited by M. E. T. Viver, France, 734, p. 1215. The ornament of these works is without shadow or imitated relief, thoroughly flat in its forms, which consist of graceful and flowing lines; the colour is equal in scale, without harsh contrasts, and of semi-neutral lines. There is no attempt at shams, to imitate marble, or oak, or any carving; nor to panel it, which is left to arise out of the architectural forms; but a series of graceful lines, with a quiet uniformity of tint, satisfy the mind and give repose to the eye. Moreover, having laid down certain principles on which mon-factores and fabrics should be designed with a view to the true use of materials, and to avoid nunecessary display, by the proper application of ornameut, it is im-possible to refrain from speaking in high terms of the works contained in the Mediaval Court, manufactured works contained in the Mediciral Court, manufactured by Mestrs. Mytzke (Class XXVI, 528, p. 761), Mistrox (ibid, 531, p. 761). Chacre (libid, 559, p. 761), and Hardman (ibid, 532, p. 761), ander the direction and from the designs of Mr. W. Pucix (ibid, p. 761). Some may object to the exclusiveness of the style. to its too purely ecclesiastical and traditional character, even in domestic works; but for just principles of decoration, for beautiful details, for correct use of accoration, for beautiful actins, for correct use of materials, and far excellent workmanship, the general collection is unique. Thus, in the paper-hangings, for instance, there is no throwing away of many blocks to ohtain richness, when one or two can be made sufficient: there is a perfect flatness and a subdued harmony of eolour in all such works; and if Tudor roses and heraldio lions are sometimes too pronounced, and there is occa-sionally a little excess of ornament, richness is generally obtained at the smallest sacrifice of means, and without any sacrifice of truth. The same may be said of the hangings in silk and wool, and the carpets in this col-lection, the designs for which are highly commendable for their strict adherence to true principles.

Without having any sympathy with the opplication of decorative paper-hangings, such as those of Dz.z.co.er. (France, 1715, p. 1259) and others, it would be unjust to pass them without praising the artist-like design, the property of the pass of the property of the pass of the property of the pass of the property of t powerful execution, and the great shility displayed in these works by the French artists. In that by Delicourt, besides the skilfully-blocked hunting subject of the centre panel, the details of the parts, such as the grouping of the game and arms on the pilasters, and of the hirds and children on the friese, have great merit, spart from the printing. The same may be said of the work exhibited by Mark Brothers (France, 1369, p. 1241), which is an extremely fanciful and clever piece of decoration, and in as good taste as such false treatments can well be. The frieze of children is well designed and ahly managed for printing; the landscape of Zunnax (France, 1369 p. 1241) has also much merit in its details; and the work of

Greer has parts worthy of examination.

These decorations bear out the remarks at the opening of this Report as to the superiority of the French workg artists. The men who carry out the designer's in-utions in France must themselves have a large share of skill and art-knowledge to be able to prepare the design for the manufacturer's processes with the ability so evident in the works just remarked upon.

Among the English contributions in paper-hanging are specimens of the lately-introduced processes of printing by such machinery as is used for cotton goods, and of applying many colours from one block. These are likely to create a style of ornamentation for such fishries of the most deprayed kind. The largeness and flatness of de-tails attainable by block-printing are less suited to cylinder printing than more minute details, and the new processes offer ready means of applying several colours at a small licace the effort has been to impress as many tints as

the number of colours than any other quality. Thus we are informed that works are printed in "sixteen colours in "forteen colours," &c., the works themselves evi-dencing the absence of all knowledge of the effective arrangement of colour; while violent, crude, and harsh tints are too often used to give greater impression of this excellence! and the result is littleness and extreme meanness; in fact, such papers are, in point of design, much inferior to those printed in two colours by the same nanchinery. Well-considered design, thoroughly adapted for this process, would enable the manufacturer to unite good taste with extreme cheapness; whereas the only present result is by increased labour to detract from the beauty of the ornamentation. It is impossible, however, not to remark the skilful printing exhibited by our English manufacturers.

EXTERIOR AND OTHER METAL WORK. The works, in metal, of this section which are exhi-

hited, consist chiefly of constructions for fountains, and of ornamental iron-work in gates and balconies, and for door-panels, lamp-pillars, flower-vases, and tazzas. best of the metal fountains are so nearly within the limits of fine art, that their consideration may be left to that class. It is, however, to be remarked, that the zine castings of the French and German founders show how suitable that metal is, as a means of spreading the best art, for any exterior purpose, in a chesp and durable ma-terial, as well as of embellishing public works of the above-named character, at comparatively small cost, without the evils arising from oxidation when iron is used. Notwithstanding all that has been said about the incongruity of our climate with public fountains, there are undoubt-edly long periods of the year, and those when London is most crowded as well with her own resident population ns with visitors, when such works are not only extremely ornamental, but when an exhausting atmosphere would render them of real utility and refreshment. The motion of water, at any season, has a great charm, and is peculiar in its power of giving pleasure even in the simplest ict or fall, agreeably and artistically disposed; and ornanicental arrangements for its full display would not only be picturesque additions to our city, which offers so many localities for their adoption, but would afford to our artists motives for combinations of figures with ornamental decoration, and thus, perhaps, be a means of once more uniting fine and ornamental art, which, sadly to the deterioration of public taste, have for so long a time been almost wholly separated. It may be donhted if the public atmost wholly separated. It may be donated if the punite would willingly part with even the tame and common-place repetitions which adorn Trafalgar Square; and those who have had the pleasure of enjoying the fountains of Italy and France will be quite prepared to judge of the effect which more skilfully-designed structures would have on the public mind here.

Such works in iron as gates, balconies, and panels, are, for the greater part, in cast metal, which of late years, from its capability of cheap ornamentation, has almost wholly superseded wrought iron for these purposes. Where the object is intended to be fixed and immoveable, as a baleony or panel, cast work is not unsuitable, and is capable of much beauty of ornamental design, as we see in panels exhibited by Muerit, Wart, and Co. (France, 934, p. 1225). In these the ornament adds to the strength by its numerous articulations, while it is light and elegant in its forms. Works of this kind are generally of a size to admit of casting in one piece, ensuring thereby strength and lightness by continuity of parts. But in cast-iron constructions intended to be movemble, as in the various kinds of gates, a very different character of design is no-essary; in the first place, because entire casting is not always possible, both from the difficulty of running the metal into the numerous ramifications of the ornament in works of such increased size, and from the fear of warping in the cooling, as well as the great expense of a mould, which is saved by forming the ornament of a series of parts. This leads to the necessity of framing the work in wrought, and applying the ornamental details in cast iron; but hence results this evil, that the ornament

possible on paper, and excellence is reckoned rather by has little constructive use, and is apt to look rather an addition than an integral part of the work. In the park-gates exhibited at the south end of the Transept, great pains have been taken to get over this difficulty, but not with success, since the two metals are joined in paris wholly at variance with constructive strength; in fact, it is a wrought-iron design, partly executed in cast metal, Moreover, cast-iron ornament is necessarily far heavier than that of wrought iron, from the extreme brittleness of the cast metal; this heaviness is sadly opposed to its real constructive strength in the manner usually adopted for putting together; the ornamental parts of such structares being riveted or screwed into the framing, there are smaller points of attachment than in wrought iron; the parts bed themselves less perfectly at the junction, since it is impossible to assist this union with the hammer, and the metal has small tenacity, and easily breaks with any sadden jar: thus there is much less power to support, while there is of necessity much greater weight to bear; and without very careful and well-considered design, making the ornament as far as possible a brace to the work, the whole is apt to be an insecure aggregation of parts, without constructive unity or truth. In large works, cast in one piece, such difficulties are greatly sur-mounted, as weight can then be made to add strength, instead of detracting from it. In the old hammerwrought gates, the ornament was not only a truly integral part of the work, but most materially assisted in the general support. Thus great lightness and elegance were in this case, consistent with great strength, since the ornamental details supplied a means, nut only of tying and bracing the work together, but of preventing the front of the gate from drooping with its own weight, to the great hindrance of its use, and which in east works of kind has often to be assisted by the pre of frictionrollers-a make-shift that the older workness would have despised. When, therefore, we consider the varied beauty of which wrought iron is capable, its far greater dura-bility, its tenacity and power of resisting accidents, the individuality of design which arises from its being wrought by the hand instead of east in a mould (thereby lea the fancy and the feeling of the workman untrammelled it seems not too much to say that it is to be hoped the use of the wrought metal will again prevail over that of east for such purposes.

The gates and pilasters exhibited by the COALBROOK-DALE COMPART (p. 659-660), at the north end of the Transept, from designs by Charles Crookes, are an excellent specimen of easting, being wholly of east iron, each gate in one piece. Much of the false construction allusted to has consequently been avoided, and many of the diffi-culties overcome. The design of the gates, however, partakes too much of that adopted in wrought constructions, especially in carrying up the form of the centre, at the top, into florid ornamentation, which tends in this weightier metal to sway down the gate, without any compensating beauty or usefulness. The introduction of a heavy panel of ornament below is also rather commonplace, and due regard seems hardly to have been had to the whole surface in designing the ornamentation, pilasters have more originality: the small twisted bara surrounding the centre columns give n lightness, com-pared with the strength obtained, which adds to the elegance: the striking-plates of the hand-gates, however, should have been ornamentally constructed or banded in with the pilasters in the centre, to increase the strength and resist the jar of the closing. The other great work in metal by this Company is an ornamental dome of cast iron (Main Avenne West, 83). This is a work of much pretension, designed in the natoral style, the pilasters representing oak-stems, ornamented with leaves and acorns, and with the intercening branches twisted into an oriamental form: this treatment is mixed with some conventional ornament, here and there, as it were, indis-eriminately introduced into the pilasters, having a very patchy effect. The pilasters, also, arising as they do from a single stem, and widening above their base, lave an unsteady and insecure appearance, which might easily have been avoided. The great fault, however, is in the setting on of the dome, which from the outside seems to

have no constructive connexion with the pilasters, since in It the rusticated treatment is abandoved, and it seems dropped in among the branches, without any proper sup-port. The work, severtheless, has a certain impressiveess from its size, and its general proportions are well chosen.

There are in various parts of the Exhibition gardenseats and chairs in east metal, which are principally to be noticed from the great want of due consideration of the material evidenced in their design; thus sometimes they are ornamentally constructed of branches and foliage naturally imitated, or of branches alone; while, in others, carved and flowing lines are given to the back, arms, and legs of the seat, which add nothing to the comfort of their use, and sadly detract from the form properly belonging to such works in cast metal, which should be right-lined, and have a geometric character both of ornamentation and construction. It must be confessed, indeed, that the tendency to consider the ornament before either the requirement of the material or the use to which the work is to be applied, is but too evident in many of the works in metal in this class. Thus, two large lamppillars, designed by an architect, and exhibited in the Austrian department, have as much iron in their overcharged bases as would found three pillars, each capable of sustaining the taper upper shaft of the same design The application of metal to the construction of the building is, on the other hand, an excellent example of just use, construction having had the first consideration, and ornament being entirely subservient; a due amount of elegance has nevertheless resulted from its simplicity, and from the true principles on which it has been designed.

Day. 2 .- Domestic and other Furniture. A very large and important section of the Exhibition

is comprised under the head of furniture and upbolstery, and such works claim especial attention in this Report both as to their general design and their ornamentation, Almost every nation contributing to the Exhibition has sent to us its share of furniture, so that here, it might fairly be supposed, we should be able to study the conveniences for living which each country possesses, and their various contrivances for case and rest

The English natioo, more especially, having that pe-culiar word comfort in its language, might be expected to exhibit how that sense of comfort is adequately provided for; and since, as a untion, we have a reputation for what is solid and substantial, that our furniture at least, so mixed up as it necessarily is with our daily life, with our home habits, and with our national mode of living, would, both as to design and ornament, be solid, substantial, sensible, and useful. Our continental neighbours, on the contrary, living as they do more abroad than the Eng-lish, and being usually presumed to delight in the gay and the ornamental, would be likely to display more fanciful, showy, and decorative works in this Class. In other manufactures, plain and useful fabries are exhibited, even when they have no preteosions to examental design; it seems therefore rather unfortunate that in the furniture on both sides of the huilding, but more especially on the British, the ornamental so Inrgely prevails to the exclu-sion of the useful, and that tables, chairs, and beds, fitted

for convenience, rest, and repose, have been made to give place to what are presumed to deserve the name of objects English furniture has, until lately, coluyed a reputa-tion for its excellence of make and thorough usefulness, and manufacturers were wont to rest their credit ou good materials and excellent workmanship. In such furniture the doors fitted with the nicest accuracy, the drawers moved with perfect smoothness, and the wood was so well seasoned that a faulty panel or shrunken joint was out of the question: it descended as a possession from father to son, seeming the better for its very age, and, as is faucied of old pictures, gaining richness even from time. But these seosible qualities, in which we undoubtedly used to excel, have on this occasion been less regarded by our manufacturers than decoration and display, and they have mostly selected furniture of a class allowing

the largest application of ornament, as sidebeards, cabinets, bookcases, and works of the like kind, an which to exercise their skill, too often neglecting their own peculiar strength to rush into competition with their foreign rivals, without the skilled art-workman to execute, or the taste to design, which they possess. Nor is the foreign depart-ment wholly free from this misdirected effort to excel. which has resulted in many instances in over ornamentation; thus, there are chairs so decorated that rest is impossible, cahinets and bookcases which take up much room and hold little, and beds so monumental that they remind us rather of the last sleep than of a couch fitted for our nightly repose.

nor our nagenty repose. In endeayouring to lay down principles which may serve as general rules for the designer, it will without difficulty be conseded that, in every kind of familiare having a specific purpose, the first consideration of the designer should be seen. naving a specific purpose, the first consideration of the designer should be perfect adaptation to intended use; this may appear so obvious a truism as to want no enforcement, but a walk through the Exhibition will speedily undeceive us, for there we see a multitude of objects offending against this rule; in some of these use is almost offending against this rule; in some of traces use is among cutively overlooked, or has been evidently quite a secon-dary consideration, whilst in others it partially gives way either to effect or ornament. Thus in the English department a table of costly mannfacture has ornament in solid rulef on its upper surface, and many of the grates evidently require a glass-case, since fire and smoke would be the worst enemies to such polished marvels. Nor are these faults peculiar to Eugland; on the foreign side may be seen a pianoforte, surrounded by hristling bullrashes, which must always be catebing in the dresses of those who approach it, and with hardly a right line in any part of it; and chairs so beavy that they must be fixtures instead of moveables; while of minor incongruities, the instances are too numerous to specify. Manufacturers should also aim at obtaining the greatest amount of convenience and accommodation in the least space, in order that the furniture may be as suitable as possible to the size and uses of the apartment in which it is placed. Another consideration to be attended to is stability of

construction, apparent as well as real; the first being recessary to satisfy the eye, the last being indispensable to excellence and durability. Thus the legs of articles of furniture, designed in the style of Lonis XV., are often broken in the centre across the grain of the wood, or having their hase of support far within the perpendicular line of the bearing; a fault which, though not actually rendering them unstable, yet offends the eye as much as

if they were really insecure. The constructive forms, moreover, should not be obscured by the ornament, but rather brought out by it: nor should all portions be equally decorated, but only such parts as friezes, pilasters, enpitals, pillars, or paoels; herein simplicity is the safest guide to beauty. Over-enrichment, indeed, destroys itself, and it would not be difficult to point out works of the greatest pretension and the most costly workmanship, which are completely spoilt by this fault. Cabinets entirely covered with earying, the very stiles and rails being as decorated as the panels and pilosters; metal chandeliers, with leaves and flowers in as great profusion as in nature: papier mache hidden under a surface of pearl and gold. So extremely prevalent, indeed, is this error, that it may be said to be the raling vice of the Exhibition. It should be remembered that contrast is one of the first elements of pleasure, and that repose is one of the most valued excellences of art; thus simplicity serves as the background to orunment, as the setting to the gem, or the foil that cohances the beauty of the jewel; and the good artist is as much shown by sparing his labour as the bad one by over-

It results from the above rule that ornament should It results from the above rule that ornament about arise out of construction; the work, abstractly, should be constructed, and then decorated; not that it is mean that the cramment should be applied to the object, but (as in wood for instance) carved from it; than the leg formed for support, the pilaster or columns for bearing, may be lightened and euriched by cutting away from the block or slab, not by adding to it. It has natural state man is

eoriehment.

a true workman in this respect, and works on just prin-ciples without knowing it. The New Zenlander or the South Sea Islander first forms his war-club or his paddle of the shape best adapted for use, and then curves the surface to ornament it. The Swiss pensant, or the shepherd of nur own hills, does the same. Such also is the case in the Eastern specimens of these works in the Exhibition, as is particularly exemplified in some choicely carved sandal-wood boxes in the Indian Department. Here the natural and the refined taste agree, for the best woodcarved ornament of the Renaissance is on this principle, low in relief, seldom projecting beyond the surface of the pilaster, or the framing of the panel. In this respect the French furniture as a whole is advantageously contrasted with ours, there being less of that imitative treatment, of those hulky hunches of flowers and fruits, which roject in such graceless abundance from a large number of the British productions. This arises partly from their far greater knowledge, partly from their better appreciation This arises partly from their far of the laws of ornamental treatment and arrang

Another subject requiring attention from the designed in the judicious behieve of the materials from which the works are to be manufactured. Allusion has before been made to the error of subpting one material to the ornamade to the error of subpting one material to the ornamade to the error of subpting one materials to the ornamade to the error of subject to the error of the error avoiding this fault, the material itself should be so error ployed as to display it to the greatest advantage, and to produce the fullest effect of which it is capable. This galax, or any other material,

Thus, for instance, in wood-carving care should be taken not only to have the relief so managed as to guard the work as much as possible from accidental injury, but the designer should seek to adapt the forms of the ornament to the direction of the grain when it is open or free, and the work should be framed with a view to this consideration; moreover, ornamental carving should not be applied to wood of strongly-marked party-coloured grain, hut that which is homogeneous in colour should be selected for the purpose, in order that the shape of the ornament may as little as possible be interfered with hy being mixed up with the forms and colours of the grain, It is curious how much costly and skilful labour has been thrown away from inattention to such minor considerations as these. Again, in metal work a careful study of the material will suggest, among other things, the proper treatment of the surface; this is a matter of the greatest importance to the general effect. A due distribution of huraish and mut, of gilding and plain, or of the various kinds of surface tooling or frosted work, is of the numous kinus of surface tooling or fressed work, is of the nimost consequence—not to save labour, though this may result from it—but to give richness without gaudiness, and to enhance the beauty of certain parts by contrast with others. When the whole surface is hurrished indiscriminately, as is frequently seen, the result is a elitter which obliterates form: when the whole surface is mat, the peculiar quality of metal seems lost from the want of

In some of the furniture exhibited, otherwise of much moreful, the enuments in merely conventional, and derived from known examples; while in others, it has been so that the conventional of the conventional conventional more and the conventional conventional conventional conventional works of this class, as almost to destroy the pleasure merit, but conceits and posefulician for referring to some works of this class, as almost to destroy the pleasure, shall, however, have the gradification of referring to some well-considered works of this kind which are evidently the results of an imaginative and thoughtful minds, the results of an imaginative and thoughtful minds.

Great Exhibition, besides those which are shown hy persone exhibiting also manufactured works of a similar kind. In such cases it has been thought most desirable to judge of the manufactured product rather than of the states of the case of the decay of the case of the two largest exhibitors, may thus be judged of, such they both exhibit completed works.

These general remarks will serve to introduce the first

subdivision of the section-

CABINET-WORK AND FURNITURE OF ALL KINDS.

The furniture of a man's house had need to be well designed, well constructed, and indiciously ornamented, for, from being constantly under his hand and cyc, defects overlooked at first, or disregarded for some showy excellence, grow into great grievances, when, having become an offence, the annoyance daily increases. Here at least utility should be the first object, and, as simplicity rarely offends, that ornament which is the most simple in style will be likely to give the most lasting satisfaction, Yet, on looking over the various articles of cabinet furniture exhibited, how seldom has this consideration been attended to. The orgament of such works on the English side consists largely of initative earving; buuches of fruit, flowers, game, and utensils of various kinds in swars and festoons of the most a assive size and the boldest impost, attached indiscriminately and without meaning to bedsteads, sideboards, lookeases, pier-glasses, &c., rarely carved from the members of the work itself, but merely applied as so much putty-work or papiermache might be. The laws of ornament are as pletely set at definee on those of use and convenience. Many of these works, instead of being useful, would require a rail to keep off the household. A sideboard, for instance, with garlands of imitative flowers projecting so far from the slah as to require a "long arm" to reach across it, and ever liable to be chipped and broken; and cabinets and bookeases so bristling with walnut-wood flowers and oak-wood leaves, as to put use out of the question. Now, besides that such treatments are not ornamental, they are not beautiful, and only enter into competition with stamped leather and gutta percha. There is great reason to doubt if this merely imitative carving is ever just in principle, when applied ornamentally to furniture; for, although the masterly chisel of Grinling Gibbons has raised it to great favour in this country, and although it may be tolerated when executed as skilfully as is that on a pier-glass frame by W. G. ROGERS (Class XXVI., 193.), p. 750), yet it becomes absolutely unhearable under less skilful hands, and when it is lavished in such profusion as we find it on many other works. On the foreign side, as has been remarked, there is far less of this false mode of decoration, and a better some of ornament prevnils; the works are more frequently designed in the traditional styles. In France, a medification of the Renaissance is principally used, and in this the oranment is in low relief, and does not interfere with use; although false construction is a vice of that period, which has not been remedied in modern works, but is sometimes exaggerated. The style of Louis XV, lingers in some of the French

works; its playfuluess of line and surface, its varied treatment and mixture of materials, together with its showiness, still command favour with the multitude. the French Court (and in some works on the English side, probably of French manufacture) it is seen in its genuine character. The surfaces of these works are curved, when practicable; they are veneered in parti-coloured woods, and panels are formed by or-molu mouldings, often in both instances completely at variance with the true construction; and occasionally the panels are filled with poreclain examels, the whole having at least a gay and sparkling appearance. Some attempts have been made in the English Department to adapt ornament of this period to cabinet furniture, but it has been totally misunderstood. Instead of the treatmentabove described the hold scrolls and shell forms used in the decoration of rooms at that period are here seen carved in all their coarseness on furniture. Such works bear out the remark before made, that these forms were especially adapted for gilding, and, indeed, are hardly bearable, except when to treated, or when made of metal. This becomes even more apparent when full-coloured woods are used, such as mahogany; in this material the ornament is even more coarse and heavy than in lighter-coloured wood. Since however, the vendors of cheap furniture have adopted this manner as a cheap and flashy decoration for their goods, it is to be Loped than it will soon be entirely proscribed, or retained only by such dealers.

Those designers who unreservedly adopt the ornament of past times must, of course, apply it to their works without any peculiar significance or connected idea, but without any peculiar significance or connected idea, but merely for its beautiful forms, elegance, grace, or rich-ness. Where, however, any significant allusion, senti-ment, or happy idea can be embodied in the ornament, uniting it with the use and intent of the work on which it is to be placed, it will have a charm which the others want. Not that this want is peculiar to the application of traditional ornament, since the designer in the natural or imitative manner seldom attempts any connexion be-tween his decoration and the work to which it is to be applied. There seems no fitness, for instance, in surrounding the frame of a pier-glass with dead birds, game, having a just and characteristic significance. This piece shell-fals, nets, &c., although they may be excellent of furniture is of rare scellence and entri in design, and specimens of carring, not it clear why eagles should of skilful and artistic execution as to carring, and,

support a sideboard, or dogs form the arms of an elbowchair; nor, again, why swans should make their nests under a table, at the risk of having their necks broken by every one seated at it: indeed, in most cases, as such initative forms cannot in the strict sense be called orna-ment, they almost challenge inquiry as to wby they have been adopted, and disappoint us when we find it has been without motive: this is not the case with traditional ornament, which, like the current coin, is accepted at once

without inquiry.

The sideboard, carved in walnut, as here shown, and which is exhibited in the French Court, by Foundations (France, 1231, p. 1236), is an apt illustration of organient



although of a highly decorative character, in fitted for I which are treated as statuss, the cornice is bracketed, the purpose for which it is intended. Six stops, emble— and supports beys with the implements of the vineyand material of the chace, resting on a floor of inhist wood, and of agriculture. It rises into a pediment in the support the slath, which has a simple carved moduling | centre; this is broken in the manner of the Renaissance, along its front, and is inlaid in geometric forms. The dogs are not merely imitative, but are treated as a part dogs are not merely mustive, not are treases as a par-of an ornamented bracket or console, thus composed architecturally for bearing and support. Above the slab, standing on four pedestals, are female figures, gracefully designed as emblems of the four quarters of the world, each bearing the most useful production of their climate as contributions to the feast. Thus Europe has wine; Asia, ten; Africa, coffee; and America, the sugar-cane. In the central space between the pedestals, which is rather tha widest of the three, the products of the chace are poured ont on the very board, and above this the space is poured ont on the very board, and above this the space is filled with a framed picture of rare fruits, giving an op-portunity to enliven the work by the addition of colour. portunity to emirren the work by the addition of colour, it is consistent as a slower, and they have a sideboard, without militating against good taste; above the figures, while it is thoroughly fitted for its purpose as a sideboard,

and decorated with a figure of Pleuty crowning the group. The apright line of the back is gracefully varied at the sides, and constructively strengthened by carved brackets, above which are terminal figures bearing the implements of fishery on the one side and of the chace on the other. The panels of the pedestals and of the side compartments below are filled with enryings formed of the fruits of below are filled with earrings formed of the fruits of varions countries, grouped with the instruments of horti-culture and agriculture. Two brackets on the side com-pariments between the figures give an opportunity for placing silver plate in a position for display. The orna-mental parts of this piece of formiture are carred through-out in a masterly manner, and in a bold and free style; it is committed as a whole and free from presilities and it is consistent as a whole, and free from pucrilities, and

It is at the same time of a highly orannestal character, without any off independent on throw away. It corresponds its its constructive time with the way of the constructive time with the care in the property of the constructive time with the care in the property of the constructive time of the property of the constructive time of the property of the care of the property of the care of the constructive time of the con

throughout is an additional merit, and the wood has been judiciously chosen as to colour and grain. When we turn from such works as the above to furniture designed strictly in accordance with the rules of a traditional style, we feel that there is often a cold propriety about it which requires consideration before we can admire it; yet among such are some of the best works of the Exhibition. The wardrobe of T. F. Werre, of Stuttgard (Wurtemburg, 70, p. 1118); the console-table and glass of A. Barnertt, of Siena (Tuscouy, 91, p. 1298), are excellent specimens in their kind, well designed con-structively, and ornamented in exact conformity with the Renaissance style; the cabinet of RINGUET-LEPRINCE Remaissance style; the calmet of KINOUNT-RAPHINGS. (France, 1437, p. 1245) has ligh merit; the ornamental treatment of a pictore-frame by M. J. LINEMARO (p. 1239); the cradle in the Fine Art Court (352, p. 842), so skilfully carred in boxwood, by W. G. ROUIS, from o well-supposed design by his son, W. HLARW ROGIES, alloy, and the state of th works are in the French Furniture Court, although in them the style is often mixed, and the constructive faults of the Renaissance have been adopted as well as the ornamentation. In other styles, perhaps, the best example of a careful adherence to tradition is observable in the furuiture of the Mediæval Court, as in a Gothic sideboard, really fitted to display a service of plate; a carred oak enhinet bookcase, hy J. G. Crace (Class XXVI., 530, p. 761); and other works. These are particularly to be commended for their sound constructive treatment, and for the very judicious manner in which ornament is made subservient to it. The metal work is also excellent, and the hrass fitting of the panels of the bookcase deserves to be studied, both for the manner in which it has been put together, and for its graceful lines. The candelshra of the sideboard also are sensible forms, without any unnecessary ornament. Such furnitore in old times was often ornomented with mottoes or texts, a practice which might ornomented with mottoes or texts, a practice which might well be revived, as having far more significance than the commonplace conceits of much of the ornament of the present day. It may perhaps the objected that the general forms of furniture in this style want variety, and this is rendered more apparent by the fordid lines of many of the works around them; but the principal reason will be found to arise from a due consideration of the true conforms on account of its grain, and requires horizontal and perpendicular lines as the basis of framing. The ecclesiastical character of the works in this Court has been already alluded to. It must be remembered that the spirit of the age from which they have been adopted was to hring a sense of the pervading authority of the Church, and the outseard forms of religion, at least, into all the offices of daily life. This was altogether changed when the revival of ancient learning and of ancient art destroyed the Christian symbolism of ornament and deluged the Roman Church with decoration derived from Paganism, not commandantly stiff of commandantly eight of the many and consequently entirely opposed to the true spirit in which all ecclesiantical orannent should be conceived. The change in ecclesiantical decoration soon pervaded domestic farniture also, and ornament lost all significance and symbolic life. Some credit, therefore, is due to the revival of a better and purer state of things, and a return to the old paths and avoidance of the present mere sensualism of ornament. Yet it is not on this account, but

as examples of careful and strict adhesion to true principles of construction and ornamentation, that the works in this Court are so often alluded to; they deserve commodation for their illustration of truth, and as showing what one man, by earnest and well-directed attention, can earlieve in the reformation of taste, and in the training and the contract of the court
least among their may recellence.

The case of mousel instruments have been buyly. The case of mousel instruments have been buyly must be classed under the hard of furniture. See what, exhibited under the hard of furniture. See the contract of the contra

concert of muleid instruments around the one ornatice. There seem to be at title investion as fitness in subpiding types as legs to planelette, yet this has been pupiling the superior, especially in the case of grand planelettes, appears to have been overlocked. Some of planelettes, appears to have been overlocked. Some of the control of the control of the control of the control the control of the wealth's, time the comment of each works is quite supwards to the prediction of the control of the control of the wealth's, time the comment of such works is quite suptered to the control of the control of the control of the wealth's, time the comment of such works is quite sup-

Inlays of metal, mother-of-pearl, or tortoiseshell, may be introduced with excellent effect in furniture; but they must be used sparingly. Such a marvel of labour as ti table exhibited by PEREZ (271A, p. 1346), in the Spanish Court, of course does not come within the scope of this remark; the subdued colour of the wood used, and the forms chosen, are nevertheless so judicious, that as a piece of ornamental inlay it is excellent for its art, as well as from its curiosity as a feat of labour. Some of the buld enhinet furniture in the French Court may be instanced as showing that an excess of really beautiful ornament tires us, and causes meretriciousness. ner some excellent specimens of geometrical wood inlays for furniture exhibited by Marckin (France, 606, p. 1207), and the inlaid top of 0 toble among the furniture by Leistlan (pp. 1039, 1040), in the Austrian rooms, has much merit; such inlays come under the same general laws as mosaics, which have already been treated of, requiring great simplicity and perfect flatness. The table (112) in pietra dara, by Boschetti (Rome, 17, p. 1286), consisting of a wreath of orange-flowers, bordered by a simple line, is in the parest taste; the more costly one near it is marred by the introduction of a band of architectural ornament, contrasting far too strongly with its ground,-a fault worthy of notice, as it prevails

with a in ground,— a latti with a six postular, a latti which is a lattice of the formation in paper masch is indust wholly of English monufacture; it is derived from the old important of the paper of

with every other kind of manufacture with which it comes in contact. The simple languard work of India Comes in contact. The simple languard work of India was the Comes of the Comes of India Comes in the India Department. The purely ornanectal treatment of the manufacture of India Comes of India Comes of India Department. The purely ornanectal treatment of the manufact in which both gold and colorar are dispersed over the surface, in a lesson of richness without gusdiess workly of the attention of the manufactures of paper. The Comes of India Comes of India Comes of India the Comes of India Comes of India Comes of India the Comes of India Comes of India Comes of India the Comes of India Comes of India Comes of India the Comes of India Comes of India India Comes of India India Comes of India Comes of India
connected with cheap manufacture.

Some of the greatest flushs in the furniture of the Exhibition are its unsuitableness to uses, and its false construction Look, for instance, at the costly articles of the Austrian rooms, and it will be found as skilful in execution as it is deficient in adaptation to its intended surposes. The bed looks more fitted for a corpse to lie purposes. The bed looks more fitted for a corpre to ue in state on than for a place of repose; it is a congeries of parts without an object: the footboard is so high and solid that it shuts in the sleeper as in a prison, and com-pletely impedes the free circulation of air; the footposts rise from massive purposeless bases, and dwindle into mere sticks as they approach the heavy canopy; the wood selected is unmitable for carving, its party-coloured grain blurring the ornamental forms. In the other furniture like inconsistencies appear; in the cabinet large spaces are thrown away, and therefore, though occupying much room, it has little that is available for use; the centre space, with its canopy (though pretty), has no apparent purpose, and it is quite disproportioned to the size of the wings, besides being deficient in the appear-ance of support. The bookease has the same fault of room thrown away and of unsuitableness to use, besides being a false adaptation of Gothic stone forms to wood-This latter fault is elsewhere also largely prevalent; it is an error in most of the Belgian furniture. Thus we have a wardrobe which would be more characteristic as an oratory, and a bookcase with arches that support nothing, and huttresses which have no thrusts to resist. Indeed it should be remembered that the arch is not a wooden, but essentially a stone construction; it will be evident, on a moment's consideration, that it is a means of obtaining support by a number of separate small parts, the reverse of timber construction. It ought, therefore, to be well considered before being used in wood, wherein it should arise rather from coupled knees or brackets introduced to strengthen horizontal beams, than as an independent form. Its improper use will also be seen in various sideboards on the English side. In these the back consists of a mirror, over which a wooden arch is thrown; the glass having the effect of a void or opening; the thin wooden areh, bearing nothing, not only has a meagre appearance, but, having nothing its thrusts, is quite as much at variance with the use of the material as it is with a proper sense of construction. tine of the best of such treatments is seen in an elegant cabinet and mirror exhibited by Mr. SELL (Class XXVI., 170), wherein a light inner column and arch, metallized by gilding, is introduced with good effect; even here, however, the pliasters which support the outer arch seem to want brackets at the sides of their base to give more appearance of support, for the introduction of which there is ample space; the small abortive ones which are used serving only the more directly to pointing out this want.

Slam construction is another error alluded to, not only of the kind before spokes of—the neprosision of the true constructive forms, as purely, framing, &c., and giving unaba prominence to others,—that also where those porcolarms in cabiners, legg in sidelecards, &c.) are made to more from under the parts intended to be appareted when opening the doors of the furniture. This is a common case in cabiners designed in the Bensiannes relyt, and case in cabiners and capital the design of the the second construction of the second constructive for the protection of the second constructive for the second contractive for for the seco

glaring kind, as where legs are made to remove, or where the whole front of a cabinet or wardrobe is unade into doors hanging to the sides without a framed face and hanging style, and both the side and centre columns (where columns are so used as decorations) are made to move with the doors.

In reviewing the furniture of the Exhibition, the onestion of the education of the art-workman again comes promioently under review. While it must be confessed that the general design of the French works in this class are greatly in advance of our own, it is also apparent how much more widely diffused in France is that artknowledge, which, combined with handicraft, constitutes the true art-workman. Although this is peculiarly seen in works in metal, it is evident in many other branches of industry. Wherever the human figure is used as ornament in English works, it is pretty sure to be faulty: be well composed, may be evidently the figure may designed in good taste, since that is often the work of a superior artist; hat in the excention it is almost always disfigured and spoiled. The extremities are finished without knowledge of the internal structure, the fingers, toes, and joints have no bones within the skin, but that "gummy" undecided treatment which evidences the igno-rance of the workman. In wood-carving this is equally Very often in such work the "design" of the ornamental forms, Very often in such work the "design" of the ornament would seem to be by the same unskilled hand that carved it, since it is mostly out of place, coarse and merely "natural" in style, and rarely reaches beyond the expression of the most commonplace thought, or the imitation of the commonest fruits and flowers. That great power of imitation and skill of hand, however, are not wanting in the English carver, is evident from many examples, in the English carver, is evident from many examples, and is particularly shown in the beautiful and delicate flowers, &c., of T. W. Wallis, of Louth (Fine Art Court, Class XXX, 89, p. 825, which are quite equal to the Freech works in the same style; but even these go no further than juniption and the homes female. no further than imitation, and the human figure cannot be carved by a merely imitative process:—success in readering either the human figure or animals when in life and motion can only be the result of knowledge attained by a careful study of the structure of the bony framework and of the moving muscles; and it is the want of such anatomical knowledge and of a proper training in art that causes the deficiency we are obliged to notice in the English Department, and compels the carver to confine himself to mere works of imitation, knowing that higher are beyond his powers.

The two figures in the front of the cabinet of RINGUET

LEPRINCE (p. 1245), for instance, are unapproached by anything in English furniture; as is the rare excellence anything in Engine normal as in the of the carrings on the sideboard of Fornnixots (p. 1236), and the works of Lienard (p. 1239). Even where the figure has had a partial study, the initiation is often cold and "mannered;" the letter is followed rather than the spirit, and it is almost impossible to find a workman entering into the feeling and spirit of the artist-designer, and treating the work in a good and bold style. The bronzes of men and animals are perfect instances, in French works, of the power of the workmen to enter fully into the feelings of the artist, and to appreciate style and intention, but the same anion has hardly anywhere been attained by the English workman. where been attained by the Engine Weaman. and Belgian enryers, with GEERTS (p. 1165) at their head (a perfect artist in wood), are advancing in the same direc-tion, and it must be allowed that the Austrian figure carving, as shown in the furniture of LEISTERR (p. 1039, 40), is much beyond onrs, while the Berlin casting and charing of small works is fast rivalling the French, and in some cases is in a much purer style. The earving of Italy is careful, but tame, and inclined to littleness; this will be seen by comparing the style of the children in Bannary's table and mirror (p. 1298), a work otherwise highly commendable, with the gusto and vigour—the larger manner and bolder treatment—of some of the French works. The children on a small scale in the hookease of HOLLAND and Sox (p. 745), which contains some otherwise good carving, show the timidity of the English art-workman when he has to deal with the figure. Some very small panels, earved in white wood, on a sideboard by J. M. sharp and thoray that to touch it would be impossible. LEVIEN (p. 751), are in better style, although very but the general want of knowledge is too appnminute, but the general want of knowledge is too apparent. This deficiency of power and skill in the human figure is only an additional evidence of the want of better education for our art-workmen. They need to have proper treatises prepared for them, laying down the prineiples of ornament, and giving them a thorough foundation in practical geometry, form, proportion, and, above all, in snatomy, together with a careful education of the hand and eye; and unless the Government and the manufacturers of this country are soon awakened to our defieiencies, and prepared to make great sacrifices, we must be content to lag still further behind as the world advances, and for the future to be manufacturers of cheap goods, leaving excellence and heanty to our continental ueighbours.

HARDWARE.

Under this head are comprised grates, fenders, fire-irons, stores, gas-fittings, lamps, and various miscellaneous applications; the whole being largely connected with ornamental design. The works in this section, however, are not more miscellaneous in their use than they are in their style of ornamention, almost every manuendeavouring to exhibit in may and every style. we have Greek candelahra adapted to many uses, Gothie ehandeliers and Renaissance lamps, with a pretty large sprinkling of the forms and ornament of Lonis XIV, and XV., to which, on the English side especially, is to be added the natural style before alluded to, which, adopting foliage or flowers as its leading idea, presents them as they grow, without any constructive or architectural since it indicates a desire for something more than mere reproductions of the antique, or that melée of ornament which the ignorant gather from many works, and reassemble without tasto or appropriateness; it at least indicates a change. In a great portion of the metal works French taste is found largely to prevail on both sides of the building, nor is this to be wondered at, since, for a long time, the lively fancy and invention of many excellent French prists have been directed to designing excellent Freeds nrists have been directed to designing and modelling for these goods; ally seconded, also, by trained and educated workmen expable of appreciating their labours, and completing them by skillin easting, chasing, and fitting. But the teudency of the French mind towards display has resulted in over-ornamentation, and it is unfortunate; that this fault is rather a mort in the eyes of the world, and has been eagerly adopted by the manufacturers of other untions, more especially of our own, that which is meretricious being retained whilst what is really excellent in French design, and especially in French workmanship, is overlooked by them, or is unattainable.

Moreover, whilst the most able French artists in metal, eschewing the gaudy style of Louis XV., have returned to a modified form of the Renaissance, and have given it somewhat of newness of character, the English designers for hardware (with a few exceptions) either still adhere to the contorted style first named, or produce works composed of ornaments pirated from all times and all nations, put together without any sense of construction, without selection and without fitness. Such works are a thorough change-modley that disgrace our manufac-turers, and make us look back to the simpler forms of the middle nges with respect and regret.

the missaic nges with respect and regret.

Let any one examine the characteristic simplicity of
the caodlestick here engraved (exhibited by Mesers,
14 ALDMAN, 532, p. 761, from a design by Mr. W. Pugin',
adapted as it is for use, standing firmly, enpable of being
bandled, light, yet arong, and compare it with the showy works around it, so raged and tangled with ornament that all characteristic form is lost, branched arms bristling with foliage weighing down rather than bracing and sopporting them, with perhaps a bunch of flimsy chains dangling in the way of those who would touch or lift them, or two or three Parian Copids hasking at the foot, ur bearing up the candles; and where the hand should grasp the stem to lift the candelahrum, the ornament so The error, however, does not wholly rest with the de-



In making such a comparison can we do otherwise than feel that the one is bonest, useful, characteristic, and therefore beautiful, whilst the others are finably and grotesque, full of little prettinesses, which some mis-name "ideas," put together without any leading motivo, and having no definite character or true construction?

The faults of English design for hardware are obvious to every one; the error of the French designers is equally open to the most superficial observer. In the great mass of these works there is no rest for the eye—the whole surface is aothing but ornament. Thus, for iustance, the French art-bronzes have justly obtained a wide reputa-French art-mones have joshly omained a water reputa-tion, and the works of Denière, Pradier, Méne, and other French artists, are sought for all over Europe; but when such become a part of mannfacture, and liable to be classed as hardware, art is overlaid with ornament, and the skill of the workman is directed to that which degrades the work, and sadly militates against good taste. Thus, figures designed with much faucy, and modelled with ability and vigour, are vulgarized from the imitation of fur and of the texture of the garments, of huckles, hattons, and ties of the dress, of chain or plate armour or weapons, whilst the homogeneity of the bronze is no longer retained, but various parts of dress are treated in various tints of the metal; and all the different qualities of surface, such as tooling, frosting, and burnishing, in which it is hat just to say the workmen are most skilful, are brought into play to exrick the effect; while some-times we have, in addition, combinations of many nurterinls, such as marble, porcelain, ivory, and bronze, united in a single work.

Another class of works are those anomalous candelphia composed of porcelain vases filled with a bunch of flowers in or-moin, n few bearing candles amongst a number of burren hranches, the whole being a bush of glitter and hurnish. This is the direction which naturalism in ornament takes in France. Such works have a total absence of constructive feeling, and an equal want of proper treatment of metal; to add to their finery, an epergne of artificial flowers is often mixed up with metallic ones, as a centre-piece for the dianer-table. There are many large candelabra in various parts of the Exhibition-in France, Holland, Austria, and Russiawhich evidence the wide dispersion of French style, and contain exaggerations of the most frequent French faults.

with every other kind of manufacture with which is content incontact. The simple Incurred work of India may affect an example for the orimentation of papier wave taked from the paper of small boost in the India Department. The parely eramatestal treatment of the wave taked from the paper of small boost in the India Department. The parely eramatestal treatment of the manufact is which body find and closure redisperted over the surface, is a leasen of richness without gualities to the paper of th

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Sham construction is another error alluded to, not only
of the kind before spakes of—the suppression of the true
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columns in calature, tigo in indicators, &c.) are made to
columns in calature, tigo in indicators, &c.) are made to
copening the dors of the furniture. This is a common
case in calature designed in the Bensiance style, and
has the authority of some of the best antique specimens;
because it is the secure of many like errors of a more

glaring kind, as where legs are made to remove, or where the whole front of n cabinet or wardrobe is made indo doors langing to the sides without a framed facin and hanging style, and both the side and centre columns (where columns are so used as decorations) are made to worse with the doors.

move with the doors In reviewing the furniture of the Exhibition, the question of the education of the art-workman again comes prominently under review. While it must be confessed that the general design of the French works in this class are greatly in advance of our own, it is also apparent how much more widely diffused in France is that artknowledge, which, combined with handleraft, constitutes the true art-workman. Although this is peculiarly seen in works in metal, it is evident in many other brauches Wherever the human figure is used as of industry, ornament in English works, it is pretty sure to be faulty: the figure may be well composed, may be evidently designed in good taste, since that is often the work of a superior artist; hut in the execution it is almost always disfigured and spoiled. The extremities are finished without knowledge of the internal structure, the fingers, toes, and joints have no hones within the skin, but that "gummy" undecided treatment which and rance of the workman. In wood-carving this is equally apparent, even when it consists only of ornamental forms, Very often in such work the "design" of the ornament would seem to be by the same unskilled hand that carved it, since it is mostly out of place, coarse and merely "natural" in style, and rarely reaches beyond the expression of the most commonplace thought, or the imitation of the commonest fruits and flowers. That great power of imitation and skill of hand, however, are not wanting in the English carver, is evident from many examples, and is particularly shown in the beautiful and delicate flowers, &c., of T. W. Wallis, of Louth (Fise Art Court, Class XXX, 89, 9, 825, which are quite equal to the French works in the same style; but even these goo further than imitation, and the human figure cannot be carved by a merely imitative process :-- success in rendering either the human figure or animals when in life and motion can only he the result of knowledge attained hy a careful study of the structure of the bony framework and of the moving mucles; and it is the want of such anatomical knowledge and of a proper training in art that causes the deficiency we are obliged to notice in the English Department, and compels the carver to confine himself to mere works of imitation, knowing that The two figures in the front of the cabinet of RINGUET

LEPRINCE (p. 1245), for instance, are unapproached by anything in English furniture; as is the rare excellence of the earvings on the sideboard of Foundinois (p. 1236). and the works of LIENARD (p. 1239). Even where the figure has had a partial study, the imitation is often cold and "mannered;" the letter is followed rather than the spirit, and it is almost impossible to find a workman entering into the feeling and spirit of the artist-designer, and treating the work in a good and bold style. bronzes of men and animals are perfect instances, in French works, of the power of the workmen to cuter fully into the feelings of the artist, and to appreciate style and intention, but the same union has hardly anywhere been attained by the English workman. The Belgian carvers, with GERRTS (p. 1165) at their head (a perfect artist in wood), are advancing in the same direction, and it must be allowed that the Aostrian figure carving, as shown in the furniture of LEISTLES (p. 1039, 40), is much beyond ours, while the Berlin easting and chasing of small works is fast rivalling the French, and in some cases is in a much purer style. The carving of Italy is careful, but tame, and inclined to littleness; this will be seen by comparing the style of the children in Bannerry's table and mirror (p. 1298), a work otherwise highly commendable, with the gusto and vigour-the larger manner and bolder treatment-of some of the French works. The children on a small scale in the bookcase of HOLLAND and Sox (p. 745), which contains some otherwise good carving, show the timidity of the English art-workman when he has to deal with the figure. Some very small panch, carred in white wood, on a sideboard by J. M.
LEVIES (p. 751), are in better siyle, although very
minute, both the centerl want of knowledge is too opport
rent. This declevery of power and skill in the human
fleered is not an obliterial evidence of the wrant of better education for our art-workmen. They need to have proper treatises prepared for them, laying down the principles of ornament, and giving them a thorough foundation in practical geometry, form, proportion, and, above all, in santomy, together with a careful education of the hand and eye; and unless the Government and the manufacturers of this country are soon awakened to our deficiencies, and prepared to make great sacrifices, we must be content to log still further behind as the world odvances, and for the future to be manufacturers of cheap goods, leaving excellence and beauty to our continental neighbours.

HARDWARE,

Under this head are comprised grates, fenders, fire-irons, stoves, gas-fittings, lamps, and various miscellaneous applications; the while being largely connected with oranmental design. The works in this section, however, are not more miscellaneous in their use than they are in their style of ornamention, almost every manufacturer endeavouring to exhibit in any and every style. Thus we have Greek candelabra adapted to many uses, Gothic chandeliers and Renaissance lamps, with a pretty large sprinkling of the forms and ornanient of Louis XIV. and XV., to which, on the English side especially, is to be added the natural style before alluded to, which, adopting foliage or flowers as its leading idea, presents them as they grow, without any constructive or architectural arrangement whatever. Yet even this is encouraging, since it indicates a desire for something mure than mere reproductions of the antique, or that wile of ornament which the ignorant gather from many works, and reassemble without taste or appropriateness; it at least indicates a change. In a great portion of the metal works French taste is found largely to prevail on both sides of the building, nor is this to be wondered at, since, for a long time, the lively fancy and invention of many excellent French artists have been directed to designing and modelling for these goods; ably seconded, also, by trained and educated workmen capable of appreciating their labours, and completing them by skilful casting, chasing, and fitting. But the tendency of the French mind towards display has resulted in over-ornamentation, and it is unfortunate that this fault is rather a merit in the eyes of the world, and has been eagerly adopted by the manufacturers of other nations, more especially of our own, that which is meretricious being retained, whilst what is really excellent in French design, and especially in French workmanship, is overlooked by m, or is unnttainable,

Moreover, whilst the most able French artists in metal, eschewing the gaudy style of Lonis XV., have returned to a modified form of the Rennissance, and have given it somewhat of newness of character, the English designers for hardware (with a few exceptions) either still adhere to the conterted style first barned, or produce works composed of ornaments pirated from all times and all notions, put together without any seuse of construction, without selection and without fitness. Such works are a thorough chance-medley that disgrace our mannfue-turers, and make us look back to the simpler forms of the middle ages with respect and regret.

the middle ages with respect and regret.

Let any one examine the characteristic simplicity of
the candlestick here engraved (exhibited by Messra,
Harddan, 523, p. 76), from a design by Mr. W. Pugin),
adapted as it is for use, standing firmly, capable of being
handled, light, yet strong, and compare it with the showy works around it, so rosp, d and tangled with ornament that all characteristic form is lost, branched arms bristling with foliage weighing down rather than bracing and supporting them, with perhaps a bunch of flimsy chains dangling in the way of those whu would tonch or lift them, or two or three Parian Cupids basking at the foot, or bearing up the candles; and where the hand should grasp the stem to lift the candelahrum, the ornament so The error, however, does not wholly rest with the de-



In making such a comparison can we do otherwise than feel that the one is honest, useful, characteristic, and therefore beautiful, whilst the others are flashy and grotesque, full of little prettinesses, which some misname "ideas," pat together without any leading motive, and having no definite character or true construction? The faults of English design for hardware are obvious

to every one: the error of the French designers is equally open to the most superficial observer. In the great mass of these works there is no rest for the eye—the wholo surface is nothing hut ornament. Thus, for instance, the French art-hronzes have justly obtained a wide reputation, and the works of Denière, Pradier, Mene, and other French artists, ore sought for all over Enrope; but when such become a part of manufacture, and liable to be classed as hardware, art is overlaid with ornament, and the skill of the workman is directed to that which degrades the work, and sadly militates against good taste. Thus, figures designed with much finey, and modelled with ability and vigour, are vulgarized from the imita-tion of far and of the texture of the garments, of buckles, tion of tur and or the texture of the garments, of ouchies, the third of the dress, of chain or plate armour or weapons, whilst the homogeneity of the bronze is no longer retained, but various parts of dress are treated in various tints of the metal; and all the different qualities of surface, such as tooling, frosting, and hurrisbiling, in which it is hat just to say the workmen are most rkilful. are brought into play to earich the effect; while some-times we have, in addition, combinations of many materials, such as marble, porcelain, ivory, and bronze,

united in a single work. Another class of works are those anomalous candelahia composed of porcelain vases filled with a banch of flowers in or-molu, a few bearing condles amongst a number of barren hranches, the whole being a bash of glitter and burnish. This is the direction which naturalism in ornament takes in France. Such works have a total ornament takes in France. Such works have a total absence of constructive feeling, and an equal want of proper treatment of metal; to add to their finery, an epergne of artificial nowers is often mixed up with metallic ones, as a centre-piece for the dinner-table. There are many large candelabra in various parts of the Exhibition—in France, Holland, Austria, and Russia which evidence the wide dispersion of French style, and contain exaggerations of the most frequent French faults.

signer, since it will be long before he has a public suffi-ciently educated to relish the amount of plainness which is absolutely necessary to give the true value to each part enriched

Grates.-Grates rank among the principal works in hardware to which ornamental design is applied, at least on the English side, and there by far the best specimens both as to design and workmanship are to be found: this was to be expected from the general necessity for warmth in our cold and variable climate; an Englishman's love in our cold and variante climate; an Englusaman's sove for his fireside having passed into a proverb. It is grati-fying also to see that the design and decoration of these goods have greatly improved in the last few years. Some works of great merit are to be found among those exhibited, while the workmanship generally is excellent. There is, however, an evident tendency to do too much, and it is incumbent on designers for such goods carefully to avoid this, and to endeavour to restrain manufacturers from such treatments of the metals as lead to gaudiness glare, and by which, at the same time, the grate itself is rendered less nacful. The great secret, after constructive use has been considered, consists in the pro-office as an article of furniture, while it displays most per and judicious treatment of the materials, which offer judicious use of the materials. The face is of ground

great advantages for contrast, either with or without the introduction of bronze or or-molu. True excellence will be found to be closely allied to simplicity—a moderate use of ornament and of the burnisher, and the contrast of broad flat masses of plain metal with ornamented or burnished mouldings, with inlays of brass, or with bronze and or-mole ornaments. The arehed form which has generally been adopted for grate-fronts is architecturally snitable and agreeable in outline, giving ample oppor-tunity for ornament in the mouldings of the arch, as well as in the spandrels, besides having sufficient surface of metal to contrast with; moreover, it is not likely to interfere with the architectural arrangement of the mantel-piece to which it may have to be fitted. Messrs. interfere with the architectural arrangement of the mantet-piece to which it may have to be fitted. Mesars. Romou and Hoota (Class XXII., p. 699) exhibit several grates designed by Mr. A. Stevens, highly decorative in character, and of great general merit; two especialty, fronting on the Contral Arenue, designed in the Rensissance style, evince great artistic ability. The one cagraved, however, which is exhibited by them, is more



east metal, the ornamented moulding of pale bronze, with the leafage of brass, and the figure bronzed, while some semi-burnished lines about the fire give a very chaste and tasteful effect; the fender is also of bronze and brass, with the leading lines harnished. Much more ornament than this would raise the grate out of its right place in the scale of furniture, and draw under attention to it; its sober simplicity is more to be commended than many of the very highly ornamented grates around it. Messrs, STUART and SMITH (p. 603) have also some meritorious works as to design, but from the excessive intro duction of burnished surfaces the graves look too fine for use. Messrs, Hooles have avoided this hy a large introdoction of the ground metal, which contrasts excellently with either hurnished or brass ornaments, and adds to their beauty by its own repose and sobriety. It can never be too much insisted on, that ornament loses its value when it overloads a work, and that large unornamented spaces are required to enhance and give zest to the decorated parts. As we descend to grates designed by inferior artists, we find excess substituted for excellence, and works of such brilliaut gaudiness of surface

as to be quite unfitted for their intended use; indeed, the process of keeping them in order would seem to require that a whitesmith formed part of our establishment, or that the housemaid should have a practical education to enable her to take to pieces the elaborate constructions which would come under her care, inde-pendently of the skill required to clean them. Messrs. Stuart and Smith have made attempts at the combination of materials with some success, and have also some

cleverly designed metallic inlays for hearths It is tiresome to repent what has so often before been said, that use ought to be considered before ornament; yet no section of furniture suffers more from neglect of yet no section of institute states and the section this rule than that comprised under hardware, not only in the works exhibited in the British, hat in all parts of the Exhibition. In some cases this shows itself in applying a form or construction snited for one use, to another for which it is quite inspplicable. Thus some chandeliers in the French Court, which at first sight seem cleverly designed, and a skilful treatment of the metal, on exam nation are found to consist of a large central lamp, which alone is intended to give light, surrounded by a circle of branches bearing sham candles, not intended or prepared in any way for illumination, but introduced merely to allow of a little extra ornament. From the same cause results the impertment opplication of figures, in bronze or in Parian; a fertile source of bad taste. These are to often merely added to the work, and not construc-tively treated, and thus seem to have no real relation to the forms they are connected with. Hence the mann-facturer is embled to adapt the same figure to many purposes, and to the most opposite uses; sometimes at the base of a chandelier, sometimes at the top, and some times perched upon the branches. Profitable to the manufacturer this may be, but it is as completely opposed to every just principle of design as to every hope of progress or good taste.

In the treatment of metal the rendering of the surface demands the most caveful study, since much of the beauty of a work results from this being properly under-stood. No don't the true lustre of metal is only given in the burnished state; but when harmishing is intro-duced in any quantity, it becomes not only tormenting to the eye but wants contrast to bring out its hrilliancy. Moreover, hy its glitter it obscures ornamental forms, which rarely look sharp or clear in their details under this treatment. When figures or animals, introduced for decoration, are burnished, their true form is almost undistinguishable on account of this glitter and the reflec-tion from the polished serface, besides the pressure of the tool completely destroying all details of form and the tool completely destroying all details or torus and surface. Yet many important works (a elock in the Bassian Court may be especially instanced) have the figures entirely burnished. The evil caused by a glit-tering surface in such works is duly appreciated by the Freech artists, who have wisely adopted bronze as the material for figures in the baser metals, and have overcome the difficulty by oxidation in their works in silver, A medium state of the surface between mat and hur nished, though much to be desired, is not always obtainable, nor has it perhaps been sufficiently sought. Bronze, however, from its colour, partially supplies this want; and the mixed metals, and ground east iron from its duller polish, afford good contrasts to burnished iron or steel.

While our use of burnish often tends to hlur and destroy form, the older workmen took advantage of a stroy form, the owner workmen took havanings of a polished surface to produce ornanciat; this may be seen in some of the old church chandeliers, of which the central truth, consisting of a plain turned box, seems richly reeded when the branches are lighted, merely by the reflection of the lights on the metal. In most of the modern works, burnished and matted surfaces seem to be used indifferently or at random,

instead of applying the burnisher to give variety to recurring forms, or to enhance leading lines. These are often entirely matted or tooled, and those parts hurnished which will give the greatest flutter and glitter to the

The natural taste in connexion with the orname bardware has already been condemned. It is as false in construction as it is to all just ornamental principles.

The facilities which modern mechanism gives to the production of ornament, and consequently to over-ornamentation, have also been adverted to in the earlier parts of this Report. It is to be hoped that in view of these facilities mannfacturers will see their own interest, and seek the best designs at any cost, since these will frequently be found to combine cheapness of production and simplicity with good taste. There can be no donht that half the ornament in the Great Exhibition, and consequently the labour expended on it, is in excess; that is to say, that a better effect might have been produced without it; and this wasted labour might have been bestowed on the more careful completion of simpler designs, to the curiching of the manufacturer, and the great advantage of the public taste.

CARPETS.

rather to treat the whole as a background than to call particular attention to the ornamentation. Flatness should be one of the principles for decorating a surface continually under the feet: therefore all architectural relief ornaments, and all instations of fruit, shells, and other solid or hard substances, or even of flowers, other solid or hard mbstances, or even of flowers, strictly speaking, are the more improper the more imitatively they are rendered. As a field or ground for other objects, the attention should hardly be called to carpets by strongly-marked forms or compartments, or hy violent contrasts of light and dark, or colour; but graduated shades of the same colour, or a distribution of colours nearly equal in scale of light and dark, should be colours nearly equal in scale of light and dark, should be adopted; secondaries and tertiaries, or neutralized primaries, being used rather than pure tints, and lights introduced merely to give expression to the forms. Under such regulations as to flatness and contrast, either geometrical forms, or scrolls clothed with foliation in any style, leaves, flowers, or other ornament, may be used, which with borders and compartment arrangements, and the use of disper treatments, leave sample room for variety and for the inventive skill of the artist. It may be thought impossible or unnecessary to confine the de-signer too strictly by such laws, and they are, indeed, rather stated from a sense of their truth than with an immediate hope of their thorough acceptance; but at any rate they may serve as curbs to extravagance of design, and as guide-marks to lead back the errant designer to the path of consistency. In speaking of designs for these articles we turn first to France, both as the largest contributor of designs generally, and because the importance of her national manufacture of these fibries must claim for them our first consideration. Three of her principal ornamentiats exhibit designs for carpets; two of them, however, seem to consider any such principles as those given entirely unnecessary: their works might as well be florid designs for the decoration of ceilings, if such a false system could be applied anywhere. Thus one of the most important carpet patterns of one of these artists bears a deep border of architectural decoration shaded in relief, consisting of shields and serolls, of the standed in rener, containing or surcoss and second to the Louis Quinze period, with wreaths of flowers rendered imitatively and in perspective. This border seems thrown downward, to form a reversed coving; within torown downware, to form a reversed coving; within the field of the carpet, as in a mirror, is a forest, with the sky seen through the central opening between the branches, whist amorini, almost as large as tha trees themselves, sport beneath their shada or float in mid-air. The principal work of the second is of a like character, with trees and flowers, fonntains and statues, earth and sky, mingled on the surface of the design, in total conrayention of those laws which have been presoned to be just ones for such a purpose. The third artist, M. CLERGET (p. 1219), both in his carpet and in his other designs, forms an honourable exception. Flatness, a just ornamentation, and a quiet distribution of colour being the consistent results of his laboura. With regard, however, to the two former, it would be unjust not to speak of the great executive skill, the knowledge, and elever arrangement observable in their works. These, however, hy their attraction, only increase the evil such designs foster. The results of such false principles are apparent all over the Exhibition, and are plainly visible in the carpets and hangings exhibited by France. To begin with the establishments which, nuder royal or national aid, have carried these fabries to the highest pitch of ex-cellence in all that relates to skill of manufacture, brilliancy of coluur, and magnificence of design. In the face of the many and rare excellences they exhibit, both of handieraft and scientific knowledge, the chemist and the handicrart and screening anywrouse, and the invention and tasts of the painter, it is extremely daring to reprobate the ornamentation of these costly works; but the designers who have laboured for them have, by these y excellences, so largely contributed to the spread of bad taste and false principles in such fabries, that it becomes a positive duty, in the face even of the highest The use of these fabrics suggests the trae principle of authorities, to object to the principles on which they are design for their commentations, which is governed by the ornamented, if we would place carpet designs on the laws before given for flat surfaces, where the object is "ight footing for the future. That he stream is impure at the fountain head has been shown in reviewing the de igns, where the artist, exhibiting what should be speeimens of his own taste, has fallen into the false taste of the public, or rather outran it. In the manufactured coducts we see the result; the principal carpeta exproducts we see the result; the promonent with natural or imitative flowers, designed with the greatest skill, coloured with the tints of nature, and gracefully and tastefully disposed; the ornament however, is purely architectural, and in shaded relief, without any sense of flatness; and consists largely of the broken curves, the coarse scrolls, and the shell forms of the Louis Quinze period. In the carpet from the manufactory at Augusson (France, 1199,) the contrasts of colour, both as to tints and light and dark, are of the most violent kind; dis-tressing the eye, and distracting the attention from any works which might be in juxtaposition with it. The carpet from the Gonerans Manufactory is less objectionable in its contrasts of light and dark, and is highly skilful in its arrangement of colour, but it has the san erroneous use of it, the same adoption of the ornament of another material, the same florid taste and want of flatness. It may be said that these works, designed for the gorgeous magnificence of palaces, can hardly come under sober rules; that they are essentially intended for display. Even allowing this to be the case, such specimens may well serve as warnings of the danger of adopting the like style for more general men; and even in a palace, the chaste simplicity of its statues, and the subdued bucs of the works of high art which should adorn it, could stand little chance of vying with the richness and Instre of fabrics so over-decorated; and the princely inhabitant would certainly share the attention of the spectator with the gaudy carpet which covered the floor.

The Equith designers contribute less in the Pathician time that Per and implement, and allowed their works in a far more solver and just time. The designs with its a far more solver and just time. The designs with early and of this solution, the property of the pergraph of the time the period of the period of the pergraph of the time the period of the period of the pergraph of the period of the period of the perpendicular time the period of the period of the perpendicular time the period of the period of the perpendicular time the period of the period of the perpendicular time the period of the period of the perpendicular time the period of the period of the perpendicular time the period of the period of the period of the perpendicular time the period of the period of the period of the perpendicular time the period of the

based any designs.

In training attention to the manufactured goods, they have a possible to exhibit such a total wast of consistency asyste, and to exhibit such a total wast of consistency as a menular to make a first possible to the state of these principler which it is at one excited the designers, below a home and abroad, are amenally to most of these principler which have been a state of the state of waste a consistency of contract soft the state of waste as a state of the sta

The French designs applied to earpest are largely elameterically by works already remarked upon, the pressing faults of these being the prevailing faults of consumer, perspective tentaments, such of fautures (realnous of colour, handness of contrast, and wno for relative scale) in the comman, pereasing the greate number of the colour, handness of contrast, and wno for relative scale in the comman, pereasing the greater number of XATONAS, MANTERCHOUR ALLEATING, from their flatness, quiet contrasts, and broken have of negative colour, show to great advancage in connexion with the works exhibiting follow are competitively for distributions.

in their national workshops or to the general labours of their manufactures. The prevailing taste of France seems to be that of the Continent generally, but with lees excellence of denils, skill of arrangement, and koorledge of art; and although here and there works of nuch nerit may be exhibited, the absence of true principles is everywhere apparent. The English carpet manufacturers are large exhibitors,

and on the whole the determine of that he good may be characterized as the extrawagant that the freign ones, be characterized as the extrawagant that the freign ones, would principles, or complete repulsation of faire ones, would principles, or complete repulsation of faire ones, would principles, or complete repulsation of faire ones, and the contract of the cont



land the bouler is about half in width to marrow for the centre, but this is not an inter woods; the colour of the centre contents of graduates of a neutral red, the centre of the centre content of graduates of a neutral red, the width of the centre cen

Turkey, and it is only necessary to turn to them from the surrounding works to be convinced of the justness and truth of the Eastern style and application of colour to such fabrics; judged a most careful examination has confirmed a strong feeling as to the great superiority of the designs of Indian and Turkish curpets, both in the arrangement and general tone and harmony of the colours, and the first treatment and geometrical distribution of form. The Turkish earpets are generally designed with a flot border of flowers of the natural size, and with a centro of larger forms conventionalized, in some cases eve : to the extent of obscuring the forms, a fault to be avoided. The colours are negative shades of a mediana or half-tint as to light and dark, tending rather to dark, with searcely any contrast, and therefore a little sombre in character, Three bues predominate and largely pervade the surface, namely, green, red, and blue; these are not pure but negative, so that the general effect is cool, yet rich and full in colour. The colours, instead of eutting upon each other, are mostly bordered with black, the blae has a slight tendency to purple, and a few orange spots enhance and enliven the effect. The distribution of colour in these fabrics is far simpler than in those from Judin, which last have sometimes a tendency to foxiness, from a larger admission of warm neutrals, as hrown and brown purple; they also admit of a much greater variety of colours than the Turkish. The colour of the Indiau carpets, however, is so evenly distributed, and each tint so well balanced with its complementary and harmonizing hue, that the general effect is rich and agreeable; the hues all tend to a dark middle tint in scale, and white and yellow are sparingly introduced to define the geometrical arrangement of the forms, such arrangement being the sound basis of all Eastern ornameut. The illustration given in Fig. 1, Plate 1, is from an Indian rug, and will illustrate the various principles, and the tone of colour contended for. A large silken earpet and a smaller one, exhibited by the Honourane THE EAST INDIA COMPANY (p. 917), are fine examples of the skill and taste which are evidently traditional in the Indian races.

Having spoken thus highly of the decoration of such goods in Judia, it is painful to observe the attempts ignorantly made to vitinte the sound taste of the native artists It has no doubt been done by those who are unaware of the true knowledge and just principles evident, more or less, in all the Indian manufactures; but it is not the less necessary to be commented ou, since a school of industry seems actually in operation at Jubbulpore for teaching the reformed Thugs to make carpets in the worst European style, and at Bangalore the same teaching seems in operation. It is to be hoped that, when the admiration elicited by the display of the Indian fabries at the Great Exhibition is re-echoed back to the land that produced them, this strange error will at mee be remedied. Even if good, such patterns are not consonnet with Indian tastes, and it is perhaps fortunate that they are really so extremely bad that they may fall at once before the better knowledge which the European judgment of the

merit of Indian ornament will call forth and support. The gross errors to which imitative trentments hav led in the decoration of earpets have been already referred to in the general prefatory remarks, and need hardly be insisted on afresh after the definite principles which have been Jost given; neither need more be said on the error of adopting unchanged the ornameot of other materials; it therefore only remains to remark that a certain vaga ness of form and absence of flow of line in the Turkish carpets, which sometimes approach monotony, might be remedied by the introduction of strap ornament in the borders, and of dispers of fint floral ornament on the central field, under the same true principles of colour and contrast that these works evince, which, uniting the flowing and varied lines of European decoration with sound Eastern taste in tone, colour, and geometrical arrangement, would sait our climate and uses, and barrish some of that trash and erndity so evident on all sides, and which has its climax in the cheap manufactures of these articles. One thing is certainly to be learned from the works referred to, namely, that bright colours are not | are by the duiter ground, while smaller parts and variet

necessarily rich or heantiful, but that tone is a great source of richness, and has nt the same time the farther merit of keeping such goods in their true place in the scale of furniture. No natious exhibit greater richness of what may be called apholstery, or more gorgeous costumes, than those of India and Persia, and the wisdom displayed in the negative tone and subdued colour of their earpets is worthy of consideration, as a means of enhancing and supporting the richness and costliness of their other fabrics and their personal decorations Almost all that has been said of carpets is applicable to

druggets and felted goods for the same uses, and the principles of their ornamentation, under certain modifications, may be applied to floor-eloths and painted cloth for furniture covers, as well as to printed, felted, and woven fabrics, in various materials, for table-covers,

Floor-cloths are not so much used in this country for dwelling aparements, as in halls, staircases, lobbies, and other approaches, and richness and fulness of colour are, therefore, in general, less needed. The laws which reculate mosaics and inlaws for floors will, in some degree, rule these works also, execut that word inlays, especially when large, require a design capable of being framed in its construction, and of having due regard to the shoulderings of mortices and tenons, a construction obviously unnecessary in floor-cloths. It is, therefore, requisite to guard carefully against mere instintions of such designs, and more especially to avoid all initations of carpet patterns. Frets and guilloches for borders, and geo-metrical combinations for the inner field, with n centre, may be adopted when the work is large, as in the cloth exhibited by Messrs. SHITH and BARES (Class XIX., 37). p. 573), which has much merit, although it is too violent in its contrasts; while all-over patterns of simple geometrical dispers, in quiet, graduated tints, have the best effect in eloths for general purposes. The pointed cloths for furniture follow a little too much the old Japan colouring, and are heavy and monotonous from their darkness. There are good dispers on some of the Freuch eloths exhibited, and on some of those of Gönning and Bönner, of Leipsic (3 Zollv., 164, p. 1111); but their cloths for the ceilings of carriages are wormy in line and unpleasantly crude in colour. The table-covers in woollen, ton, flax, and silk, either woven, printed, or felted, of which there are a great variety in the Exhibition are often characterized by the same finits as the carpets imitative flowers and architectural relief ornament, with vases, baskets, &c., forming too frequently the details, whilst the contrasts of colour are sometimes of the most wildest kind. Thus there is great richness in a cloth with a border decorated with the flowers of the Bruemansin, exhibited by WHITE and Sons (Class XIX., 343, p. 572), but the requisite flatuces is not obtained; and p. was the requisive natures is not obtained; and there is much merit in a Gothic pattern, with a well-coloured border, exhibited by II. and T. Woon (Class XIX., 352, p. 572), but the architectural decoration introduced is objectionable.

CUSTAINS AND HANGINGS,

The ornamentation of textile hangings follows the same laws, and is amenable to the same general principles, as that of other wall decorations, flatness of treatment and subdued contrasts of colour being the only sure guides.

The richest, and nt the same time the most sober effects in silk, are produced merely by the processes of weaving, as of satis figures on a tabby ground, in a self-colour; and ornament properly suited for this treatment of the silk is generally in good taste, and shows the full spleadour of the rich material. Next to this, graduated tints of a self-colour, as gold on straw colour, or even ornament io one colour, on a ground formed of the materal golden tint of the silk, where the contrast is not too violent, has a good effect, and shows to advantage beside those over-decorated works which are covered with natural flowers in many colours; since the lustre and gloss of the silk, and the richness of colour consequent on these qualities, are seen to the greatest advantage in the flat masses of such ornament, heightened as the

tints interfere with these inherent qualities of the ma-

terial. A hanging exhibited by Messra. MATREVOX and Bou-Vann (France, 1349, p. 1240), decorated with bunches of flowers, on an ash-colonred lilac ground, displays great ability in the designer, combined with thorough knowledge of the powers of the loom, and it has been executed with equal skill by the weaver; it is, indeed, a choice example of the style; yet its lustre and beauty, and fitness as a hanging or eurtain, are not commensurate with the costliness of its production, and it cannot compete for apparent richness of material with a plain mulberry-coloured hanging, ornamented fintly in satin and tabby, that hangs beside it. Ifad these flowers been treated fintly, arranged geometrically, and coloured in simple tints, they would not have been so artistic, but they would have been far more truly oronmental, and more suitable for hangings.

There are some well-designed fubrics among the Prussian silks, exhibited by G. Gabata (Zollv. (1), 119, p. 1055), consisting of an heraldic treatment of the p. 1053) consisting of an heraldic treatment of the Prussian cagle, on a red ground, with the ornament in gold. The slik hangings of the Austrian bed are likewise in good taste. With these must be named the hangings of the Medigwal Court, and those in mixed materials, executed for the Duke of Devonshire by Messra. Rev-posed to the control of the property of the control of the policy of the property of the control of the property of the control of the policy of the property of the property of the control of the property of the proper NOLDS, of Dublin (Class XII. and XV., 266, p. 498, 499), consisting of fleur-de-lys and shamrock, in silver, on a subdued crimson ground, or in gold-coloured silk, on a watchet ground. The hangings decorated with ornaments from the Alhambra, exhibited by A. Dastranex and Co. (France, 164, p. 1181), are in good taste and on good principles, as are also some in mixed fabrics, in the same style, by Agnovn and Co., of Halifax (Class XII. and XV., 130, n. 491) , 130, p. 491).

The mirrord irentress of flowers as the occasions of extractile fibrics is notwine use to greater diabetassing extractile fibrics is notwine used to greater diabetassing extractile fibrics in solven were a second or solvent and provided the property of the composition of the com

truth and good taste.

Growing the state of
that, on the contrary, fresh and cool light grounds, with flat ornamental forms, either "all over" or in "up and down" boods, or dispers of floral ornament, on a simple texural ground, are the true principles for the decoration of chintees.

Before completing this Report on farniture, it is nesary to say a few words on muslin certains, of which there is a large display in the Exhibition. These fabrics should, of course, have a perfectly flat treatment, whether urely ornamental forms or flowers are used for their decoration. The best effect for borders is obtained by a symmetrical arrangement of flowing lines, which may be large in pattern, from the lightness of the unterial : while a disper treatment, or small sprigs arranged with large and regular spaces over the central field, are the simple rules for their decoration. It would seem hardly possible to err much in designing for a fabric which admits of such small variation, the contrast of the thick work with the more filmy ground being the source of the ornamental form, and colour being rarely used; yet, perhaps, in the whole Exhibition, there are not more glaring mistakes than are made in the decoration of these goods. In the Swisa muslins, the effort seems to have been directed rather to curious skill in workmanship than to taste in design, and some of the most costly goods are in the worst conceivable some or une most costly goods are in the worst conceivable taste—immense cornucopias, pouring out fruits and flowers, palm-trees, and even buildings and landscapes being used as ornament. Even when this only consists of flowers, they are used imitatively and perspectively, foldings of the leaves, and in some enses the actual relief of fruits, being attempted. Although the same faults occur in the English manufactures, these, on the whole, slightly incline to better taste, especially in some of the woven curtains from Nottingham, and in the fabries exhibited by the UTREERT COMPANY (Class XIX., 265, p. 570), but there is a sad want of good design in this class

Except that curtains allow of an "up and down " treat-ment, which table-cloths do not, most of the same rules apply to damask table-linen as to white maslin curtains, The ornament of damask lines arising, as it does, merely from the gloss obtained by various distributions of the warp and woof in weaving, ought to be extremely simple in form; yet even in these goods we find buildings, landscapes, vases, baskets, fruits in relief, and flowers perspec-tively treated as the details of decoration, while one designer treety treated as the destine of decoration, while one designer has copied a centre-piece of precions metal, the property of H.R.H. Prince Albert, in the table-cloth apon which it is meant to be placed. These faults are present, not only in the Irish linens, but in those of France and Soxony slao. There is a good design, in the German Gothic style, applied to a cloth exhibited by D. BIRBILL. (Class XIV., 27, p. 511), and some well-considered adap-tations of Greek ornament in the lorders of some damasks by A. H. C. WESTERMAN and Sons, of Westphalia (1 Zollv., 544, p. 1081); but the general manufacture of such goods serious revision. A border of fist ornament, consisting of flowing lines or flat floral treatment, earefully studied as to the distribution of quantities; a disper geometrically arranged over the inner field, either of floral or ornamental forms, with a judicious interspace (the disper being rather dispersed than crowded), and a central duper leung mitter dispersed than crowded), and a certification that the control of the control simple and self-evident, there are few manufactures where a greater amount of error prevails, the nearest approach to purity of style being floral treatments, imitatively

In concluding our remarks on the design of this section, it is worth calling attention to the different relative importance, io an oranmental point of view, of the various articles which are comprised under the head of the furniture of an apartment. These are the work of various manufacturers, each endeavouring to give the greatest and the production of the production o

rendered

amount of decoration to his own works, without duly considering their relation to other harlors. Thus the carpet mannfecturer ornaments his articles so showly that they outsite the hangings—the will decorate, or paper-stainer, his goods, till they emalate the cabinet furniture—whilst the apholestere overlays his abave of the furniture with fortic carrier, with or-most and inkeys, or the contract of the horosatt, the employer, or the palatent, or which they are mingled.

All this arises out of error; each article of furniture has a due share of importance—a relative value as deco ration-beyond which it should never be forced; and the designer for each should have this truth strongly impressed on him in all his labours. We may suppose it easily conceded that the carpet, bearing the relation of the groundwork for objects, should have a quiet richness of surface and texture, intruding in the least possible degree on the eye or the observation; the wall decorations, the next in importance, being entirely of the nature of a background, should be subordinate to the cabinet work, which, in its turn, should hardly be forced into undue competition with the skilful works in glass, porcelain, metal, or the fine arts, for which it serves merely as a means of display or arrangement. Yet how often is this order entirely reversed, and the simplicity of fine art out-shone by the gorgeousness of mere furniture! Where the educated taste of a decorative artist is not sought for, this too often arises from want of taste in the purchaser, who selects each object for itself, and not on full consideration of this principle of subordination; but were the designer really alive to the truth of the principle, such gaudy and false ornamentation would hardly be applied to inferior fahries. Jewellers are eareful that the setting be a proper foil to the more valuable stone, but those who have the means of richly decorating their dwellings often make such a show of the setting that it overpowers the gem.

Div. 3.-Domestic Uteneils and Objects of Personal Use.

The third section of this Report is devoted to the examination of design applied to domestic ntensils and objects of more immediate personal use. Although there is not any exact line of demarcation between such works and those more properly ranging with domestic furniture, the division is sufficiently accurate, and is convenient as permitting classification under the separate heads of

- 1. Porcelain and pottery.
- Table and ornamental glass.
 Works in the precious metals, &c.
- 4. Bookhinding.

 It is to be remembered, however, that the Report has

It is to be remembered, however, that the Report has reference only to the decorative art applied to such works, and that unormamented objects of utility are consequently not included.

It will at once be criticat, that whateve is compensated in this extension only its display the greatest parties predict in this section only its display the greatest parties of form and the reset excellences of ornament, while they should be characterized by the tomost refinement and family, since they are daily under our heads, and until the contract of the cont

Moreover, in those clauses in which use is a first requisition as is largely the case in china, pottery, and requisition as in largely the case in china, pottery, and represent the control of the control of the control of the greatest convenience and especial control of the control of means of lifting, holding, unporting,—of filling, ampriing, and cleaning, should regage the attention of the designer, before the subject of their ornamentation is at all entered upon

PORCELAIN AND POTTERS' WARE,

There is hardly any nation, however primitive its state, with whose works we are acquainted, that has not unambered among its manufactures some kind of potters' ware; rudely made and harbarously decorated perhaps, and imperfectly fired, hut sufficient for the simple dometic purposes of people in an early stage of society and civilization.

As natious advanced in enliture, their pottery improved also, both in elegance of contour, in benaty of decoration, and in manufacturing excellence; so that fletile fabrics almue will often mark the standard of national civilination, and indicate the progress of a people in the arts of life.

This has been the case not only with the Greeks and the Zustern anticolor, has with the modeling Patryanment of the Control of the Control of the Control of the in antispersion that in Europe the improvement of these in antispersion that in Europe the improvement of these the perfection of the Control of the Control of the Control of the Europe that the Control of the Control of the period of the first impulse to excellence, the was keeply excellent an notice that the potenty fundating verices the tame of the time; that the potenty fundating verices the tame of the time; that the potenty fundating verices the tame of the time; that the potenty fundating verices the tame of the time; that the property of the control of the tame of the control of the Control of the Control of the anti-outer of the control of the Control of Locis XV. In the same way, when the Interiories court of Locis XV. In the same way, when the Interiories court of Locis XV. the same way, when the Interiories court of Locis XV. the same way, when the Interiories court of Locis XV.

factor In this view of the cerumie arts there is much that is hopeful in their present position, since not only is there a manifest progress in the last few years in the general manufacture of porcelain and pottery, both at home and abroad, but a decided improvement in their decoration. We seem to have nearly passed through the stage of mere imigation; the antique has been carefully studied, not so much with a view to the mere reproduction of the elegant forms of its ntensils and of their decoration (too much the custom during the latter end of the last and the commencement of the present century), as, from the examination of the vases and tarzas of antiquity, to obtain the geometrical bases of their construction, and the principles on which the Greeks applied ornament to their surface. Hence has resulted an improved elegance and refinement in modern porcelain; and the beautiful details refinement in mouern porceins; and the behavious creams of Moresque ornament, or the richness and elegance of the Renaissance, have been adapted to its decoration on the same just principles that guided the artists of Greece and Etruria in ornamenting with their own national and significant ornaments the beautiful works which time has

repared for our admiration.
The designs he presents or pottery are few in number The designs he presents of extendents, and in the present Reports need not be addeducted in the second of students, and in the present Report need not be addeducted to the second of the s

of the manufacture. This is nowhere more evident than in the heautiful and valuable collection of porcetain exbibited in the Sèvres Court, the products of that eclehrated manufactory. There is not a more interesting department in the whole Exhibition, nor one which more fully illustrates the wisdom of a judicious application of the best art to manufacture. Here we find the taste of the first artists assisted by the science of able chemists, and, under a judicious direction, united to the most skilful workmanship and maunfacture, and the result is that the fabrication of porcelain is carried to the highest state of excellence. The greatest part of the display, however, consists of works which must be classed as ornaments, such as vases, caskets, chalices, tazzas, &c. The forms adopted are pure, and those pure forms rarely interfered with by the reliefs. The details of the decoration, the modelling of the reliefs, and the painting, whether these eousist of figures, flowers, or simply of ornamental forms,
—are of rare and felicitous excellence in many cases, and
of high merit to all. The fluished perfection of these choice works must have exercised a great iofluence on the other manufactures of the country, not only by forming a band of worktnen educated to perceive excellence as well as to produce it, and capable of giving assistance in many other brauches of mannfacture, but by their effect on the general cultivation of the public taste. Nor do such establishments benefit the country that supports them alone, they diffuse taste abroad, even into other lands. Thus the improvement of our own general mann-facture of china has already been adverted to, and yet it is but justice to say that it owes much to the lab of the national establishments both of Sevres and Dresden; not only that their works have in some cases served as our examples, or guided our manufacturers by the principles of their decorative treatments, but from the stimulus to improvement which has resulted from the contemplation of rare works, and of that perfection which arises from a manufacture occupying itself rather upon efforts of skill than upon general production, and shie to employ itself upon them irrespective of expense and regardless of cost.

Yet the danger of producing mere oreaments is fully illustrated even in china ware; more particularly in the works of the Royal Daesben Manufactor (3 Zollverein, 174, p. 1112), since, as far as is shown in this Exhibition, the porcelsin manufactured therein would seem never to have got beyond this result. The works have none of that purity of form which almost of necessity arises out of constructive utility; the reliefs, governed solely by the imitation of untural objects, and nut by the requirements of use or the rules of art, are quite unsuited to the material; and the colour has none of that indicious sobordination to the effect of the whole which is seen in many of the productions from Sovres. The surface is often covered with purely imitative flowers in high relief, glowing and brilliant as the tints of nature, yet looking gandy as ornament, and, from their filmy projections, liable to injory with every touch, and their preservation a source of constant anxiety to the possessor. Even the May-flower pattern,-a production of great beauty, on the principle of a dinper of form and colour,-from its minute hollows, is quite incapable of being cleansed, and from the thickness which it adds to the form, contradicts the true effect of porcelain, which should onite lightness with capacity. Imitation seems to rule, and not orna-mentation. It may be, and no doubt is, difficult to form a tree with all its flowers and foliage out of porcelain, but nothing is arrived at when this is effected; it certainly has no utility, it is not oronment, and the more truly imitative it is rendered, the less it would be regarded, unless our attention was specially called to it as a wonderfully

difficult effort of Inbour. Altogether, a rococo air pervades the porcelain from Dresden, partly resulting from the style which was in vogne when the maonfacture was at its senith there, and largely from the production of works merely oronneutal. from which it obtained so large a share of its celebrity. It still clings to the contorted constructive forms and extravagant prettiness of the style of Louis XV., which have been almost entirely laid aside in the establishment

Among the most beautiful works to the Sevres Court are the elegant tazzas, covered with moresone organient in green and gold, and in blue and gold, on the natural white ground of the material. The two vases in unglazed bisque, decorated with figure subjects, painted by M. Roussell, after the designs of M. Amory Duval, are submed, so as to harmonize with the delicary of the form of the vases. The Labour Vase, by M. Klagmann, sculptor, is a good example of figures in relief as oranment, so applied as not to interfere with the general lines of the form. It is a vase of large size, in white bisque, very attistically designed and modelled, and is an evidence of many difficulties of manufacture, arising from its size, skitfully overcome. A casket, enamelled with white figures on a blue ground, the work of M. Haman, is also an example of great heauty. When we consider the choice paintings on poreclain and in cuantel executed at Sevres, not only from the old masters and others, but original works also, we shall be sensible of the great impression they must produce on the workmen, and the femulous efforts of manufacturing skill they must call forth. The figure paintings of Duelnsean, Thurgot, Beranger, Laurent, and others, with the flower-pieces of Jacobber, Schildt, &c., must be allowed to have exerted this influence in a high degree. In our own country wo have skilful enamellers, as may be seco in the exhibition of such works in the Fine Art Court; but those artists are not connected with the potteries, nor employed by the manufacturers; in fact, their art is too costly for such uses, nuless where, as io France, a nation pays for that

which is of great value for a nation's improvement.

The skilled French artists who have been enumerated are the successors of a line of others, who, for nearly a century, have laboured to improve the manufacture of porcelain, sided by a hand of workmen trained in the same school, to assist them in their efforts-with what eminent success has been sufficiently shown. In England onr china painters are oot artists, and but few of them seem to have artists' feelings, nor until of late years have they had opportunity of gaining the necessary instruc-tion. The painters on china copy fruit, foliage, and flowers well; but when such labours are original, they too often consist of but slight variations of some stock and stereotyped forms and colours, which the workman uses over and over again, without novelty either io grouping over and over again, without noted the property of drawing. In the power of painting the human figure they are mustly deficient, and few of them are able to execute subjects of which fieth forms a part. The modellers also have been sadly deficient in knowledge of the figure and of its annomical details. In both these particulars, however, they are slowly improving, and the introduction of pariso and other materials for statuettes, which is beginning to form a large branch of business in the potteries, and which, as yet, is nearly peculiar to England, has been of service in showing them their defects, and in urging them to amend them. The Schools of Design established in the potteries, in which some of the principal manufacturers take an earnest interest, have already, produced some results, and energetically supported, will no doubt he of essential value to the workprotect, whi so donot be of essential value to the work-man and to the manufacturer. This is abundantly evi-dent in the statuettes exhibited by Messrs. Copplaxon (Class XXV, 2, pp. 713, 714), and Mr. MINTON, (Class XXV, 1, pp. 709-711), as well as many other British maunfacturers. These statuettes, often reductions from the works of emineut sculptors, are completed far more successfully than would have been possible a few years ago: and when we consider the difficulty of putting them together by properly and skilfully adjusting the parts after they come forth from the moulds, and the farther care required from their extreme shrinking in the firing, many of them may be regarded as highly successful results. Still there is room for improvement; the countertion, in the details of the joints, features, and extremities, is not quito equal to some of the bisque figures that here

been produced at Fevres; and it is yet a desideratum (which may, however, arise from the spread of statusty

porcelain) to unite in one person the urtist and the work-nan, as in the case of the hemistist of France, as well as many of the foreign workers in the previous metals.

The Royal Manufactories of Berlin and Bavaria have avoided many errors prevalent in the china-ware of Dresden, and have rather followed classic models. The works exhibited, however, are deficient in originality; the vases are of the most common classic forms-over louded with orunment, and having landscapes and pictures painted in compartments on their surface. Dresden enamel-painters on china rank next to of France; and BUCHER (3 Zolly., 176, p. 1112), and WAL-THER (3 Zolly., 177, p. 1112), in their copies of paintings by the old maters, evince a perfect knowledge of their nrt. Tarrexa, in Russia (318, p. 1376), mod Nico, in Austria (615, p. 1038), exhibit skilful enamels on china; hut the porcelain from these constries has no peculiar originality or excellence to recommend it.

In ennsidering the question of design, as applied to that division of pottery and porcelain which more espe-cially comprises works of utility, constructive form should have the first attention; and in such works as are intended for vessels of capacity those forms should be adopted which, while they are most elegant, are hest fitted for containing or holding. Such articles, moreover, being of continuous use, the power of ready eleansing is of great importance, and should have due attention from the designer. It is to be remembered, also, that the means of receiving that which is to be contained is us necessary us its ready ont-pooring; since it is hardly desirable to have to upply a funnel to fill a pitcher or jug intended for constant use, although this may be permitted in a bottle, which is required to keep its contents cool, or to be carried about, and subject to spill them by jolting, and therefore needing a smaller aperture. Moreover, a jng, or pitcher, which will admit the hand to cleanse it thoroughly, must be more suited to daily use than one which will not. A due consideration of utility would regulate the form in many other cases; as, for instance, in caps and other drinking vessels, it might be most graceful to curve the top edge outward, but since such a form is likely to overflow the person in drinking, however superior in elegance, it should not be adopted. When utility is considered before ornament, namerous truths of the like kind will be arrived at, which are entirely overlooked when the order is reversed; thus relief, when used, should be extremely low, and without indented hollows in the composition, as well as without underentings, in order to give facility for cleansing; but while this is required for utility, it is necessary for elegance and beauty also; the Greeks were fully nware of it as an important truth, and in their pottery abstained from reliefs, or kept them to the lowest impost: the vases of Etruria have generally their line unbroken by the ornament, and the reliefs on the celebrated Portland vase are so extremely low as entirely to preserve its outline. In the same spirit our great Flaxman worked to improve this more, as seen in the examples exhibited by Messrs, Wedgwood; Eastern nations are sensible of the same truth, and their vase, such as is shown in figure 1, adopted as a pitcher:

(p. 1419), and here engraved, will illustrate this, as



well as the fitness of form to use. The neck narrow at the bottom, whereby the stalks would be compressed and supported; the cularged balb, to contain sufficient water for their nourishment, and at the same time to serve as a boss for the hand to grasp, is of a piece with the proper consideration of the decoration, This is not painted, but is of the nature of an inlay, being clossome enamelled over the whole surface; that is, the enamel colours are filled into a coffer of metal standing on edge around the ornumental forms, the line of the tuse being carefully preserved.

The application of handles is another important point connected with constructive design. The ensiest and most convenient means of lifting the weight, when lifting only is required, and of lifting and pouring when both mre requisite, being the question to be determined. often this is arrived at more by chance than by calculation. We see, for instance, the form of an Etruscan



the original having two handles, formed for its occasional | for one of the handles; perhaps it is to serve as a ewer, removal unly; for its new purpose, a spont is substituted requiring raising and reversing at every effort to pour,

and yet, so changed, it is acted upon by the hand and wrist at the greatest possible disadvantage, the haud having to lift the weight, as it were, at the end of a long lever, and reverse it by the power of the wrist, as is shown at a (fig. 2), while a much less power applied at b shown at a (ng. 2), while a much less power applied at o (figs. 2 and 3) would suffice to reverse the pitcher and pour forth the fluid. The height of the handle is of less importance when the contents have to be delivered from near the bottom, as in the Eastern form at fig. 4; since the slightest tilt of the vessel would begin to empty the contents through the spout, which would not be the case if they had to be discharged from the top. These hints will serve to show how important the proper consi-deration of the insertion of the handles is in such works, and how errors arise from merely adopting inconsider-ately a form fitted for one use for another purpose. It would carry the subject too far to increase examples, but these suggestions followed out would lead to multiplied instances of false adaptation, and may serve to induce a instances of name muspitarrow, and any more careful consideration of the subject. In the application of colour to porcelain and earthenware, the sur cation of colors to percensus most carrier water, we wanted never should be wholly, or indeed largely covered; the material has a purity that should be decorated, not ob-scured. A due consideration of this simple rule would condemn a vast amount of bad taste, such as completely metallizing the surface of china by gilding, changing chins into imitative marble, or covering the field of mar utensils with pictures, landscapes, or flowers. The Greeks decorated their pottery in bands, introduced to mark the change of curve, or to separate the various surfaces: the castern pottery is in the same way decorated in bands, or where the surface in more covered, it is merely with a diaper, which leaves the material sufficiently visible.

displet, which reaves the material sinusciently visions. Landscapes and plettores are almost always out of place in pottery, and it certainly is objectionable to cover the securior of places and dishos with plettors and view; not said it is desirable to reation, but because utility would be better served by the alsence of any decoration in the part which receives the vision, to said it is desirable to reation, but because utility would be better served by the alsence of any decoration in the part which receives the vision, to said yit at sense of eleminess only to be obtained by the white unchanged surface.

of the material.

There is still another subject to be referred to, which contains the initiation of the orimanety predicts to see contains the initiation of the orimanety predicts to see contains the initiation of the orimanet of see sensitial to the describe of smoller, which are intended for totally different uses: or applying the original to the contains of see sensitial to the describe of smoller, already been often strougly animaleveried upon. The arrange of the original to the simulation of the contained the contained the contained or the contained or the contained or the contained or the contained the contained or the co

the surveyer is deviced in many terms in his shelfing of the survey of

When, however, dne allowance has been made for finits, failures, and short-comings, it is impossible not to

feel that the general mannfacture of china has made great progress in this country. There is a greater selec-tion of pure forms—a less gaudy treatment of the whole surface-than heretofore; and where works are founded on past styles, their most meritorious qualities are selected, their faults rather avoided, whilst the power of the art-workman has visibly increased. Thus, in the cautiful dessert-service from the manufactory of Mr. MINTON (Class XXV., 1, p. 709), whilst there is much that is derived from old Sevres patterns, it has been, hy judicious adoption, rather than imitation. If the figures are a little crowded, they will be found exceedingly well modelied; and the purity of their white material, con-trasted with the delicate hues of the colours combined with it, has a chaste effect, the furthest possible removed from gaudiness. Indeed, the great merit of the works from this maunfactory is the restrained use of colour, and the general delicacy of the decoration. Some of the small figures on the centres of the plates are excellent specimens of the china-pointer's art, and there is almost a total abstinence from landscape, or mere pictorial sub-jects, on these utensils. As to the imitative renderings of flowers on china, it is hard in this case to object to their want of conformity to principle, since the beauty and purity of the surface of china is so suitable to such art purity of the surrace of china is so issurante to silen aff-that here, if anywhere, their use may be overlooked. The porcelain both of Messrs. Corza, and and Messas, Rosz, (p. 711, and Casas XXV., 47, p. 277), holds a high place also for form and colour; and some of the most accessful or the larger efforts at enumel-painting on china in England are exhibited by the artists in the employ of these manufacturers, as well as some excellentlyfinished statuettes. The application of porcelain to decorate the jambs of fire-grates has produced some well-designed slabs from both Messra, Coreland and Messrs, Minton; although, perhaps, one of the best designed of such works, with certainly some of the best English flesh-painting, is to be found in some jambs attached to a grate exhibited by Mesers. STUART and SMITH (Class XXII., 102, p. 603). An application of the design of some jewelled embroidery from the work of Mr. C. J. RICHARDSON, to ornament a flask, exhibited by Mesers. Corzzann (p. 712), gives a rich treatment, although contrary to the sounprinciple of not covering up the surface of the material too entirely; but in another specimen exhibited the whole merit of the adoption has been lost hy introducing a land-scape amid the lines of the form, making it appear how much chance and how little principle has governed the choice. One or two plates in Mr. Copeland's collection have great merit in their design, the width of the orna-mental margin being well considered and the centres judiciously plain.

James of the property of the p

Grass.

Among the many beantiful materials which the earth has yielded to the industry of man, to add to his comforts

and here see his enjoyments, glass bolds a promisers. It we great the mean oranneste. But will the promisering the III will be a possible of its warmen to be received in connected has been former the properties of the properti

For the purpose and utamia above extracted, the quitter surfaced to, its properly underected and duly condition surfaced to, its properly underected and duly condition surfaced to, its properly underected and duly which should geven to design and deceration. Of these, the formest are the similarity of arrival and its transfer to may these qualities are not only often directions and the same of the s

glames. The street is a significant of the street of the s

through the elever artists attached to royal manufactories, has arrived at great beauty and rare excellence, reflecting back an improved taste on the design and decoration of the general manufacture, glass has not been favoured with such advantages; and the specimens of Bohemian and Hungarian glass in various parts of the Exhibition, notwithstanding the rare beauty of the materials of the manufacture, can hardly be instanced fur the merit of their design. The mode of manufacture, by casting in clumsy masses in wood or metal moulds, and reducing by cutting with the wheel, is courrasy to the best qual of glass, which consist of lightness and elegance. aloue causes many of the faults of the manufact since the true characteristics of glass are lost, and are replaced by qualities too apt to degenerate into the mere-tricious and the gaudy. Thus transparency is merged in rich colour, and this, again, overlaid with gilding; or the surface is finshed with opal, cut away by grinding to the coloured under-surface; sometimes giving the appearance of porcelain, sometimes even that of the inferior penintee of poercian, sometimes even that of the intercent maoufacture, papier mache; whilst, occasionally, the whole surface is frosted by grinding, and tinted in crude colours, the appearance of glass being entirely lost, and only its worst quality, that of brittleness, remaining: whilst the forms adopted are often as inelegant and rude as they are unsuited to the material to which they are applied. The tall chandeliers exhibited among Count Harrach's glass are examples of these remarks; at first Harrach's glass are examples of these remarks; at first sight they resumble papier muche, from the excess of gliding on the dark ruby glass; and when examination determines them to be glass; the deeply-indented hori-zontal throatings of the mouldings of the shafts give a seese of dangerous insecurity and ill-adapted construc-tion. This is far less seen in the smaller works of the same kind, but it is, nevertheless, the natural result of wrong application of constructive forms to the material, and of an improper over-decoration of the surface: whilst it would appear that the true adaptation of such glass for the above purposes has not yet been obtained, its use in the above purposes has not yet been obtained, its use in the manufacture of immp pillars, knobs, and handles, lock furniture, and finger plates, has been more successful, and seems likely to be attended with more tasteful

When glass is used for large objects, such as chandeliers and candelbra, where construction is required, its known hirtideness is rather at variance with the construction produced to the material, and it seems in the principal branches and supports to require not only a hidden metallic structure, but even the appearance of it to the eye, to overcome a certain sense of insecurity. It uppight standing candelbras the work should arise

out of some other material as a bace, and it is executingly deptenable to be an gloss reporterior on the same objectionable to be an gloss reporterior on the same objectionable to be an gloss reporterior on the same states of first. In hasping chandlelers a construction outline of first. In hasping chandlelers a construction outline of the control of gloss and the cont

effect. In referring to the exhibited works in the manufactured material, the first place is due to the glass fountain of Messar, Osara (Class XXIV, 20, p. 700.) It is a matter of regret that a production so unique in this material should not be entitled to praise for its design; the truth is, that, works of the like magnitude in glass were having been before attempted, and the designer

being consequently thrown on his own resources, he should have seized the opportunity so offered, and, striving to forget what had been done in other departments, treated the material for itself alone, and con-sistently with its own proper requirements. Instead of this there is an attempt to mix architectural stone forms with others that have become almost conventional in glass, and the result is inconsistent and musatisfactory. The glass pillurs are far too slight for the heavy inverted canopy, and both those campies are too large for the lusius above, very inharmonious in their contrast of lines, and unfitted for the agreeable display of the water; the glitter of the iewel-formed ornaments with which they are covered being confused with the motion over them of the natural element, instead of serving to show out its brillinney and elearness; indeed, it is evident that the main source of error has been in supposing glass, and especially cut glass, a suitable material for a fountain; it is at once seen that this is not the case; instead of its being a proper foil for the sparkling water, glass emulates its sparkle and lustre, and the result is a failure from want of contrast,

The unsuitableness of glass, when on a large scale, for self-construction is also seen in this work, and is partly felt in the large and otherwise elegant candelabra ex hibited by Mesors. Osler (ut supra), the property of fler Majesty, especially in the horizontal indentations of the architectural moulding of the bases, which induce a sense of liability to break arising from the known brittleuess of the material, as has been before alluded to in the works from Bohemia; in other respects they are in good proportion and beautiful in material, and the gilt bases on which they stand supply the want of a metal foundation before remarked on; the colourless quality of the glass is extremely beautiful. It is hardly possible to estimate properly the effect of ent glass except under the influence of the light for which it is adapted, an influence which has been noticed even in the case of metal chandeliers. and which would be much more marked in its effects on the prismatic forms of glass; but loose pendant pieces the prismate forms or grass; not toose pendant preces attach together in long sweeping lines are well adapted for this purpose; and the general forms of such works as exhibited by Messro Ossian (p. 700), Messra Apsiar. Pellar and Co. (Class XXIV., 33, pp. 701, 705), by Prinut and Co. (Class XXIV., 36, p. 703), and others, are good, nithough they do not satisfy the mind as tu It has been necessary to diverge a little from the classifi-cation at the bead of this section to take notice of the above works and others of the like character : in returning to the objects more especially included in this part of the Report, the table glass exhibited by Mr. J. G. Garen (Class XXIV., 32, p. 701), deserves especial notice, both from the general excellence of the forms, and from his large adherence to those principles which have been considered as best regulating the true use of this beautiful material. In his blown-glass jugs, water-bottles, and wine glasses, some of the purest forms derived from Greek uteusils have been selected and adapted to the material and to present use; they are decorated with ground ornamental forms in bands, and although the ground ornamental forms in bands, and although the ornament is sometimes too redundant and alsepred, it is in the right direction. Many of the forms exhibited by Measer, Parlatar, and by Meeser, Riertansoos of Stont-laridge, have great merit, while the beautiful applications of glass to door-handles, and the extreme partity of the material obtained by Meeser, Pellat, of the fire view is all plit ornamental elurater in such works. Meeser. M. HARRIS and Soxs (21, p. 700) have some finger-plates in glass that point out a beautiful use of the material; one with a diaper in silver on a blue ground is chaste in effect and clever in its design. P. J. Lanocue, of Paris (1287, p. 1238), exhibits some goblets and glasses of pure blown forms, simply ornamented and in good taste; but on the whole the best white glass, both in form and ornamenta-tion, is to be found on the English side.

injury than improve public taste from over decoration. The richness of the material, from the hrilliant colours that may be produced in it, renders it liable to this fault, which is greatly increased by the gaudy extreme to which the ornamcutation is carried, too often applied to coarse, unrefined, and inelegant furms,

WORKS IN THE PRECIOUS METALS.

The design and ornamentation of works wrought in the precious metals deserve especial attention in this Report, since in this department we may expect to find the highest art applied to the richest and most costly materials. Moreover, in such manufactures more than in seem to concur, and are aften so intermixed that it is difficult to designate their several provinces, or to determine where art ornament diverge from one another. Here we have a field wherein we may study the right application of each, and understand the due limit within which each is available for the purposes of manufac-

However, in the highest range of his art, the orna-mentist may be merged in the artist, there is a distinct difference in the principles of the two arts, a difference which becomes more apparent as the oranmentist descends from labours of such high requirement to those more strictly within bis own province. Art has its childhood in a careful imitation of nature, and grows into an ab-stract initation, or generalization uf nature's highest beauties and rarest excellences—still, however, initiatively rendered- and nature, thus selected, becomes the vehicle for impressing men with the thoughts, the pas sions, and the feelings which fill the imaginative mind of the artist. The generalized imitation of nature is the language in which these imaginative abstractions are embolied and expressed, and this whether the artist be seulptor or painter; the landscape painter even proceeds on the same principles, and cudenvours by a selected on the same principles, and cudenvoirs by a selection initiation to reproduce the aspects of nature in harmony with certain feelings which fill his mind, and which he wishes to impress on the mind of others. In its lower phases art relies more and more on imitation, seeking to give pleasure only by the reproduction of beautiful objects or beautiful combinations, until, in its lowest development, art, if it can be so called, rests contented with mere imitation,

In considering in a like manner the scope of the oracmentist, it will be evident that in his highest aims he is assimilated to the artist, so that it becomes extremely difficult, may impossible, to separate them, or draw may line of distinction between the one and the other. Thus the beautiful shield which embodies the description given hy Houser of that of Achilles, designed by Flaxman, and exhibited in electrotype in the Fine Arts Court (365, p. 843), and that skilful specimen of embossed work, the shield by Autoine Vechte, in the collection of Messrs.
Hunt and Roskill (Class XXIII., 97, p. 686), are at one
and the same time works of art and works uf ornament, From this high range the occupation of the ornameutist descends by imperceptible degrees; not as in the case of the artist through the more and more close imitation of nature, but by selecting from her whatever is beautiful and graceful, irrespective of her individual embodiment of these qualities, and adapting them to give pleasure separately and apart even from any wish to recal the objects themselves from which he has sought or obtained them; his effort is to give the most characteristic embodiment of those natural objects (viewed in relation to some peculiar quality, form, or eclour, or some particular adaptation required), rather than to imitate; indeed he departs more and more from instation as he diverges from the path of the artist to occupy his own separate province as an ornamentist. These are truths to be continually borne in mind, as they constitute the only cure for that false style of ornament so largely pervading the manufac-The design of the Bohenian glass, both of Corvx; Vos Ilanascu, (687, pp. 1068, 1097), the largest exhi-bitor, as well as of Messrs Kotta, of Pergue, and of other anomafactures, Foreign and English, is tending rather to which is nowhere more largely exhibited than in works

in the precious metals, and in the affiliated manufacture of plated and Shetlield wares.

While it is not possible, therefore, in works in the precious metals, entirely to separate the artist from the ornamentist, still for the purposes of description their separation is marked with sufficient distinctness. A great cause of the faults exhibited in these works seems to be, that they have received their design rather from the artist than the ornamentist; thus we have figures having no constructive connexion with the work ornamented, but rather of the nature of statuettes perched wherever a ledge or shelf offers accommodation for them; these are generally as imitationly treated as the material used and the powers of the artist permit, and are applied to inkstands, eaudelabra and works of the like kind requiring a purely orsensedal consideration. Many centre-pieces, racing-cops, and testimonials are treased merely as groups would be by the sculptor, although the lowest style of his art has but too frequently been adopted, and imitations of textures, chain and plate mail, and such laborious littlenesses, made a point of, rather than that nobler view of art, which, discarding miniature and strictly initative details, seeks by grandeur of form and largeness of manner, to make us furget the scale of the work in the dignified style of its treatment. Now, if it is proper that these wurks should be consigned to the hands of the artist, he is bound to treat them according to the laws of his own art, not only by a noble style, but also by making them as groups truly statuesque, combining the parts so that they form an agreeable whole in all possible directions of view. Above all, the thoughts which, as works of art, they serve to embody, should be such as are worthy of being illustrated on metals of great value, which enriched by true art are enhanced in worth a hundredfold,

If we contemplate some of the inventions of the artists, and some of the thoughts which they have wrought out we shall be indeed surprised that such puerifities could be dwelt on long enough to execute them as wurks of art, and still more that mannfacturers, so shrewd as they generally are, should be found to engage in their production, were it not sufficiently evident that there is a large and wealthy public whose taste does not rise above such art, proved by its becoming patrons and purchasers. What can justify the employment of the precions metals, and what ought to be the more precious labours of artists. upon huntemen and ploughboys, to render them with all the coarseness of their garments and the texture of their hose? or who, but the givers of a testimonial, relying on the known taste of its receiver, would require art to be degraded into the mere imitation of a hedge-row occurrence on a hunting-day when the sport was successful; knee-breeches and top-boots being as important items in the groups as the hounds, horses, and the portraits of the individuals whose good fellowship it commemorates? It is such art in the more precious metals, employed on such thoughts, that leads, in the imitative manufactures, to the many paltry inventions which are found to prevnil therein. Rachel at a well in a rock under an prevail therein. maches at a water, but ink: Burns imitative palm-tree draws - not water, but ink: Burns shepherdess would find the same black fluid in the formless well by her side; a grotto of oyster-shells with ebildren beside it, contains, out n light, but an ink-vessel; the milk-pail on a maideu's head contains, not goat's milk, as the animal by her side would lead you to suphut a taper. Sueb works are akin to épergnes with the bippopotamus and his keeper; or Paul and Virginia under a palm-tree that upholds the glass for flowers on or Apollo dancing, supporting at the same time n glass épergne twice his own size; and inventions of equal or greater accelty wrought out with great waste of skill and labour. Even when we arrive at really artistic works in this style, of which happily there are many, it is more than doubtful whether the ornamentsis would not be more suitably employed upon them, and an ornameatal and architectural construction first obtained, ere art was called in to aid in their completion. It is not pleasant to add, that the above strictures more especially refer to English productions. It is true that such works bave often a local significance or an individual importances, consing their exhibition here, and making it less likely the materials of our dress by the threads of its mann-

such should be exhibited by the foreigner than plate of a specific use, or ornamental works whose characteristics are more general; but it is impossible to deuy that the tasto of the class who purchase or commission these works abroad must be higher than our own. In France, for instance, we find testimonials and prizes

taking the shape of art rather than of massive metal. The President of the Republic, in contributing a prize to the wioner of the Chantilly races, presents a shield, on which are four reliefs, illustrating racing in various ages of the world; and when the vertices of Montlucon and the inhabitants of Lot desire severally to present testimonials to Generals Changarnier and Cavaiguse, the weight of silver is of far less importance in their eyes than These works the rare beanty of the art-workmansbip. These works are exhibited by M. Froment-Menrice; and the two latter, two beantiful swords, are eboice examples of design and chasing. Moreover, it is worthy of notice that in such works the artist does not consider his vocation a separate one, but regards the utility while be perfects the art. In both the above sword-bits, the ornament (group of figures) has been so thoroughly adapted and composed for its purpose as a bandle, that it is perfectly accommodated to the grasp; which is the case also with a beautiful short sword, ornamented with the history of St. Hubert, executed by M. Marcet, and exhibited by MARKEL BROTHERS

(France, 331) in the same department When the amount of those works exhibited by the gold and silver smiths of Great Britain is regarded, an amount whose value is to be estimated by its weight in tow, it must be owned that there seems ample encouragement for more skilled labour; but the slightest glance will serve to show how largely the mere weight of metal enters into the estimate of value by the possessors of plate here; and, on the contrary, how little fine art is considered to add to its worth. And yet art would give a more real and permanent value than mere material, and tend at the same time to separate the precious metals from the plated substitutes which ape their richness, but which would never engage the hand of the artist in such rare and costly efforts of skill; indeed, it is a curious fact, observable in the imitative manufactures, more especially in those where the production is very easy, and the sale likely to be extended from the cheapness this induces, that, instead of being employed on art, of the best character, in the first type, it is often of the most wretched description, notwithstanding one might suppose that the cost of tho first model, even if high in itself, would be trifling dispersed over a multitude of copies; but it is probable that person over a mantitude to copies, out it is protosole that the style of the work in such cases is suitable to the general taste of the purchaser. Thus the electrotype process, by which means the travest specimens of art can be, and have been, reproduced, applied to general mann-facture, or where original works have been attempted, babeen too often used un the worst art and the most puerile ornament. The same is observable in works formed by stamping in dies, and even, though in a less degree, in those east in moulds, and afterwards chared; and it is only when the same man's mind invents the work which bis hand executes, that the highest skill is seen conjoined

with the most beantiful art. It must be owned, however, that our countrymen are greatly deficient in the treatment of the precious metals as the medium of art. The truth seems to be, that here one artist designs the work, and perhaps makes the mode., whilst another is employed to produce it in the metal. Thus we find works designed with great ability, and modelled with much knowledge, and evidently by artists of great professional excellence, yet these completed in the metal with every possible littleness of imitation, serving only to degrade and valgarise the art it is employed upon; and this frequently is caused by the surface treatment and the mode of execution, wherein imitation has taken the place of art. Thus the true artist does not produce the texture of the fur of anionals hair by hair, but gives its general expression by some conventional rendering, by the indications at the parts where the skin folds, or by tooling to emulate the lustre nf its gloss. In the same way true art does not imitate

factors, but indicates them rather by the shape and contact of the follage. It is the works under canamianton, the of the follage, it is in the works under canamianton, the development of the contract of the contract of the development of the contract of the contract of the development of the contract
Again, in the higher works in silver the foreign artists has had the bolishes to regard the nativelli, rob and sha had the bolishes to regard the nativelli, rob and sha had believed to regard the nativelli, and that hatter and brilliary, which is one of the present accretiones of the mere match, he shakes by acids are in-historial mere and the state of t

exhibit the art. Another defect of the works in the precious metals, as exhibited on the English side, may be traced to the sar cause-the separation of the work of the artist and the silver workman: hence casting and rhasing are the means of production here, whilst the foreign artist himself noes the hammer and the punch, and beats out with his own hand the creations of his foney or the inventions of his skill. Casting and chasing in their proper application are means only of producing and perfecting a thing, after the design and model have been executed: even in the hands of the artist himself they are but completing and perfecting rocesses; the work, as far as invention goes, is already done before it is enamitted to the mould; and the chaser does but perfect what the easter has produced, with the more or less excellence, according to the art-knowledge which he possesses; but by the embosing process, called reposses, the artist himself produces the work by punching the plate of silver on a soft matrix, and continually annealing it in the course of his labours. By this embossing process the mind of the artist is working with every stroke of the craftsman's hammer; and not only every stroke of the craftsmans hammer; and not only locs his own hand work out every characteristic quality of the surface, whether of flesh or of drapery, and bis knowledge supply every essential detail, but thoughts seem to arise out of the very method and means of working, and each stroke on the puneh may prove a suggestion leading to new faories, or be followed ont into more happy details. Even from the accidents of annealing-constantly necessary during the work-the colooring of the metal in the furnace calls op new thoughts, like those which arise in the mind of the poet watching the glowing embers, and the artist at once embodies his new-found fancies. Chasing has none of these suggestions; as before said, it only perfects: whilst embossing is to it what etching in the hands of the painter is to engraving. The very means in the one are suggestive in every stage of the progress; while the other is only a more or less complete copy of a previously-designed original. The beautiful and skilful works of Antoine Vechte, both thu shield before alluded to and the vase representing the y of the Titans (p. 686) whirb accompanies it, with the beautiful centrepiece wrought in ailver partly by the same process, the work of Wagner, exhibited at the antrance of the Court of the Zollverein, are rare specimens

of this mode of working, and its suggestiveness will be at once understood by those who are at the pains to exam sur b parts remaining as it were in the state of sketches, and speaking in this state so strongly to the inventive fancy of the artist, that he who looks into them feels a strong desire to work out the thoughts and fancies they cause to crowd upon him. The iron shields exhibited by LE PAGE MOU-TIER (France, 1364, p. 1241), are also fine examples. This mode of workmanship tends also to a unity between the ornaments and the objects ornamented, whilst chased work and east figures, too often necessarily wrought apart, and applied to the group or thing ornamented, have oftentimes a contrary tendency. In reviewing the question of works in the precious metals, there seems a coarseness and florid style pervading English works, showing itself in groups "in the round" io imitative art, in bold and overcharged relief, in coarse ornamentation, and in colarged scale; wiolst in France, the only other large exhibitor, and in the works of Wagner, in Germany, and of certain French artists on the English side, there is much less of this randiose rourseness, particularly in the art not specially devoted to purposes of manufacture. At the same time they bave, perhaps, in some cases rather too much ignored the consideration of the material, and treated it entirely as a medium for the art. This was not the case with tha medieval goldsmiths, or with those of the 16th century, who, whilst adding exquisiteart torich materials, so treated the general surface as to obtain at the same time the richness and lustre of the precious metals. One thing that we neglect, however, which our French neighbours do not, is the use of enamels; and the varied treatments of surface by axidizing, pareets-gilding, burnishing, niello, &r. The use of enamelling as an ornamental addition to the surface of the precious metals has been confined, with one or two exceptions, to chalices, patens, reliquaries, and other ecclesiastical goldsmiths' work, founded on ancient and medieval examples; and there are some good specimans of Champleve enamelling in the collection sent by Mr. Barman, (522, p. 761), as well as in the works of Kertu (Class XXIII., 121, p. 694), and Skitmore (Class XXIII., 23, p. 694), and in France in those exhibited by M. Poussikloue-Rusand (1405, p. 1243); but the most artistic examples of the use of enamelling are in the elegant monotings of rock crystals, agate, and lapis-laruli, as cups and fingons, by Mr. Monez (117, p. 693), of Burlington-street, which for felicitous design and beauty of execution, equal the rare examples of the 16th century. It is understood, however, that these are the works of a French artist. Mr. WEISHAUPT, of Hango (1 Zolly., 412, 1073), in the tastefully-designed chessboard which he exhibits, has also made an artistic use of surface enamelling, both in the dresses of the chessmen and the ornament of

centre, and serround the outcomes rins of the shield, not being continued travely the composition of the source temperature of the control of the control of the control centre of the control centre of the control of

the table; while the choicest specimen of the combination of many materials to form a rich and beautiful work is

seen in the shield of Faith, presented by His Majesty thn King of Prussia to his godson, the Prince of Wales; it was

designed by Cornellus and Stülzer (p. 110), and executed by Hossauer, Fischer, and Mertens; and is rich, without the slightest tendency to excess. The subjects, from the Scriptures, in silver, are ably excented in low relief, and carefully classed; the single figures of the Apostles heantifully designed, as are the accompanying enamels. Thu

ivory forms that frame in the compositions towards the

of flowers as ornament. An enamelled incense-burner of large size, and the flower-vase inserted in the remarks on pottery (p. 1645), both from China, and exhibited by Mr. Alcock (p. 1418), are beautiful and choice productions in this art

If we can allow such works as testimonials, racing-cups, centrepieces, and others of the like character, to be given up to the treatment of the artist, there is still a large number of other articles in the precious metals and their representatives having a defined purpose as utensils, and strictly devoted to a use, which must belong to the domain of the ornamental designer, and be subject to all the laws of his art. Of these, utility should be the first consideration. They should be composed on geometrical forms and have a symmetrical construction. Capacity and mobility, in most cases, will have to be regarded, in connexion with proper stability and solidity: and it should be remembered that, as domestic stessils, they are not to be placed under glass shades, and therefore will require constant cleansing and polishing, and that, not at the hands of the silversmith. hut of the hutler or his assistant. This alone ought greatly to regulate the treatment of surface, which should be such as will best display the beauties of the metal, and yet not render it liable to injury under such cleansing. Then again, it is usual to make the handles and knohs points of ornamentation, and this nut improperly; but it should nut be forgotten that they are to be grasped for lifting, and ahould be convenient for that purpose. And neither in these, nor, indeed, in any other part of the ornamentation, should the relief be so bold, or project so far, as to be liable to accident or entanglement in the use of the articles. Some of these remarks may seem almost appalled for, hut are not so: nor are the errors recited confined to English manufactures, but are equally evident in those of France. rance. Thus it is impossible to justify large and florid roups of dead game, of fish, of fishing utensils, or the groups of dead game, or man, or maning dish-covers, or like imitative treatments, as the knobs of dish-covers, or the handles of tureens; however beautiful in design or excellently chased, they are not convenient for use; nor can the hand be safely brought in contact with the metallic toes of a pheasant, the tentaculæ of a lobster, or the twigs of a fish-basket, any more than stags with their branched antiers can well be laid hold of to remove a venison dish. Faults of this class chiefly arise from the natural or imitative treatment, which has to answer for so large a

growth of arrors. It has before been remarked that the figures introduced into the ornament of metal-work are too often merely applied or atuck on, not arising out of the work as a constructed whole, and this more especially in those works which have been usually committed to the skill of the artist: but if not to be tolerated in those works, in objects of utility they are far more out of place, and comment requires that figures should have an ornamental construction. It cannot be too often repeated, that imitative trees and foliage, flowers that are like the growth of the hothouse electrotyped, and which dangle and skake with every movement, as much almost as would their prototypes on their natural stems, are not ornament, are in the worst possible taste for any useful porpose, and have a flimey and tinsel-like appearance, as much beneath the impressive effect in metal of even merplain surface, as they are wide of any pretensions to fitness or propriety as works in metal at all. This naturalism is evidently a heresy of the artist's, and should have no quarter at the hands of the ornamental designer. In the section devoted to hardware, the treatment of metallic surface has already been the subject of remark; much of which will apply here also; but in connexion with this imitative art, it may be remarked that the frosting, which it renders almost necessary for its display, is even more opposed to the hrilliancy of metal than that exidation so useful in showing art-treatment.

In jewellery, used for personal adorument, the fancy has full play, and the invention need be but slightly carbed hy a consideration of use, such works being in their very intention ornaments; where precious stones are employed, the first object being to display them to the greatest advantage, the designer should be careful that neither gold

a choice example of the art, but of the Indian treatment nor enamel interferes with them, and that there is sufficieut motion iu the parts to hring the light into play on their surface. In mourning ornaments, bracelets, hr &c., M. MECRICE has shown himself a skilful artist; her indeed, the fancy of the French art-workmen has full scope, and in such smaller works in metal as cane-heads, scal-handles, buttons, snuff-boxes, &c., the most delicate workmanship is found combined with artist-like design and pleasing inventions, both by this exhibitor and in the articles displayed by RUDOLPHI (France, 1465, p. 1946), GUETTON (France, 1619), and others. It only remains to remark upon some of the works for domestic use exhibited in this Class which have not already been spoken of or alluded to. One of the choicest works of utility is the tea-service of Eck and DURAND (France, 1211, p. 1235), which deserves attention for the architectural arrangement of the whole as an harmonious composition, and for the beauty and elegance of the individual forms and their ornamental details; it is a thorough study of ornamentation; the figures, where introduced, are perfeetly parts of the composition, and are oxidized to show the beautiful workmanship employed upon them; the ornament is in low relief over the surface generally, and purcels-gilding has been used to give expression where the treatment became confused by a little excess. The plateaus on which the cups, cream-vessels, &c., are arranged, are treated with ornament in niello, and every effort has been adopted to give variety to the surface without interfering with the general repose of the whole. Constructive use, moreover, has been well considered; the composition consists of a raised central urn, from which the water flows through several vents into four tespots arranged below, whilst chalices for sugar, eream-pots, &c., are grouped lower down in the arrangement, the bottom having spaces for the cups designated by circular groups of orasment in niello; the only difficulty is to conceive how so massive a piece of plate is to be filled at the top with hot water, and conveyed into the drawing-room, without discomposing its general arrangement; in addition to which, it certainly has the fault of being over ornamented, notwithstanding the great care that has been taken by low relief and otherwise to prevent such an ap-

The work on the English side which most nearly corresponds with the last-mentioned is the centrepiece, the property of His Royal Highness Prince Albert, exhihited by Mesers. Garrann (Class XXIII., 98, p. 689); this also has been designed with a proper sense of architectural arrangement, and is elegant in its general forms, especially the central tazza, while the low relief ornament on its surface is well considered and in good style; being entirely treated in gold, it has a tendency to monotony counteracted as far as possible by a very judicious use of burnished surface. The portraits of animals introduced, although very eleverly modelled, do not harmonize with the general treatment. This collection contains also some well-designed salt-cellars, vegetable-dishes, and candlesticks, whilst even some works in the florid and nearly discarded style of Louis XIV. look almost satisfactory, compared with testimonials and racing-cups of the character before alluded to, Messrs. Hunt and Roskell,'s (Class XXIII., 97, p. 686), principal centre ornament and plateau exhibits some cleverly-designed figures well modelled and with much appropriateness of subject, and it groups well as a composition. Many of the figures in the round, however, have too much the appearance of separate groups placed on the ornament and not forming part of it, a mode of treating such subjects which must be considered objectionable: this firm deserves great praise for exhibiting the shield and vase of M. A. Vechte, Messes. Elkinoton's (Class XXIII., 1, p. 672) application of electrotyping to the reproduction of art and ornament has been successful as showing its perfect adaptability to this perpose. The "hours clock-case." designed and modelled by Mr. John Bell (Class XXII., 641, p. 661), is a good example; it is an artist-like work of much fancy, and is a great improvement upon the worn-out commonplaces which the constant demand for such works ahroad has occasioned; it deserves notice as a work of art, but is wanting in the symmetrical and archi-3 5 2

tectural transgenest necessary to being it properly into the province of the communitation. The repetitions of the province of the communitation of the repetitions of p. 166; Mr. Catevaravo's reduction of Theores (184, p. 186; Mr. Catevaravo's reduction of Theores (184, p. 186; Mr. Catevaravo's reduction of Stewaravo's the Catevaravo's reduction of the communitation of the comlete, W. W. Prover Unitary Villago, 186; A. Catevaravo's the shield of Arbitish, have been preceded in most, and every summ of the communitation of the comlete of the communitation of the communitation of the state of the communitation of the communitation of the state of the communitation of the state of the communitation of the state of the communitation of the communitation of the communitation of the state of the communitation of the com

of past ages.

The beautiful art-workmanship, elegant forms, and the ornamental treatments of metal in the small chalices and dagger-handles exhibited by Manze. Haotenses (France, 331, p. 1193), should be alluded to, as well as the execution of the cup by Le Brun, exhibited by Eca and DURANA (p. 1235), since the art employed upon them is of the true character for such works; but it is not necessary to lengthen the Report by specially adverting to many other works which, while they contain much individual merit as efforts of skill, or even separately considered as efforts of art, are not consonant with the view herein taken of such labours; at the same time it must be remembered that many of the foregoing remarks are intended to apply to the views adopted in treating such works as test monials, racing-cups, &c., not to disparage the ability of the many talented and skilful artists who have laboured upon them, rather indeed to show that what is often expended on mere material ought to be apportioned to the labours of the artist, and that by the means employed to work out their inventions they are overlaid with littleness and spoilt in production. Iudeed, in England, the general impression resulting from an examination of the works in t'ie precious metals would be, that the endeavour of the manufacturer was to give the greatest quantity of metal with the smallest amount of art, which is not so observable on the Foreign side; the view intended to be promoted in this Report is, that art gives value to the metal, not the metal to art. A remarkable contrast in some respects to our own goldsmith's work is seen in the collection sent by the Honourable East India Company (p. 927), herein the least possible amount of metal is so treated by delicate hand-labour, by exquisite pierced work, enamelliags, and inlays, combined with such a thorough consideration of the trentment of surface hy huhl-work, &c., as to give the greatest amount of skilled workmanship with the smallest quantity of the material; and even in their commoner works (inlays and increstations of silver on iron) there is such a due consideration in the first place of beauty of form, and such varied and beautiful ornamental arrangemeats of the details, that they well deserve the consideratiun of the ornamentist

The Entert mations broply persiste the art of ladying both in metal and in other naturals, and discher weighten of war are described with indicate and, and and the strength of the strength of the strength of the strength of the party, they abound with commental shape, &c., when party they abound with commental shape, &c., when me with true projects. Thus, the tropy inlays of gas-to-the, priven in fig. 1, 2, 3, and of of plate 3, howe many the strength of the strength of the strength of an adopted from sature, and incomele were to their originate, any yet perfectly conventionalized, flat, and and characteristic in their form and colour, and not the critication of florent relationships and characteristic in their form and colour, and not the color of the strength of the strength of the strength of the color of the strength of the strength of the strength of the color of the strength of the strength of the strength of the color of the strength of

three coloured plates will prove. Almost all the urms exhibited are more or less ornamented, containing a store of suggestions most valuable to the manufacturer, and a rich mine of study to the ornamentist; among other qualities these works display is the Insteful distribution of the ornament, the sense of just quantity; it is rarely that a border contains too much or too little ornamental form, that a disper is too crowded or too vacant, too large or too small; a reference to the inlays of plat: 2, or to the textile fabries in plate 1, equally illustrates this truth, Nor is this excellent art applied only to costly goods; the same just principles are evident in the cheapest and tha becauer workboxes (of which a specimen is shown in figs. 2 and 3 of plate 3), a manufacture of the cheapest kind, show the taste and skill of the Indian workmen equally with the more costly cannelling of the dagger-case for various domestic and personal utensils, such as bookahs, flasks, bottles, tazzas, &c., are not only simple, beautiful, and correct in their appreciation of quantity but strictly ornamental, and abounding in suggestions of great value to those who will attentively study them: a single specimen, the inlay of a hookah, is given in fig. 5 of plate 2: the same principles, applied to a great variety of forms, are exhibited io many works in the Indian Court. There can be no doubt of the superior workmanship of some of the best European julayers, but in much of the ornament, and in all the true principles for its application, they had been forestalled by the natives of our Indian possessions, and by other Eastern workmen. The inlaid and incrusted arms of M. Le Page Moutiers (France, No. 1364, p. 1241), and M. ZULOAOA, of Madrid (Spain, 264a, p. 1346), are beautiful specimens of orna-ment and workmanship, while M. FALLOISE, of Liège (Belgium, 384, p. 1163), and M. ROUCOU (France, 1683, p. 1257), are successful exhibitors of inlaid work applied to other ornamental purposes. These inlays and incrustations are a means of most agreeably diversifying surface with ornamental tracery and beautiful lines with out interfering with the general forms of objects, and deserve more attention than has been given them by our

Works in plated nearth have been little allhoid to its day not of the Boyer, the it is no its remembered the day not of the Boyer, the it is no its remembered the same of the Boyer of the beautiful the same of
BOORBINGING.

The concluding subject of this section has reference to hookhinding, and the "design" applied to that hrauch of industry. In the Exhibition there is not a very large display under this head; but a few remarks are necessary to counteract a direction of such labours apparent even there, and much more largely seen in the general works of the time. This consists in overlooking the only true inteat of the art - the appropriate protection of literary works -- in order to make it a vehicle of such grady ornamentation and decorative display as shall serve to attract to their contents, the outside garb being a presamed niessure of the inner excellence, a practice not more degrading to art than it really is to literature. Such attempts induce the use of crude and harsh coluurs, and lead to excess in gilding, to heavy and coarse imitations of carved work in leather, gutta percha, and even less durable materials; to perspectives and pictures on covers, to improper and inconsistent applications of metal work, and numerous other objectional practices, which, as they do not tend to utility, and are opposed to the true spirit of the hinder's labours, must be avoided if the art is to attain to



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the simple excellence of the medievalists or to the chaste richness of the binders of the sixteenth century. It is no doubt admissible, may desirable, that the omside decoration of a book should have some reference in its ornament to the inside contents; but still the details chosen should be amenable to ornamental trentment, should not be mere conceits, and, as has been so often reiterated, should not be mere reproductions of the ornament proper for a totally different material. Thus a painter's palette, with its range of tints prepared for study, let into the cover, can hardly be supposed the appropriate hinding for n work on colour, spart from the impossibility of any symmetrical arrangement of the object itself, or of the tints upon it, for its newly adopted purpose. Neither is the perspective deliueation of the apre of a cathedral a proper ornamentation for the cover of a "Church Service," any more than the host of treatments in the same direction, consisting of the fronts of cathedrals, oriel and rose windows, and stone tracery of mmy kinds, so often adopted for such purposes. In all tooled work and block impressions, bookbinding requires thaness of treatment as one of its first principles; interiors of churches, perspectives of tunnels, and even figures, pictorially used, are quite out of place. Heraldry and heraldic devices should be displayed flat, and even strap-work, or mere combinations of lines, should not be arranged so as to give the appearance of projection, any more than coloured materials or mosaics should give the appearance of relief, although the fine old Grober bindings and other works of the Renaissance period sometimes oftend against this rule. Another class of errors arise from mere imitation of details without full consideration of their intent and use. Thus, formerly, when the heavy Church Services were really bound in boards and richly ornsmented, hinges were a necessary appendage, as well as bosses, by their projection beyond the surface to protect any delicate carving, rich tooling, or rare metal work inlaid into the cover; and, at present, in books of constant use, of large size, which require great strength, and come under the same conditions, the use of these appendages is desirable and appropriate. But that which is proper for a copy of the Scriptures, or a Church Service, for the lectern, is hardly suitable for a book for the pocket; yet these miniature works are ornamented with hinges and bosses, sometimes really in metal, and sometimes only imitated as tooled work on the surface of the leather. Even in some works, where their introduction is appro-Even in some works, where their introduction is appro-priate, their intention is at times overlooked or dia-regarded; thus in a choice metallic binding of a book of "Ifours," by Madame Garca, France, 857, p. 1221), the figure of the Virgin Mary in the centre, whilst it has a higher relief than is suitable for a book-cover, projects. moreover beyond the impost of the decorative bosses at the

corners of lic cover, which ought to serve as its prosection, exhibited on the hoghlish side by Mr. D. Wyrest characteristics of the hoghlish side by Mr. D. Wyrest (Class XXX., 30, p. 82); and by I var. Lawars (Mr. B. Laurentow Class XXX., 30, p. 82); and by I var. Lawars (Mr. B. Laurentow). Class XXVII, 34, p. 365; the works of the and on just principles as to flatness, are somewhat over-cowded and a first deficient in simplicity, which is made on the control of the

turvoire, and see at times wormy and meager in aprice.

| Second descript the beinging by Mr. P.M. Lower Firston, 'Interest to the property of
(Class XVII., 139, p. 544, has much merit, although wanting in a nice adaptation of the ornament to the corners. "The Glessary of Ecclesiastical Ornament" is also good, although the whole surface is too generally covered, and the nurgins too narrow for the size of the diaper. The cover of "Thomson's Sensons," by LEIGH-TON (p. 538), is one of the best designs of Luke Limner, and the washable enamel binding, in variegated colours, by J. S. Evans, (Class XVII., 8, p. 537), has merit in its npplication of colour if not in novelty of design. Messrs. De La Rue (Class XVII., 76, p. 543), in works of actual bookbinding, as well as in much that is allied to this branch of industry, exhibit some specimens of good design, the ormnment being composed of combinations of leatest symmetrically arranged on flowing lines of stems, showing how n principle duly carried out is sure to result in giving a novel and distinctive character to design. There is a harmonious unity about these works, but they are a little frigid and inclined to poverty, which out they are n little frigid and inclined to poverty, which does not, however, necessarily belong to the style adopted. Some finey papers, exhibited by this firm, are greatly to be praised; the ornament (in various styles) is most agreeably distributed, the forms flowing and elegant. and richness atmined without gaudiness. Some of these patterns would work well in silk or poplin, or even be suitable for printed fabrics; and it is in this manner that the design of one manufacturer, properly understood, may apply to another, where there are many qualities common to both, and no principle infringed in such adoption.

Dtv. 4.- Garment Fabrics.

Perhaps there is no subject which comes under review in this Report of more importunce than the consideration of design as applied to garment fibries, since the amount of skill and labour engaged in their production forms so large a part of the instancy of the world. Moreover the design applied to apparel must exercise a great influence over the general taste of the public, and persons who have been accustomed to consider gasdy, florid, and large ornament suitable for articles of clothing, will hardly be capable of judging correctly of what is true. beautiful, and appropriate, in the ornament of the domestic utensils and furniture of their dwellings. The great utensils and furniture of their dwellings. The great sources of error in designing for garment fabrics are over ornamentation, and attracting under attention to the ornament-which may arise from many causes; thus from the violence of contrast either of light and dark or from the violence or contrast enter or figure as one or of colour, from overcharging the colour, or from the ornament being too large for the fabric. All these causes, however, are modified by the material. Thus muslims and burges will bear more pronounced contrasts than the more solid or more absorbent textures of jac-quonet muslins or de-laines. Silks and de-laines, again, will hear greater fuluess of colour than the drier surface of cotton; while woven patterns in silk, formed by tabby and satin in a self colour, will bear much larger figures than are applicable to either waven patterns in varied colours, or the same printed on cottons or silks. Thus, the pattern inserted (G F, fig. 1)-half the size of the the pattern inserted (O r, ng. 17-mail the same of the original—is from a printed barege, and will give the largest scale of pattern which appears suitable for the open texture of this material; it would, however, even in the reduced size of the woodcut, he far too large for a Swiss cambric, although it might be even larger than the original size of the pattern on a self-coloured figured silk. These observations will show the nefigured silk. These observations will show the ne-cessity of the designer carefully attending to texture, lustre, &c., in preparing his design, and illustrate the difficulty of adopting without adapting the orna-ment of one fibric to the decoration of another. The flowing lines, agreeable distribution, and flat treat-ment of the details will illustrate other points in these remarks. See also the pattern of a de-laine (G F, fig. 2), and of a muslin (G F, fig. 4). Though the relative scale of the pattern, however, is a most important consideration, it is difficult, even after the above considerations, to



the pattern. Generally speaking, however, ornameot for such fabrics should consist of small, rather than of large forms-should be treated flatty, and without light and shade - and inclined to subdued contrasts of colour, and of light and dark. A geometrical rather than a dispersed a pranagement of the forms moreover would ht and dark. A geometrical rather than a arrangement of the forms moreover would dispersed be found the most agreeable to the eye, and the most consistent with sound principles, some of the best patterns being formed by dispering sprigs, leaves, flowers, or often even simple geometrical forms, regularly over the ground. That such patterns are essentially in good taste is shown by their constant reproduction for the more cultivated class of customers; whilst the sprawling trails and coarse imitative treatments brought out from year to year as the novelties of the season, pass away and are forgotten, or are thrust cheaply oo the market at o low cost, to catch persons whose taste is regulated by their pockets, rather than by their cul-To see the above principles carried out ated senses. fully and completely, it is necessary to call attention to the garment fabrics exhibited by the East India Company (p. 917): these are almost wholly designed on the principles here presumed to be just ones; the ornament is always flat and without shadow; natural flowers are oever used imitatively, or perspectively, but are conventionalized by being displayed flat and according to a symmetrical arbeing displayed flat and according to a symmetrical ar-rangement; and all other objects, even animals and hirds, when need as ornament, are reduced to their simplest flat forms. When colour is added, it is usually ren-dered by the simple local hue, often bordered with a darker shade of the colour to give it a clearce expression; but the shades of the flower are rarely introduced; the "cloth of gold figured in the loom" (fig. 3, plate 1), and part of an Indian scarf (fig. 2, plate 1), illustrate fully these remarks. The oranuent is geometrically nod symmetrically arranged, flat io simple tints, and bordered as above described, with darker shades of the local colour. The priociple of colour adopted is a balance of the complementaries red and green, in both cases with white introduced to give points of expression, and to lead the eye to the symmetrical arrangement of the ornament: io figure 3, purple is iotroduced to harmonize with the gold ground, a harmony very frequently used to the rich tissues of India; in fig. 2, variety has been obtained by introducing two reds, giving an ioterchange of a lighter tint in every other flower io the border. The borders of these searfs are beautifully illustrative of the simple and graceful flowing lines which characterize Indian ornament: and in fig. 2, we can observe the difference between the Eastern and the mediaval patterns; while the same principles are neknowledged in both, the

 By dispersed, is meant the attempt to distribute the pattern over the ground, without any apparent arrangement.

latter are often stiffer and more angular than the graceful sprigs of this border. Both these works show how much beauty may be obtained by simple means when regulated by just principles, and how perfectly unnecessary are the ltiplied thats by which modern designers think to give value to their works, but which increase the difficulties of production out of all proportion to any effect resulting from them, may, often even to the absolute disadvantage of the fabric. If we look at the details of the Indian patterns we shall be surprised at their extreme simplicity, and be led to wonder at their rich and satisfactory effect; it will soon he evident, however, that their beauty results entirely from adherence to the principles above described. The parts themselves are often poor, ill-drawn, and commooplace, yet, from the knowledge of the designer, due attention to the just ornamentation of the fahrie, and the refined delicacy evident in the selection of ground wand the choice of tints, both for the ground, where gold is not used as a ground, and for the ornamental forms, the fabrics, individually, and as a whole, are a lesson to our designers and manufacturers given by those from whom we least expected it. Moreover, in the adaptation of all these qualities of design to the fabrics for which they are iotended, there is an entire appreciation of the effects to be produced by the texture and foldings of the tissue when to use as an article of dress, insomuch that oo draught of the design can be made to any way to show the full beauty of the maoufactured article, since this is only called out by the motion and folding of the fabrin itself. An expression of admiration toward of the fabric uself. An expression of admiration for these mainfectures must be called forth from every one who examines them, and is justly due to merita which are wholly derived from the trae prioriptes which these goods have been ornamented, and which result from perfect consistency in the designer.

Lot revende to the green'd pseudoo of design for games (below). It may be remarked that the making up of such goods for use should have due countermion in the general direction of the pattern. Thus, while "up and down" restaments in stripes and trails are just to be included to the constitution of the pattern darks, consist the person, the pattern quarter with all the motions of the human figure, as well as with the form of the long folds in the skirts of the gamestic from this reason, large and pronounced checkers for the pattern quarter from the reason, large and pronounced checkers (see with distances), are offerented of any materials at drapers,

the graceful arrangement of any material as despecy, the designing for gramment finites, it will generally be food that the simplest patterns are in the best taste. The efforts, however, boils of designers and manufacturers, have been too often directed to graceful relationship to the comparison of colours in warning, or the combine or can be required to produce a warning, or the combine of can for required to produce a combine of can be required to produce a

certain design, devil upon, rather than the excellence of marticle, if reports an important production, rather than beautiful simplicity at small cent. As simplicity as marticle, if reports are for the rose beautiful, and that comprising, or verying in one colour, is in seed tone, that simple patterns are far the rome beautiful, and that one printing, or verying in one colour, is in seed tone, more of the simple patterns of the simple colour and production of the simple colour and the simple colour designating for patterns finites, there seed, in the larger moves of the draw, a serie of what a planter critinose of the draw, a serie of what a planter critiplicity, by flat or disported neutrinous of small forms, by planting the simple colour plant of the simple critical field against the above reporterment, and to case the officed against the above reporterment, and to case the

In examining the designs for garment fabries, both British and Foreign-many of them of great merit-two things immediately strike the observer, namely, that while there is great evidence of the interchange of ideas between European designers and manofacturers (the same Detweet Entropean uresquers and manuscrite.

patterns or modifications of them being seen oo both sides of the Boilding), it is impossible to fix on soy general principle or principles that have eireumscribed the efforts or regolated the taste of Eoropean designers as a body, or of any one of them as an individual. Thus we have the same artist exhibiting patterns consisting uf natural imitations—patterns founded on symmetrical and metrical arrangements-flat and shaded treatments trails dispersed over the sorface-nr sprigs dispering the ground-minotely small or coarsely large forms-indeed, showing his abilities indiscriminately without any apparent preference, io any and all styles and in manners most opposite. The case is entirely different in tha Indian Jubrics exhibited (for there are no designs), whether carpets, embroidery, or for garments; three or four leading and governing principles being prominent in all soch works. These appear the resolt of science, the other of chance; and it is singular, in this age of desire for unvelty, that oo manufacturer or designer has thought of seeking excellence or singularity, and therefore celebrity, by a rigid adherence to some fixed rules of design; seeking beauty of form and arranging colour in eou pliance with their dictates, and repudiating that off-hand lawlessness which is the oniversal practice. In view of this general dereliction, this equal indifference in prin-ciple, it becomes desirable to examine the causes of failure, and to endeavour to impress the value of the principles which have been neglected, rather than to offer especial remarks opon the designs exhibited in this section, and since, without the insertion of many illos-trations, it would be impossible to advert to the fabrica themselves, to consider designs and ornameoted fabrics at the same time.

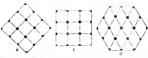
In the section on the provious metals it has been stude to the section of the provious metals of the section of fine art, and it is now described to give another disfine art, and it is now described to give another dismarks to the section of the geometry, not necessary as a principle of art, is essentially and consists rather of unput in a section of the and consists rather of unput in a section of the contrast owner. Our another than the section of the contrast owner, Our another than the section of the contrast of the section of the contrast of the section of the contrast of the section of the

"repeats," for instance, besoing to the development of the space. In so soot disputed patterns, therefore, some amount of symmetry is produced by chance; thus the pattern (1.5 Ag. 2.1) has not been formed out on any open and the space of t



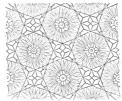
Mereover, if a repetition by means of blocks or cylinders, wholly without no symmetrical transportent is an imposned of the property of the property of the proains of nature not lightly to be broken through or disreganded; and should it not induce no to search for thisegometrical figures which give the best distributions of exgenment of the property of the property of the progress of the property of the property of the project. In fact, we ought not to altempt to overcome this law, but to accept it, and so regulate it as to give effect unatily, zero, and harmony of colors.

Having shown then that symmetry, regulated by geo-metrical forms, should govern the distribution of ornament, a little investigation would lead to the causes why certain symmetrical arrangements please more than others; thus the square of equal sides and equal angles (fig. 1) is the simplest and least varied basis of distribution, the most obvious regular figure, and at the same time the most inelegant and commuoplace; simply changing the direction of the lines, however, and placing the square lozenge-wise, as in fig. 2, gives a decided improvement; variety is partially joined to perfect symmetry, and a more pleasing arrangement of the forms and quantities is the result (fig. 2). Then again, if we not only change the direction of the governing lines, as in the last figure, but their angle also, as in fig. 3, and adopt the equinteral triangle and the lozenge which is its plural, we have a further variety, in the interchange between the apright and perpendicular spaces of the quantities, and the result is a still more elegant distribution arising from the mere variation of arrangement of the same simple details. Having arrived at these facts as a starting point, vis., that sym-metry is a necessary condition of repetition, and that symmetrical beauty is largely influenced by the angle or enhination of angles which govern it, we may pass from the right angle, and the angle of sixty degrees, which forms the equilateral triangle, to study arrangements under various other geometrical combinations, founded on other polygous and on ordinate lines from the various intersections of the sides of polygonal figures; such as hexagons, octagons, &c., of an equal number of sides; or



arrangements.

triangles, pentagons, &c., of an unequal number, de-veloping many beautiful symmetries and proportional a printed musliu, is founded on combinations of the octagon and its ordinate lines. As combining geometrical



forms with a thoroughly flat floral treatment it is very ingenious; the size of the pattern (one-half larger than the block) is very well considered for the texture of the fabrie, and it will serve to illustrate the subsequent remarks on quantity, as the pattern covers well without being crowded, is broad from the absence of harsh contrasts, whilst a sufficient amount of surface is left ancovered as required by this material. The colours, much wanted for the proper expression of the puttern, were delicately rendered in pink and green, and the design had a character of much elegance for a light fabrie such as muslin; it was exhibited by Florence Collins, among the works of the students of the Government School of Design

Geometry then is the basis of symmetry, leading the way to those arrangements which best govern the general distribution of form. If this view of the value of geometrical arrangement is correct as to the distribution of form, it is still more so as to colour; some colours require definite arrangements in juxtaposition with one another for harmony, and are governed by their own laws of relative quantity, having reference to their power of mutual neutralization, as three yellow, five red, and eight blue; such arrangements being more easily obtained and regulated on a geometrical buess, than on those dispersed patterns which arise out of repetitions of the accidents of growth, or natural imitations.

The subject next in importance is quantity, by which, in the decoration of garment fabrics, the taste of the designer is so largely made known. The due appreciation of quantity regulates the amount of the surface of the ground to be covered by the ornament, the interspaces between disposed forms, and the size of the ornamental details, especially in relation to the geometrical bases which govern the grouping; thus in the figs. 1, 2, and 3, the spots which are regulated by the ordinate lines might be larger or smaller, or, instead of them, the lozenges might be filled wholly or partially with orng-

ment, as in the design inserted (G F, fig. 4), the beauty and elegance of the design largely depending on the proper quantity admitted. Here the taste of the designer proper quantity admitted. Here the taste of the designer is exercised where rules help him no longer, but where he is guided by the considerations before mentioned as to textures of stuffs and qualities of surface, very important considerations which will be forther spoken of. A study of the Indiau tissues will show how well understood quantity as a source of excellence is in the East, their quantities being generally extremely suitable to the colour and texture of the material sought to he orun-

To recur to the subject of textures and surface as important considerations regulating design. It is too much the custom with designers to imagine that the patterns applicable to one quality of surface may be used judiscriminately for another, and that which is successful in one material, or by our process, must necessarily be a success in another; thus, no souner does a pattern in silk or worsted obtain the notice of the public than it is insmediately copied in printed cottons, without any regard to differences of material or modes of production, to the lustre and richness which belong to the former, and must be wanting in the latter. In adopting the patterns of the weaver, the progress by squares necessary to the weaving process is imutated in printing where it is switter suitable nor required; sometimes the whole texture and treatment is copied on the cylinder. As an observable instauce, no sooner did alpacus make a strong impression on the public and become popular, than their low tones and broken tints were instated largely in cotton prints, which almost changed their character from this circumstance, a low-toned surface or ground being adopted with slightly contrasting figures; they lost their own character to take up an unsuitable oue. Cotton prints are capable of being easily cleansed, and the whiteness of the material is a great cause of beauty, from its upp-aling to our sense of purity; this source of excellence is heightened rather than diminished by such a treatment of the ornament as contrasts with the general ground without covering it too much (see G F, fig. 4); when the ground, therefore, is entirely covered, as in these imitations, this appeal to the eye is lost, and, however suitable such patterns may be for the poorer classes, they take from the true beauty of the fabric. The contrary is the case with woollens; the material dues not admit either of the same easy purifying, nor has it the same native whiteness; the whole ground, therefore, may be coloured, or where its native hue is retained it must be more largely covered with the pattern. Thus fig. 2 (p. 1669) is a pattern of a de-laine manufactured by DoLIUS MEIG and Co., (1191, p. 1234) and shows not only a proper flatness of treatment, but an agreeable quantity and a due amount of the surface covered by the ornament, and is therefore suitable for such goods,

The consideration of texture and surface is necessary in the application of design to other fabrics as well as cotton, and to other means besides printing; thus colour, which has such effect on printed woollen goods, and shows with such richness and fulness in the ab-orbest material of de-laines and flanuels, where it may be used broken over nearly the whole surface, is upt to destroy more valuable qualities when applied in varied tints to the decoration of silk, and should be used more sparingly on this material either in woven or printed patterns, leaving large spaces of the ground naturehed, so much of the true beauty of silk residue in its Instrousness and the textural beauty of its surface. Of course this remark does not refer to self-coloured silks or to figured brocades in a self-colour, where the greatest brilliancy of colour does not interfere with the textural beauty, but only to weaving or printing patterns, consisting of many colours, too largely over the surface; the fact is, that a variety of colours tends to vulgarize both cotton, woollen, and silk fabries, and, although least objectionable in woollen goods, they want an attention to laws of harmony which either has not been given them, or is not easily attainable by those bues which chemistry has placed at the command of the manufacturer as comprising durability among their other qualities.

The proper treatment of texture has other considerations as respects the ornamentation of garment fabrics which may find a place here, although a little irrelevant to the present matter; graceful and elegant foldings are very important in all goods intended for personal weur, and many of the most heautiful qualities of materials are brought out by the interchange of light and reflection playing over their surface on the motion of the wearer; it is important, therefore, that no mode of decoration should be adopted to destroy this quality, even irrespective of the suerifice of proper utility which takes place in all works so overcharged with decoration or stiff from embroidery as to impede ease of movement and freedom of action in the wearer: the full lustre of silk more especially is dependent upon the folding, and every falirie is more or less influenced by the same cause. When gold or silver threads are introduced in the weaving, stiffness must result from it, and the skill of the designer should be so exercised as to give the greatest effect from the least possible use of such materials. This has been particularly understood in the Indian tissues, which exhibit the best effects under folding in a resnarkable degree, while the opposite error was noticeable in many costly priests' robes exhibited in the North-Fast Gallery, so stiffened with gold and covered with raised embroidery that the wearer must be eneased in them as in a suit of armear; the whole were not only vulgarized by excess, but were perfectly unsuited for use, and for the hest display of those ornamental qualities sought for. The priests' dresses exhibited in the Medicual collection had not this error; they were soft and flexible as the tissues of India, yet rich withal and fully decurated, suitable for use, and adapted to give the best effect in

The restrained use of means has often been before adverted to, nor is it unnecessary to recur to it in this section also; under the old and simple methods of cotton printing, when the resources were few and the means limited, the mind, that it has become almost a fixed idea connected

style was in some respects better than at present obtains, Thus block-printing by hand required flat forms and flat tints dispered regularly over the surface, and some simple flower or leaf so used had a pleasing and just effect, of which Peel's well-known parsley-leaf may serve as an instance. It will at once be seen that these qualities are herein advocated as principles, to be filled up and euriehed by more nudern resources, yet as necertained truths not to be departed from. In the place, however, of the former limited means, printing from metal cylinders has put at the command of the designer all those powers of more perfect imitation enjoyed by the engraver, and instead of using them as they should be used, consistently with the requirements of manufacture and the principles of ornamental art, they are wasted on the initation of finwers, foliage, and accidents of growth, quite out of ornamental character and opposed to just principles,

Having thus remarked upon the principal excellences and defects of design in this section, it is felt that the difficulties before stated, arising from the varied principles adopted by one and the same manufacturer, the large number of the works exhibited, and the impossibility of referring to any particular work alloded to almost entirely preclude any comment upon individual works. Generally, however, it may be stated that there is less dereliction from true ornamental art in woven than in printed goods, the powers of the weaving process being more limited than those of the printing process, so that varied tints and complicated farms fortunately present greater difficulties in production in the former than in the latter case, Thus, whilst the skill of the designer and, irrespective of principles, the taste of the printed silks of F. CHOQUEEL (1148, p. 1233), must be admired, a comparison with woven silks of much simpler pottern would certainly result in the favour of weaving. Of this some of the silks exhibited by CAMPBELL and Co. (Classes X11, and XV., 201, pp. 495-96°, are examples, as well as the Irish poplins of Raysocus and Co. (Classes X11, and XV., 266, p. 498), and ATKINSON and Co. Classes XII. and XV. p. 498). In these latter goods there is evidence of much taste, and a greater adherence to the principles herein laid down than in almost any other fabrics execut The mixed materials of Bradford and Hudthe Indian dersfield, and some of those of the same kind exhibited in the Zollverein by Messrs. RUBMANN and Co. (1 Zollv., 580, p. 1682), are also very satisfactory where those manu factures are not too attemptive; they bear the addition of ernde colours ill, and the low tone and quiet contrast of such goods are greatly in their favour. Silk, as has been before stated, is so rich a material in itself, that colour is hardly needed, and where used it should be with great eaution: the silk which forms the pattern on woven mixed fabries is in itself a bright contrast to the more absorbent woollen ground, and should not be forced into opposition by hright colour; and in all cases the chance of error is diminished by abstaining from colour in pattern rather than the contrary: that crude colour is most dangerous in silk goods is shown in the very feeling that prompts to moderate it in chine sak, wherein the pattern is blurred and made more undefined by the process of dyeing to get rid of the erndeness that must be caused by printing in colnar on the finished material, and which would almost reduce silk to the grade of glazed cotton or chiutz,

SHAWLS.

In the section of garment fabries, design as applied to shawls has been reserved for a separate head; not so much from the importance of the manufacture, although even for this reason it would call for careful consideration, as that it leads to the examination of the principles on which these fabrics were decorated in the countries from which this article of dress has been derived to us.

The exhibited "designs" come first under notice: these are almost exclusively by French designers. The beauty, excellence, and costliness of the shawls imported into Europe from the East have united the Cashmere pattern so intimately with these fabrics in the public with them, sold is conceptually thought indipensable to the manufactors that Jacobs forms and Eastern tests—ments should be applied to three poets. Thus for a long test that the state of the sold of

There is nothing more difficult than to disabose the world air noted error, and as the unditided, who rancy understand the true cause of excellence, have adopted to the contract of the contraction of the contraction of temperature of the contraction of the contraction of the form is supposed to be necessary to the safe of also is to form in supposed to be necessary to the safe of also is to form in supposed to be necessary to the safe of also is to feature in all the European instantance and repetitions of those goods. But there are principles of exactlence in the designs from Inalia and the European instantance and repetitions, the forms alone will happy but fitted to wantable the clear to contamily all help but little towards the rise declets no contamily

found in those works. The Indian pine, moreover, is not present in all Cashmere shawls; in some it is either greatly suppressed ur cutirely absent. Whatever may have been the cause of its introduction there, whether as a sacred or intional symbol, or as used only for the supposed beauty of its curves, its constant repetition in works intended for European wearers is, to say the least of it, a cause of great monotony, and implies a want of invention on the part of the designer, whose skill should supply some novel application of ormment to such fabries to wean the public from this stock idea on the subject. But in doing this, care should be taken to keep in mind those principles which are the true cause of the beauty of the Indian fabrics, comprising their treatment of form, trestment of coloor, beauty of line, and due consideration of the ma-terial. The treatment of form is one of the essential excellences of the Cashmere designs. The objects used in ornamental decoration are always, for woven fabrics, treated quite fistly, as is the case, indeed, in all the Eastern and Indian works, whether these consist of ornamental forms having no apparent relation to natural objects, of flowers, foliage, or even of birds or animals. There is hardly any tustance in which this rule has been overlooked. Moreover, excepting in the ground, large masses are rarely introduced, but large lending forms as the ludian pine, before spoken of are filled in with a minute diaper of smaller forms, mostly flural, and the beauty is enhanced by the graceful curves and elegant flow of these leading lines. The colours also are subject now of these remains much. The commission are suggested a general rule; they consist of simple flat timts without shading, each flower, or petal, where flowers are used, each leaf in foliage, being rendered by one tint. In the best Cashmere shawls these inner dispering forms are very minute, and thus a broken texture of colour is given to the surface ornamented. The tiuts, where in large masses, as in some of the embroidered ornament, have rather a tendency to secondaries; thus purp green, and gold prevail, and the red is inclined towards the colour of the pigment called Indian red, or in some cases to pink, which is a diluted crimson (a red with blue in it; thus the general has las rather the direction of coolness; this is particularly seen in the carpets also, both Indian and Persian, as has been before remarked. In the Cashmere woven shawls, if pure tints are used, which may be the case, these tints become broken by the mixture of colour produced by the threads of other thus coming to the surface in them in the process of weaving, thus neutralizing their force and producing the same negative tendency; invariably flat forms without perspective or imitative rendering, flat tints without shading. and single lines of the same colour, are the principles of the designer. The due consideration as well of the ma-

terial as of the use to which the fabric is to be applied is evident both from the nature of the ornsment, which never draws peculiar attention to itself, and from the texture. since, notwithstanding the use even of metallic threads in the ornamental design, the Indian fabrics seem never to lose the property of flowing in beautiful folds, and adapting themselves to every motion of the wearer, an excellence not so constantly present in the European manufscturers. Now the French designers, to whom it seems clear that manufacturers are almost wholly indebted for their designs, although they have made much study of principles, seem either to have overbooked some, ur to have willingly ignored them; either in deference to or to make wintingly ignored them, enter it negeriate to the ruling idea entertained by the public, or in order to obtain novelty; but novelty should never be sought at a sacrifice of truth. Let the designer throw away, if he pleases, the Indian forms—the Iudian pine form, perhaps, the sooner the better, since it never had any symbolical significance with us, and it has long ceased to have beauty of line, tormented as it is into every possible variation, from the normal form—and avoiding mere imitations endeavour after a treatment in harmouv with European

taste and feelings. Thus, for instance, geometrical leading forms are sometimes used in the Cashmere shawls, and such treatment might be most successful in the hands of European artists considering the varied and complicated combinations of flut forms open to their choice. The Byznatiue tracery, flut forms open to their choice. The Byrantine tracery, guillochés, or even the graceful forms of the Remissance, if perfect flatness were preserved, might be dispered with colour in the Indian manner; but the tide seems to have set in quite the contrary direction, - the leading forms of the Eastern patterns are kept, the just principles are disregarded: the Iudian pine, exaggerated aften to extreme caricature, is applied not merely to shawls but to other goods; the disper, moreover, instead of being flat, is composed of flowers often the size of nature, imitatively and perspectively drawn, and sometimes most elaborately shaded. Thus simplicity is lost—the principle of flatness is totally disregarded—the colour not being in that tints, and the broken texture of surface entirely done away with; the result has a certain showy beauty, but it is meretricions and unsound; it may be the novelty of a season, but it is built on a false foundation and will pever

There is a circumstance connected with floral ornament which hardly seems to have lad proper consideration; it deserves, however, some attention. Many of the flowers used by us as ornament are not in a state of nature, but have already been subjected to another art, the art of the horticulturist, subjected by him to a process of cultivation which unnaturally stimulates the growth of the parts, and by means of which, the stamens being converted into petals, the flower becomes doubled and rendered artificial more beautiful, perhaps, as a flower, but less tractable as ornament, and far less simple, far less fitted for that flat display which is required by some fabrics. By these means the five-petalled rose, the five-petalled pink, &c., become a hunch of petals; and if we would see how er tirely some flowers are thus rendered artificial, the dahlia may be instanced as an example; in its simple state it has a single border of petals with a central disk .-- by cultivation it is a cluster of petals, so regularly disposed as hardly to be distinguished from a rosette of rabbour made up by the milliner. Flowers in this state are already conventionalized by another art ere the designer takes them in hand, and the result is analogous to the case of the artist who copies the actions and passions of the stage instead of seeking them in their simple reality in common Moreover, flowers in a natural state have simple and clear characteristics which they often lose in cultivaand clear characteristics which they often lose in currention, and it is the difficulty of duly expressing them, as artificially changed by cultivation, that seems in some degree to have led to the false manner of treating them

in the ornamentation of woven or printed fabrics.

To return to the consideration of the filbrics themselves. The new mode of varying the Indian treatment above described is not so prevalent among the "designs" as it is in the fabrics exhibited, only one exhibitor of designs for shawls showing example of this extreme depar-

ture from the true style in his works. The relaxation of just principles is, however, seen, even in those which purport to be simply imitations of Cushmere designs; it is shown in the introduction of small landscapes on the spaces of the ground between the large leading forms; in representing in the pattern borders of ornament quilled or gathered in the manner of a fringe; and in the spaces filled up with small disperings being imitative of foliage, onlim-trees, &c., instead of being merely flat, graceful, and flowing ornamental forms. So far from endeavouring to suppress povelty, it is most desirable to encourage it as far as possible, since true novelty is not an extreme characteristic of the present time, but it must be sought by other means than those reprobated; the designer must not suppose that by exaggerating a secondary charac-teristic of style into nudue importance, and adding new materials cutirely out of harmony with it, anything really beautiful and new will be likely to result.

In the shawls exhibited this new manner is seen to be very widely spread. The greater number of those on the Foreign side, both printed and woven, are thus ornamented, and Norwich and Paisley are following in the same track. One French house exhibits two woven shawls in juxtaposition, which may serve to compare the two systems. The one is an imitation Cashmere shawl, consisting of straps or bands filled in with gracefullycurved ornamental forms, powdered over with estour in the usual manner, the Indian pine being slightly visible only in the border. The other design is to the new manner; it displays very great ability and eleverness, and in most skilfully manufactured. In it the Indian pine form, ex-aggregated in all its peculiarities, is filled in with imitative flowers, the size of nature, naturally drawn and shuded, with such minute imitation that even insects have been depicted on their surface. The variegation of some flowers, as tulips and asters, and the shading of others, as roses, &c., is substituted for the dispering of cole which is characteristic of the style; simplicity of tint is therefore lost, and flatness wholly abandoned; great pains and labour have evidently been bestowed on the design, yet the result contrasts unfavourably with the neighbouring Cashmere pattern, the negative colour of this last being much more satisfactory than the hot appleasant huc of the former, arising partly from the shades containing more colour than the local hue of the flower, instead of being more negative, and more especially from the impossibility of introducing the contrasting and harmonizing tints exactly where necessary, which can so easily be be hoped that this false manner will be abandoned; that wheo imitations are intended they will be in a pure style, and when povelty is sought for it will not be attempted by thus outraging true principles.

RIBBOSE

In examining design applied to ribbons it is necess to have especial regard to their use, and the purpo which they are intended to fulfil; for although many of the principles which have been laid down as regulating the decoration of garment fabries are equally applicable to them, these principles are modified by the place which ribbons hold, largely partaking, as they do, of the nature

of orannests added to the other portions of the dress.

It may be said that, when the dress itself has smeh pattern, ribbons, which serve as bands marking the leading lines, or as borders, should be plain in colour and without much enrichment; their office is cootrast, and either simple colours or stripes in that case are most desirable; but when the garments themselves are plain and unfigured, or figured without strong oppositions of light and dark or colour, then the ribbou may become a true contrast by its ornamentation, and require marked frue contrast by its ormanicuscion, and requisite forms and colours to give that expression which is so requisite. When regulated by good taste, ribbons, beside giving effect to form by their contrasts, serve another important purpose, by being the means of introducing heightening which, when judicious, is a great means of enhancing its effect, and giving richness without gaudiness. This use of ribbons points unt their proper ornamentation, which should be in simple forms, permitting the introduction of pure tints; these require a geometrical arrange ment to give them adequate force and expression, and for this purpose the patterns of the Indian tissues offer most valuable suggestions to the ornamentist; even the introduction of gold and silver may be taken advantage of as a very suitable enrichment for these ornamenting fabrics, It is to be regretted that the great prevalence of natural floral treatments as the decoration of garment fabries has caused the adoption of the same style in ribbons, where it is more peculiarly out of place, and that the rarest efforts of the designer, and the greatest manufacturing achievements, have been misapplied to overcome the difficulties this treatment induces. The design of the Coventry ribbon, treatment manees. The design of the Coventry Photon, for instance, apart from the style adopted, is one of great merit, more successful than the best foreign efforts in the same direction; hat while it is a rare proof of difficulties attempted and successfully overcome, it is also a proof of misapplied excellence and unsuitable ornamentation, being based on the artistic principle of imitation rather than on those proper to the ornamentist, abstract beauty of form

There is an evident tendency to gaudiness and over decoration in the greater number of these articles exhihited, and it largely arises from the above cause. interes, and it argery arries from the above came. The incremsed width these goods are now manufactured, and the wrong direction of the decoration applied to them, have greatly altered their character, and we find land-scapes, figures, portraits, and all kinds of matural imitations, applied as their ornament. It is pleasant, in the face of so much that is erroneous, to ootice the just taste exhibited by one manufactorer of these fabrics: the silk ribbons of Bussox, sen. (France, 1125, p. 1232), bave a character entirely their own, the ornament consisting of geometrical figures in gold-coloured silk, dispered over a plain ground of some delicate tint, or borderings of geometrical ornaments on the same principle, having an analogy to the Indian patterns without imitating them, and being very appropriate for the intended use of such fabrics.

The concluding subject of this section of garment fabrics is lace design. Lace is assimilated to certain other classes of fabrics by its uses as well as by its peculiar qualities; thus, to worked muslins, for instance. in its general lightness, and in being usually without colour either in itself or in its ornamentation; and to ribbons as being an ornamenting fabric to other parts of dress. It is one of the peculiarities of lace that it is necessarily ornamented, since, without some pattern npon its surface, it would hardly retain its name. Its characteristics of lightness and filminess of texture should never be forgotten in its ornamentation, which should essentially be light, elegant, and flowing; all straight lines should be avoided, not only from the necessities of the manufacture, but because graceful forms are required to pervade its ornamentation. At the same time this textnal lightness may lead into the opposite error, and the ornament be so filmsy as entirely to lose proper point and expression; and thus, where lace is used as a trimming, the line which it is intended to enforce or enrich be inefficiently marked from this very meagreness. The old point lace, worked with the needle, was uften too heavy in character, from too equal a distribution of the masses of its ornament; it wanted less crowded spots to give value by contrast to the general surface; whereas the modern lace, from the object of the manufacturer being to cover large spaces with little work, too frequently errs in the opposite direction, and wants parts of more full enrichment to give it point and character. The border or edge, which in reality constitutes the true lace, should have the most solid and marked ornamentation, out of which should grow graceful curved furms, less marked hrilliant portions of pure colour complementary to the and pronounced, gradually passing, in wide lace or in general masses of the dress, thereby, when the pervading | veils, &c., into dispers of spring or small ornamental tone of the dress is negative, giving that brilliancy and forms over the remaining space. While the natural lines of the growth of plants may be adopted as the ornament of lace—for which they are very suitable from their elegance and variety—subjected to a symmetrical arrange almost
The great excellence of the French and Heights have receive to consist more in the trace appreciation of heaving of line and defiring of firm, than in any very marked interference of the second of the second of the contraction of the second of the second of the second interference of the second of the second of the tracelor in any flowered. There is, moreover, among tracelor in any flowered, there is, moreover, among tracelor in the second of the second of the second tracelor in the second of the se

As compared with the important exhibition of the manufactured article, there are few "designs" for lace on the Foreign side; and the best of those are m remarkable for execution than for any particular origi-nality, viewed relatively to the beautiful fabrics themselves. On the English side there are some designs for lace curtains, and one for a lace veil, founded on Brussels patterns, by H. HEALD (Class XIX., 259, p. 570), of Nottingham, which has merit. There are also several designs exhibited by the students of the Government School of Design, some of the most elaborate of which, by C. P. Sloconie (10, p. 821), and T. Rawlings (10, p. 821), have been extremely well excented in Honiton lace by Mrs. Taxpwis, of Exeter (Class XIX., 55, p. 561), and Mr. Gill, of Colyton (Class XIX., 386, p. 573) The designs are novel, but a little too arehitectural in their general arrangement, resulting in a slight degree of stiffness, and a want of that flowing case which should characterise the ornament of the material. The female students also have some clever designs for lace, beautiful fabrics exhibited will have their due share of nttention from the Jury of the Class for the manninetured article. Nome of the best design is to be found in the works of Gnorcock and Co. Class XIX., 3. p. 559-60), Formest and Son (Class XIX., 45, p. 561), and those already mentioned. The Nottingham lace curtains, although not to be commended for their design, show a tendency in a better direction than the Swiss worked muslins; the treatment is generally fintter, the horders better considered for quantity, and, in some of these works, a disper over the central field has been adopted with good taste. In these goods, and in machine luce, some of the best designs are to be found in the fabries of HEYMANN and ALEXANDER (Class XIX., 25, p. 560); and R. Berken (Class XIX., 20, p. 560), has one or two well-adapted designs for narrow machine lace also. On the Foreign side the Belgian and French lace. from the grace and flow of the leading lines of the ornament, and the greater delicacy and refinement of the forms, together with the better appreciation of just quantity in the distribution of the parts, apholds the acknowledged superiority of their manufacture. The English lace, especially the hand-worked lace, seems rather to call attention to the labour hestowed on it as a part of the excellence; the foreign lace, even when greater labour las been employed, strikes us as rather eleganal and beautiful than as laborious and costly, from the more casy and playful forms of its decoration. These qualities entirely accord with the nature of the fishric, and charm as more when, on examination, we become sensible of the curious claboration which often accompanies them.
The lace cuffs and berthes of B, Vannea Keller (Bel-Inc see cuts and berthes of B. VANDER KEEN (Belgium, 313, p. 1161) include some of accellent design; and also the lare exhibited by Van Harlen Belgium, and also the lare exhibited by Van Harlen Belgium, 299, p. 11600; B. Deulanous (Belgium, 314, p. 1161), and F. Audiat France, 1345, p. 1250). On the whole there are fewer errors in the design for lace than prevail in

most other manufactures, partly arising from its circumscribed miture. Besides the faults enumerated in the foregoing remarks, the tendency to the natural imitation of flowers is seen in some of the Honiton Ince.

Having passed in review the various sections and subsections into which this Report has been divided, it might, before concluding, be thought desirable to con-sider the best means of obviating the various faults observed and commented upon in the course of this examination: this, however, would be too large a subject, and one not necessarily within the nature of the Report itself. The public and the manufacturer, both equally interested, and whose improvement is equally accessary-for to be useful it must be mutual- are now awake to the necessity of better education in design; and the question naturally arises, whether the means adopted in the Government schools are the best possible for the proposed end, or whether it would be desirable to extend their scope, so as to make them not only schools of design, but in some degree workshops, where the specialties of design may be fully explained, and the due application of ornamental art to manufacture thoroughly exemplified and carried into practice.

This spection, however, it would, and has reference to two clause, who make marine and quilification are not to two clause, who has marine and quilification are not to two clause, who make a comparison of the transact of policition and the percedule recovers of the means of policition and the percedule recovers of the sound that the second of the means of the same and the sound of the provided upon the same and the result of the same and the s

of the manufacture he is engaged upon is absolutely necessary; it is his starting point as an education in the technicalities or processes of ornamental art is the starting point of the designer. What the art-workman has to add to his manufacturing knowledge is, such an amount of nrt as will enable him thoroughly to appreciate and perfeetly to carry out the work of the designer, without which, indeed, he is imperfectly educated in his trade; while, on the contrary, the designer (not necessarily a workman) has to obtain such an insight into the pro-cesses of the workman or the machine as will enable him to fit his design to the difficulties of production. Like the artist and the orgamentist, the two classes, whilst generally distinct, sometimes merge into one another, from which cause the question has been unnecessarily obscured. The truth is, that while, in some cases, it would be most desirable that the designer should understand the minute specialties of the manufacture, in others it is nearly unnecessary: while the art-workman's province is quite sport from the imaginative, and all that he requires is a full acquaintance with the technical means of art, such as drawing, modelling, chasing, painting, &c. In these he cannot be too fully educated; but since the large mass of those who are to be justructed are of this class, it is obvious that the principles and practice of design need not necessarily form a part of the education in all schools of ornamental art,

This view of the question does not interfere with those special cases so often alluded to in this Report, wherein, from the high requirements of the material, or of the object itself, the artist-designer is at the same time the artist-workman also, and embodies and produces his own conceptions by his own skilled handierals.

The general truth seems to be, that when a designer has thoroughly mostered the technical Isaquage of art, and the general principles of design and its application, the amount of special knowledge sufficient for an purpose is specially acquired in any branch of manufacture to which he may devote his attention; and in all cases more sufficient to the special control of the special control of the special control of the special control of the most beautiful results, will arise rather from a full insight into the means at the manofacturer's command than from

any technical education in those means This, however, is not the case with the art-workman; to give him proper instruction in carriag, chasing, endossing, printing, &c., it should go on consecutively with his learning the technical elements of art, and his perfection as a workman will be measured by his power of embodying his art-knowledge in his trade labours. The process, noreover, is n tedious one, requiring the hand to be educated as well as the eye and mind, to enable him successfully to combine art with handicraft; and it would seem, therefore, that such labours are essential parts of true

schools of ornamental art.

Yet the several requirements enumerated are partial and local, and not to be made a part of general so much as of local education. Thus, since London and its vicinity are the seat, more or less, of all manufactures, and of the highest efforts of those manufactures, for this reason, and as a central normal school, it would be advantageous to embody in the course of the London head school instruction in all such matters; but they could only be partially useful in the provinces; as die-sinking and chasing, for instance, at Birmingham, chasing and embossing at Sheffield, modelling and painting in the Potteries, &c.; and it being ascertained which are the proper localities for central provincial schools, their peculiar arthandiersft should be taught therein, and the instruction obtained in the surrounding districts he of such a charecter as to prepare best for the higher instruction of the central provincial school. The trath is, that our schools have all been accidentally founded, rather than ou any general, comprehensive, and well-defined principle: and before proceeding further, it is very desirable to have some well-arranged distribution of the means of instruction for the whole kingdom, laid down in accordance with local wants and local seats of manufacture, to control and regulate the whole, so that schools, when founded, should fall in with a pre-arranged and predetermined system. These remarks are made with no intention to dogmatise on the subject, which should rather be viewed practically than theoretically, and the solution be based on known results, rather than inferred from any supposititious points of view. The great public establishments of France, both of the Gobelins and Sevres, would on this account demand especial attention and consideration, since the fabrics produced therein have attained a greater excellence, both of design and manufacture, than is seen of what is meretricions and false, and to a more simple, elsewhere; and it would be desirable to gain full informa- grave, and earnest style in modern ornament,

tion as to the knowledge of art obtained by the workmen. as well as of the processes of manufacture by the designers in those celebrated manufactories. In the some vicw, the schools founded for the instruction of the brouzists of Paris, and in which they mostly obtain their art-education, should have a full share of attention, both on account of the reputation gained by these works for artistical completion, as well as the great faney and in-vention displayed in the Parisian bronzes. While our own Mediaval Court and the clever revivals it contains will show the influence on manufacture of an educated designer acquainted with the various processes of the manufactures for which he designs, and apparently con trolling both the manufacturer and his workmen in their production, we have to learn, in the former instance, whether the workmen have any, and what amount of, education in design, and whether their investire powers have been stimulated, or only the most perfect technical acquirements obtained; on the other, we pretty well know that the workmen have obtained but little even of the technical lunosor of art, and that in invention they are entirely led by the designer.

The condition of the schools at Lyons also, and their routine of instruction, would furnish much valuable information on this subject, since, in the manufacture of silk, the relations between the art and the means of exeention are most intimate and complicated. They would show whether the education of the workman in art, and in many cases the exalting him into the place of the designer, has resulted in a pure and just orannentation of the fabric, or whether it has led to the skilful appliance of manufacturing means to the production of difficulties of execution in these fabrics, rather than to the simple and the beautiful in their ornamental decoration

In conclusion, the Reporter may be permitted to express his sincere regret at his own shortcomings. It will be evident, on the perusal of the Report, that there are evident, on the perusal of the Report, that there are many omissions, and that important subjects have been treated with great hrevity. Almost entirely deprived of counsel or assistance from his fellow Jurors, this task being nearly altogether out of their jurisdiction, and only undertaken hy him after the Jury labours were con-cluded, he has to ask for a large share of indulgence. He trusts, however, that a proper spirit of inquiry into the sources of true excellence in ornamental art may be elicited from his brief labours, and lead to the rejection

London, November 1851.

RICHARD REDGRAVE, R.A., REPORTER,

[N B.—The figures following each entry refer to the paging of the Reports, which is carried on continuously from the Report on Thav L to the end of that on Class XXX. The Roman numerals iii, xxiv, &c., &c., refer to the paging of the Prefatory Matter.

```
drawn by kites, 202. General description thereof, it. Not impossible that, under some circumstances, the application of the propelling power of kites may be useful and attended with satisfactory results, it. More
Abate, Fellx, 201, 563.
Abbas Pasha, H. H., 53, 25.
Abbott, Rev. G. D. (Juror), xxx.
Aonzoactu - Crude indigo from, 22.
 Abdourza-Maram Ogli, 26.
 Abele, F., 33
 Abeream and Gwythen Collieries Company, 2. See also
Abercara and Gwythen Collicries Company, 2—200 and
Burbley Stone, Coal,
Abraham, — 202, 201.
Abraham, A. and Co., 273, 225.
Abraham J. and Co., 273, 225.
Abraham J. and Co., 273, 225.
Acacax Wood — Specimens of, employed for machinery, 153.
Acacax Woods.—Net l'édian Burbley.
```

ACTTATES. Sec Loud. Acres of. Zone. Acetate of. Actric Acts - Specimens of, exhibited, 43, 46, 47, 42. Price thereof in Germany, 42.

Actinovatic Lesus. Experiments conducted in 1733 by
Dolland and others to discover the proportion of cur-

Holland and others to discover the proportion of curvature in, 252—Een also Djoined Glains.

Armanarte Microscovers.—See Microscopes.

Actin (various), 44, 24, 46, 25, See also Beazoic Acid.

Citric Acid. Gaillie Acid. Hoppwis Loid. Oralic Acid.

Tampte Acid. Uric Acid. Valeriania Acid.

Ackere, J. C. Van, 27, 125,

Ackermann and Co., 428.

Ackined, W., 252.

Acklind, W., 252.

Acklin, -, 197, 204.

Acorrive—Specimens of, 45, 42.

Acorrive—Specimens of, 46, 42.

Acorrive—Specimens of, 46, 42. Instruments for acoustic purposes, exhibited, 311

Action-Verein, W., 207 Adair, R., 450. Adams, A. (Juror), xxix.

Adams and Co., 503 Adams, G. W., 520 Adams, H., 324 Adams, Jane, exx.

Adams, Jane, exx. Adams, John, 97. Adams, S., and Co., 202. Adams and Som, 429. Adams, W. B., 185. Adams, W. H. F., 484. Adamson, O. G., 644. Adeock, -, 65. Adeock and Co., 357.

Adeock, J., 251.
Addenbrook, -, 448.
Addenbrook, -, 448.
Addington, S. (Juroe), xxviil.
Addington, W. H., 472.
Addis, J. B., Jun, 482.
Addis, S. J., 4 9.
Addison, R., 333.

Addison, R., 333.
Addison, R., 333.
Addisondae, Manufacturiog Company (New York), i.Z.
Addison, R., The, 21Z.
Adolphi, C. F. W., 482.
Addison, J. N., 193. 201, 203.
Add Brothers, 5:55.

Arrial Machines.-Model of a char-volant or carriage

applicable to nautical purposes than to land locomo-tion, ib. Experiments mode with machine on the London and Bristel road, satisfactory results, ib. Rotory London and Bristed road, satisfactory results, & Rotary balloon, it. Description of the propelling power, & Aerial machines designed to take any direction required, & Description thereof, & Model locomotive bailson, & Improved valve for a balloon, & Locomotive parachute equipped for service, & Balloon of improved construction & 310. Navigable balloon,

Aerial machine with wings, iă.

(8) Aerial Internite were weige, no. Affense, M. J. (2005).
Affourth, G. L., (2015).
Affourth, G. L., (2015).
Arman. - Fine specimens of African pure and revine from the precision of woods, until or or sweep. Affects, M. (2015).
Affects, M. (2015). The specimens of elephants tasks from Affects, M. (2015). Affects and affects of the precision of the process of the precision of the Affects of Affects and Affects and Affects and Affects are also as a state of the precision of the Affects and Affects and Affects are also as a state of the Affects.

African and Asiatic elephant, ib. Arajea, Sourse-Interesting specimens of timber and other woods from 140. Specimen of an olive-wood work-box from Groenkloof, 613. Specimens of sticks of rhinoceros' hide from South Africa, 661.—See aiso

Cape of Good Hope.

Army, & Estrain Samples of coffee from, ... Collection af oil and oil-seeds, 33. Samples of cotton, 25. Spe-eimen of teak timber, 149. Specimens of soap, 610. Specimens of stuffed birds from the river Niger, 617.

Specimens of singular sticks, 664. Collection of fant from the banks of the Niger, 668. Agare. - Specimeos of articles manufactured in agate from Oberstein (Prussiaj, 517.

Agincourt, Antoine D', 22 Agembart, P. 274

ADDICULTURAL AND HOSTICULTURAL IMPLEMENTS (Class (X)). -Tabular classification of objects in the Exhibition into which this class is divided, x. List of Jurors and Associates appointed for this class, xxvii. List of exhibitors in this class to whom Council Medals hove been awarded, lxii. The like of those to whom Prize Medals have been swarded, ib. And of those of whom Honourable Mention is made, ib.

Practical effect of agricultural machinery upon the soil or its products, 225. Certainty of action and cheapness evidently the standard by which the merits of agricultural implements hove to be tried, ib. More hos been done in England for agricultural mechanics in the lost done in England for agricultural mechanics in the last fig years by the yearly alnows and trials of the Royal Agricultural Society than had been attempted any-where in all former time, ib. Few simple classes to which the laventions may be reduced, although they are numerous, ib. Review of the various classes, with

are numerous, & Review of the various classes, with geomal remarks thereon, & 1st. Instruments of til-lage. 2nd. Implements used in the cultivation of crops, 228-231. 3rd. Harvesting implements, 231-231. 4th. Preparation for market, 231-231. 5th. Machines for preparing the food of stock, 237-239. 6th. Churas,

231. 7th. Draining machines and implements, 233. Conclusory observations, 26t, 241. List of exhibitors; exhibits and awards, &c, 257.

Remarks on the agricultural implements from Belgium corn drill and roller, 227, 223, 231, d Odeur's ploughs, 286, 227. And Duviz., P. Clars' viz, P. Clavs' corn drill and roller, 227, 223, 231. Dolstanche's and Cheur's plonghs, 226, 227. And Da-clieuc's churn, 232. Prizes awarded, 222. Report on the agricultural implements from France, viz, Talbot Brother's plongh, 235. A. D. Lavoisy's churn, 235, And Vaction and Ca's seed and corn appearance, 225. Prizes awarded, ib. Description of M'Carmick's reaping machine from the United States, and remarks on Pronty and Mears' plough, also from the United States,

226, 231, 232. Prises awarded, 242.
See also under the titles of the various implements. AGRICULTURAL ROOTS .- Observations on the agricultural

Against Roots,—Observations on the agricultural roots exhibited, 24. Alage and Athred, 677, 673.

Alares was,—injectually displayed by the exhibitors of airpumps, 245. Most important facts known relative to the properties of air have here efficied by the employment. tino projettics of air favis here elected by the emptoy-ment of air-pumps, 222. New and improved construction of instrument, ib. Small number of manufacturers who base contributed, 26. Instruments exhibited, de-scription of construction thereof, 202, 203. Aire and Cabler Bottle Company, 205.

Airy G. B., 305, 337.
Aked, T., and Sons, 375.
Aked, T., and Sons, 375.
Aken, P. Van, and Son, 123.
Akers, Lieut, 148.
Akhoond of Shab Mirza A., 150.
Akens, L. and Kon, 206, 206, 206.

Akroyd, L. and Son, 3:6, 360, 730.
Akrooff, J., 3:2.
Alanastra. - Slabs of Oriental alabaster from Egypt, Magnificent series of marbles and alabaster from Tus-cany, 35. Rich stores of Oriental alabaster which the Egyptian Government has been induced to spen of late are, 261. The tazza, by Mr. Dallamoda of Rome, one of the most luteresting works in mineral manufactures In the Exhibition, made of this material, 562. Samples of alabaster from Egypt, 561. Vase of Oriental ala-baster, executed by Signor T. Daliamoda, referred tn,

ALARM BAROMETERS.—See Branseders.

ALARIM CLOURS.—See Clocks, Tompieres, &c.
ALARIMS (rna Horses).—Apparatus for the detection of fire or robbery, 315. Principal of construction, ib.

Alba, S., 672 Albani Brothers, 43

ALBERT, HIS ROLAL HIGHNESS PAINCE-Report of Viscount Canning, made to His Rayal Highness eport of Viscount Canning, made to His Brayal Highness and the Royal Chambissoners, on presenting the Jury Awards, § fi. Answer in His Royal Highness to the foregoing, XXIII, XXIV. Remarks on the specimens of wood, the produce of the Cachemere goat, exhibited by Illis Royal Highness; Honourable Mention awarded. nis Royal Ingoness; Honourance mentana xlix, 159, 358. General Council Medal awarded to Ilis Royal Highness for the original conception of the Exhi-Royal (figners) for the original consequence of the Anni-bition, xxv. Prize Medal (Class 111.) awarded for onta and beans, 52, 54. Councit Medal (Class Vit.) for model dwelling-houses, 207, 572. Reprint of His Royal High-ness' Speech at the Mansion House Baoquet, in different ness Speech at 102 Maisson House Encoquet, in dislevent languages, all. Garden seat in camer lead, a chilated camer lead, a chilated camerate language and the camerate language and camerate language

Albert, J. W., 275, 279 Albioet, -, juo , 352. Albrecht, Greenhill, and Co., 62.

Albro and Hoyt, 455 ALE: MEN. - Excellent examples of this substance,

tained from eggs, dried and manufactured, exhibited in the French Department, Iffi ... See also Blood, Preps Agai ws.-Importance of the manufacture as a branch of

funcy stationery, 410. Admit of every variety of or-namental display in the bindings, ib. Beautiful and numerous specimens exhibited, ib. Awards to exhihitors, 454, 455. Albuquerque, Mello, J. D., 84. Alcaide, M. G., 166.

Alcan and Limet, 161

Alcan and Locatelli, 400. Alcock, R., 23, 733, 733, Alcock, S. and Co., 511, Alcock, S. B. and Co., 631,

ALCOHOL - Specimens of, procured from potators, 47.
ALDER BARK - Specimens of, 87. Dre extracted, ib. Alderson, Mrs., 474

Aldr., CD2.
Aldridge, J. M., 207.
Aldridge, W., 589.
ALE AND POSTER BREWING—Illustrations of, 20... See also Aleria, Bishop of, 337.

Alexander, —, 201 Alexander and Son, 332, 334 Alexandrovosk Imperial Manufactory, 197, 371. Alfonso, Don Josquin (Juror), xxv, xxx

ALGERIA - Existence of a large number of metalliferous

localities in Algiers, 21. Operations not yet sufficiently complete to insure profitable returns, io. This result probable, ib. Concessions for eight metal mices in Constantine province granted by the povernment, it. Great obstacle from the difficulty of rotatining fuel, ib. Opening of the Book Mines, st. Concession of four copper and lend mines in the province of Algiers, st. Observations on the working of the mines, st. Speci-Observations on the working of the mines, its. Specimens of iron, lead, and exper over from Algiers, it. Sample of wheat, of great promise, from Algiers, it. Rice and maine, of indifferent quality, it. Samples of hard wheat-floor, of admirable quality, it. Samples of Toosle-Mohis floor, it. Complete and well-arranged callection of raw produce of Algeria, it. Samples of the contraction of the produce of Algeria, it. collection of raw products of Algeria, 522. Samples of oils, \$\frac{1}{2}\$. Collection of colouring matters or dycing stuffs, \$22. Interesting and promising samples of cotton, demonstrating in a remarkable manner the progress of the coloury, \$25.—Eine speciment of cork, \$125. \$125. Fine examples of red coral, \$125. Promising specimens of cochines, \$125. Cigarette and other papers manufactured from the leaves of the dwarf palm tree, 4.4. ters, Commission of Woods and Forests, 103,

Algiers Mining Commission, 22.

ALIMENTARY PRESERVES .- Importance of preserved alimentary substances, 63. Only practically applied during the last 22 years, st. Intimately connected with the aonals of Arctic discovery, ib. Stimulation of the manufacturers by the Admiralty to ohtain perfection in the art, ib. Enormous consumption of, in India, 63, 64. Remarkable cheapsess of the preparations, 64. Quan-tities exhibited from various countries, 16. Extensiva perparations in Australia, Cape of Good Hope, &c., of equal good description with the English, ib. Abun-dance and cheapeess of animal food in the culonles, ib. No perceptible difference either in the mode or perfection of preservation, is. So long as the scaling reasins sound the visads undergo no change, it. Ve-getables preserved in a similar manner as the animal Description of, most advantageous for pre-b. Samples exhibited in the British Departfood, ib. food, ib. Description of most advantageous for pre-serving, ib. Samples exhibited in the British Depart-ment, ib. From the enlouies, 64, 65. From France, 65. From Austria, ib. From Spain, ib. From Labeck, ib. From Switzerland, sb. From Russia, ib. From the United States, ib.
Alloth, T., S., and Co. 267.
ALEALA.—Uso thereof in the manufacture of glars, 523,

ALEALINE SALTS—Samples of, 45, 50.
ALEANET BOOT,—Fine samples of alkanet root are shown in the Austrian collections, M. Specimens from

Spain, 21. Alian and Son, 490 Allan, T., 102, 222.
ALLANTOIN—Specimens of, 44.

Allard and Claye, 613 Allday, W., Markette, Allco, ..., 23 Allen, --, 283, Allen, A. B., and Co., 239, 490, Allen, F., 521, Alleu and Moore, 563,

Allen, J., and Co., 483. Allen, J., and Co., 483. Allen and Solly, 425. Allenmans Mivr, (Northumberland).—Section of the Allenhends Lead Minc, Northumberland, IL Alken, H., 166

Allex, A. J., 680.

Amorateric Photemans. See Phondorus, Red, or Allo-

Notice of metals, and the alloys that may be abasined by mixing them, 13. Objects exhibited, and notice, by C. Jordon, stating the composition of the

different alloys, ib, Alluand, sen., 28, 542.

Alland, sen., 28, 542.
Alla vic Chocks, See Cocks,
Almebla, Dr. D'₁ 507.
Almebla, Pracura, 84.
Almebla, Pracura, 84.
Almebla, Situ, and Co., 41.
Almeba, Province of (Spain), 84.
December 2018 See Cocks.

Almond Oil. See Oils. Alner, A., exx. ALOR FIRST: Samples of, from Barba-locs, ICC; from the

Cape of towns theps, or,
Alons, Extract or, at.
Alons, -The cushartic principle of alons, 42.

Alost, M. d', 106.

ALPACA MANUTACTURES - Speciment of exhibited, 36, 35
Importance and rapid development of this member to

ALPACA YARNS, -See Yarna

Alsop, Robins, and Co., 251. Alsorov Moon (t'umberland).—Brown hymatite and carbonate of from existing in large quantities, i. Section of the Aiston Moor Mines, illustrating the lead veins,

Alther, J. C., 470.

AUTITUDE INSTRUMENTS.—See Astronomical Instrument ALCE. - Antiquity of the manufacture of alon and cop-23.—Antiquity of the manufacture of alion and cop-peras from the peristons schiston of the coal formattion, 2.2. Comiderable improvements of late years, ii. Par-ticulars as to the processes pursued, ii. Producetured alum, iii. Mosfer in which the liberish alone is ob-tained, 22. Specimens of alum referred by 3.2. 32, 42, 42.

44, 45-41

ALM (OR WRITE) LEATHER—See Leather, See.

ALMIN, SELPHATE OF Has become a considerable manufacture under the name of "concentrated alum," 42.

facture under the name of "concentrated alum," 42. Alvaronnafees, Il., 641. Alvera, Juan el., 52. Alvera, B. G., 641. Alvera, C. D. S., 81. Alvert, J. V., 652. Abases (or German thules).—Specimens of prepared amadon, 104 Amand, J.,

Aman and Ligh, 367.

"Anyons Affacer by a Tager" (sculpture).—Notice of this work, 684, 647, 207.

Amas w—ls found associated with certain lignites, and Istole rably abundant, 32. Rarity of transparent specimens of fine colour, ib. Prassia the only country furnishlog them for commercial purposes, ib. Collected chiefly na the shores of the liaite; specimena exhibited, ib. Specimens of yellow amber necklaces, (2) Necklaces, brooches, and articles for dressing-cases in leanor coloured amber, ib. Extensive use of this material for conserve amore, to Extensive use or this amore in for the manufacture of mouth-pieces for pipes, 520. High price of mouth-pieces in the East, ib. Current belief in Turkey that amber is incapable of transmitting infec-tion. ib. In Europe, Ivory, bone, and larra have to some extent usurped the place of the more costly material, Amber much employed for beads, breeches, ear-rings, &c., ib. Coarser descriptions and chips employed for manufacture of varnish, amber oils, and succinie ib. Occasional substitution of copal for amber, No difficulty in distinguishing between the two by 50. No amounty in distinguishing between the two by ochemical nasylva, & Remarks on the chemical characters of amber, ib. Mode of obtaining amber peculiarly lateresting, ib. Terrestrial and marries amber, ib. Evidences of the extreme antiquity of amber, ib. Variety of amber most valuable, 750; Ali. Double meaning of a Electron (amber) used by the asserted authors, iii. Specialness of amber most because it is a marries and the mouth-rices. States of Germany, ib. Splendid mouth-pieces from Persia and Turkey, 572. Extraordinary value of those Iron Turkey, ib. Various amber monufactures contributed, names of exhibitors, and awards, 672, 673

Ambrose, J., 280.

America, Nontil.—Collection of woods, native of, or grown

10, 114-116. See also Cawala. New Brunnwick. Nova Scotia. United States of America.

AMPRICA, SOUTH-Collection of woods, native of, or grown in, 118, 119, 147, 10xe-Berre, R., 372

AMBLEST (EAST INDEES) - Collection of the woods of, contributed by the Indian Government, 133,

America - Importance of ammonia to agriculture, 40. ANNOVIA.— Illustrance of minimum to agriculture, 222 Annovia, Blacks are of Specimens of 43. Annovia, Carbovate of Method of preparation thereof, 46. Specimens of, 45.

Amounta, Hydrocrinonart, ar-Specimens of, 45.
Amounta, Arthart, or - Specimens of, 45.
Amounta, Nature or - Specimens of, 41.
Amounta, Salve or - Process of production thereof, its

value per ton, and for what purposes useful, 43. Speeimens of this sulpinte, 45, 50

Amsoviacal Sales Prepared from urine for manuring

Ames, C. E., 235 Amorkeag Manufecturing Company (United States), 318, Amuller, E. F., 28].

INASTATIC PRINTING - Specimens of, notice I, first Anamorrooms - Instruments for Illustrating. spectier.

ANATURICAL MODELS.—See Molek, Anatomical. Ancrons. - Remarkable improvements in the form and proportions of, 210, 218

Ameion and Co., 221.
Ameion and Co., 221.
Ameiolis, G., and Co., 222.
Ameiolis, G., and Co., 222.
Ameiorge, T., 248.
Ameiorge, T., 248.
Ameiorge, G., and Co., 62.
Ameiorge, G., and Co., 62.
Ameiorge, G., and Co., 62.
Ameiorge, T., Casociate durre), xxvl.
Ameiorge, T., Casociate durre), xxvl.

Andrewsy, Count G., 21, See also Iron. Andre. J. P. V., 479, 503, 501

Andrews, M. 371 Andrews, H., 193

Andrews, II., 1921.
Andrews, II., 1921.
Andrews, II., 1921.
Andrews, III., 1921.
Andrews, III with paper for the consumption of a month, it. Anc mometer exhibited, designed for coal-pits and hospitols, 302 Small travelling anemometer from Bel-gium, 3. Angell, G., 520

Augell, J., 516. Augell, J., 516. Augers Slate Company (France), 28, 552. Assaz Merrus. — Various, exhibited, 316

Angola, Governor of xlv, L3 Angrand, —, 401, 418, 451. Angrane Brothers, 418. Anjuan, Kivobon. — Report

on the animal substances
It. lst. For textile falcues used in manufactures, 152. 1st. For textile falories and elothing: Wood; general remarks; succimens exhibited from various countries, exhibitors, and awards, 157-120. Hair and bristles: notices on the exhibits, exhibitors, and awards, 160. Whalebone: specimens exhibited and awards, ib. Silk: general remarks; specimens exhibited and awards 160-161. Feathers and down; articles exhibited, exhibitors, and Feathers and down: articles exhibited, exhibitors, and awards, 162—2nd. For downsite or ornsmental pur-poses, or for the manufacture of implements, 163, et my. Olls, wax, a.c.: notices on the exhibits, awords, a.c., 163. Horus and antient: remarks on the ob-jects exhibited, ib. Ivory: nbservations, exhibit s, and awards, 163. Tortoiseshell: articles exhibited, by Pearlie: nogetimes exhibited, ib. Motter of pearl or nacro: nrtieles exhibited, exhibitors, and awards, ib. or narro: arraces expansion, exhibitors, and awards, so. Cameo shells and corals: exhibits, &c., ib. Sponges: specimens exhibited and awards, ib. Goldbeoters' specimens thereof, 165.—3rd. As agents in the nanufacture of various articles, ib. Goldstew, Islands glass, and glues: countries from which contributed. glass, and glues: countries from which contributed, specimens exhibited, names of exhibitors, and awards granted, 165, 165. Animal charcoal, bane block and tury block: specimens exhibited, &c., 165.—4th. For pigments and dyes, 18. Cechineal and cormine: countries from which contributed, exhibits, and awards, 16.

ANIMAL AND VEGSTABLE SUBSTANCES USED IN MANUFAC-MAL AND YELFRARE SCISTANCES USED IN MANUFACTURES (Class V.).—Classification of objects, vii. List of Jarres, xxvi. Ethibitors to whom Council Modals have been swarded, xiv. Prize Medals, xiv.xlix. Ito-nourable Mention, xlix-liv. The relative excellence of the "Haw Materials" from the vegetable and animal kingdoms, in the Exhibition, due rather to predistribute the production of the produ of soil and sky than to the individual merits of the

shibitors, £3. The jury, therefore, has been guided and influenced by the investion, altil, and 1-instery manifested in the amelioration and perfection of those substances, £3. Jury resolved itself into two Cummittees, one for the vegetable, and one for the animal kingloom, £6. Preliminary explanation of the grounds on which the Council Medal has been awasded, £6. 50. No. Poddivision of the Repert, as respects the vegetable kingdom, into eight heads; and as respects the animal kiagdom, iato five heads, & Names of exhibitors to whom Council Medals have been awarded exhibitors to whom Council Medals have been awanted for collections of raw groduce or materials, 66.70. Collections of raw groduce for which Prize Medals (1998) and the produce for which Prize Medals (1998) and the produce of the p

7th. Timber and ornamental woods, 104.
Animal and Vegetarie Substances (Manufactures from man, and Nortzania Suntanean (Manufactures from Nortzania Suntanean (Manufactures from Nortzania Manufactures from Wention; article exhibited, ib. Other contributors; nature of their oxhibits, ib. Section (C.)—Monsylactures from Ivory, Tartoiseshell, Stells, Bone, Whatelone, Horn, Bristles. Sc., Cork, Cooseast Fibre, Fepetalis Irory, Sc.—Geaersl remarks; various objects exhibited; names of axhibitors; awards and notices, &c., 599-601.
Section (D.) General Manufactures from Wood, and bring Furniture.—Objects exhibited, awards, Sec., 1222. Section (E.) Manufactures from Straw, Grass, and other Materials.—Objects exhibited, and awards, 35.

Axime. Fine samples of saime, abundantly produced by the simiri, or locust-tree, from Berbice and Trinidad ANNATTO. - Nature of this colouring matter, from which obtained, b. Samples of its dyes, b. Spe-

cimens exhibited, ib., 82. Ansell, C., 217.
Anson, Hoa. Coi. G. (Juror), xxv, xxviil.
Ansted, Professor D. T. (Juror), xxx.
Anstey, S., 14, 385.

Antheime, Antheime, -, 43. ANTHRACITE. - Specimen of anthracite from Cwmilyn-feii,

in the Swansca Valley, South Wales, 13. Specimens of anthractic coal from Gwendraeth, Llanelly, South Wales, ib. Selection of this coal for the use of the boilers in the machinery department of the Exhibition,

M. Blocks of anthracite from Peasylvanio, 17, 18.
ANTHONY.— Process of the treatment of autimony illustrated, 15, Specimens of the sulphure of autimony and of antisnony in the metallic state, 14, 15, Autimony and metallic antimony, from Rosean, is Hungary, 21.

Specimens of crystallised tartrate of antimony, 21.

ANTLESS .- See Horns and Antiers. Apollo Stearin Company (Vienna), 622, 623.

Apollo Stearin Company (Vienna), 622, 628. Appel, R., 688, 695. Appelery, J. and D., 326. Appelath, p., 198, 378, 445. Appolath, J. G., 178, 181. Au's Manusses Specimens of, from the lale of Elba, 33. Arblay, M. D', jun, 28.

Arbiny, M. D', jan., 50, Arbinno, M. Serve, 52, Arbinno, T. C., 252, 50, 62, Arbin, T. C., 252, 50, 62, Arrillar, S. Dern and "drover. Areibladh, C. D., 15, 35, Areibladh, C.

tapestry, be., 686, 687. See also Carton-pierre. Paisted Glass. Paper Mache Decorations.

Ginal. Propert Native Invocations.

ARCHITECTICAL DESIGNS.—Notices of the contributions to
this division of the Fig. Arts, 525. Remarks on the
Exhibition Building as an architectural work, 525.

Notices of the priacipal architectural models in the

Exhibition, 696. Ardamatsky, J., 22. Ardamatsky, J. and T., 22

ARDSLEY OAKS QUARRY (near Barnsley), 11 See also Grindstones. Nandstone. Arduin and Chancel, 161.

ARGENTIFEROUS LEAD- Specimens of, from Sweden, 31. See also Lead and Lead Ore. Argyil, Duke of (Juror), xxx.

Arliss and Co., 404. Armillary Spiege, 30

ARKHLAM SPREER, 222.
Armitage Boshers, 232.
Armitage, G. and Co., 252.
Armi

resistance to the balis of fire-arms, ile resistance to the balls of fire-arms, ib.
ARMS, ARTIFICALA.—See Limbs, Artificial.
ARMS (Pistroux, &c.), INLAID.—In the French Department,
310, 202. In the Spanish Department, 687, 702, 705.
Armstrong, —, 410.
Armstrong, W. G., 183.

Armstrong, W. G. Arnavon, H., 613 Arnbeim, S. J., 26

Armoriu, N. J., 252. Armoriu, C. E. and F., 277, 543, 586. Armott, Dr. J., 314, 346. Armott, Dr. N. (Juror), xxvii.

Armous, C. (Juro), xxvi, xxxl. (Exhibitor), 169, 185.
Asonxtic Sexus-Large collections of, from Egypt and Turkey, 62. ASONATIC

Number of exhibitors, specimens exhibited, and awards, 510, 614. ARRAYAN - Collection of woods from, contributed by the Indian Government, 137.

Arrest, -, 448. Arrest, J., 507. Arrieta, J. J. De, 63.

Ausowacor. - Largely exhibited, especially from our tro-pical colonies, 62. Samples of, from india, Western Africa, British Gulana, Trinidad, Bermuda, Norfolk

Island, &c., 78.
Assous. See Bore and Arrows. Arrowsmith, G. A., [65]

Arrowamith, G. A., 503.
Assamc.—Large propersion of arsonical pyrites mixed with
the sers of tim, §2. Mode adopted by T. Gariand, of
the products, B. Preparation of arrenit by G. Voidermore, of Suizb-urg, §2. White code of arrenit, d.,
Glass made with this matal, d. White arrenic med in
glass-making, (22. Arrenical products, to protect word,
ber, £6. Speciment of arrenic and arrenical prepara-

ARSENICAL PUBLIES. - See Arwaic. Gold.

Arthur, J., 12. See also Pumps, Arthur, T.,

ARTIFICIAL LIMBS.—See Limbs, Artificial. Artificiaes, M. d^o, 528, 529. AKTILLERY.—See Common, &c. Artifick Imperial Works (Russia), 489. Arts et Metiers, Conservatories des (Paris), 257

Fixest quality of ivery peculiar to the elephant of Asia, 161. Variety of specimens of tusks from, th. See also various Countries in Asia under their respective

Aska Sugar Factory (East Indies), 61

Askew, C., 203. Astroname - Recent discavery of, on the shores of the Peticodist, New Brusswick, 16. Collection of ustive as-phaites and the products of purification of this bituminous mineral, 33. Remarks on the pavement laid

down at the east entrance of the Fxhibition by the Seysel Asplante Company, 575. Specimen of asplante adapted for pavement from France, 576, 577.

adapted for payament from France, 20th 222.
Appey, C., 623.
Avec at Gillerlinn of the woods of, 153.
Avec at Gillerlinn of the woods of, 153.
Aven Tex Company, 52; 68.
Avantum Caronava, 52; 68.
Avantum Arraiva, — Appearinn for associng precious ments, from Brossin, 225. Description of M. Smiller's invention, ib. Practical utility of the instrument, di.
Avant Bakarden,—Notices of, for the British Department, 238 Of ardinary construction from France, 254 Im-

proved construction of, from Belgium, ib.

Associate Ji anas. See Juries. Astrogram Sogne Company (India), 51

Astell and l'o , 163. Asten, J., 507. Asten, W., 503.

Aston, W., 413. Astorina Company (Hubbersfield), 322. Astrath, C., 671

ASTRONOMIC V. CLOCKS. - See Clarks, Astronomical ANTHONOMICAL INSTRUMENTS - Description of, and abservations on the various astronomical instruments exhibited, 246 of seq. Electro-magnetic apparatus used successfully by the Americans both for the purposes of geodesy and astronomy, 216. Description of a transit instrument, in-tended for use either in the meridian or prime vertical, tenier for use einer in me meriann or prime verient, 247, 248. Description of a portable or field transit lostra-ment, 247. Description of the principles of two abtimed hadramen's exhibited by Messer, Dollond, 245, 248. De-scription of an instrument called a traonit circle, 248. scription of an invertiment called a trasout circle, 235, Detail of the countractions and principles of a large amo-nomical instrument exhibited by Mr. Ross, cell-i an equatorial; size description of a similar instrum-of ex-bilited by Villoud, Wr. Simmy of. Partials equatorial exhibited by Delloud, well adapted for seeking for ceasers, 211. by Pounda, wen simplest for several for events, 212. Describtion of an altivale and azimuth instrument, known as the W stitury circle, ib. Description of a portable altitude and azimuth instrument, 220. Meded of a stand for mounting an equatorial, ib. Portable universal instrument from Eavaria; description thereof, 2.0, 2.1. Description of an equatorial, exhibited by Vet and Sons

of Munich, 231, See also Clocks, Astronomical. Sectants.

Astronama Description thereof, 307. Atherton, C., 172. Atkin and Son, 420.

Atkinson and Marriett, 100

Arkinson, R., and Co., 197, 375, 745. Arkinson, W., 451. Arloff, J. G., 372.

ATROPTHE HOODS Invented by D. O. Edwards, 508. Armoruran: Reconnu-Seif-registering meteorological histriment, by Dollond, called, 2.9. Principle of con-struction and general description of the apparatus, it. Registration of the changes of remperature and emporation, the fall of rain, direction and force of the wind, ac. .

tion, the full of rain, direction and fa Attaignant, P., 493. Attenborrough, R., 529. Attract, G. B., 885. Anhonel, J., 522, 212. Aobergier, P. H., 45. Anlert, J. L. Juror), xxx. Aubert and Klaftenberger, 341, 342. Aubin C. 524.

Aubin, C., 503. Aubry Brothers, 470.

Anbry, F. (Juror), axix, 476, Aubusson Manufactory, 228. Ancher and Son, 334.

Auckloud and Waikoto Coal Company (New Zealand), 15.

Ausfell, A., 211. Ausfell, Sr., Local Committee, 12. Ausfell, G., 615. Aostin, G., 635. Aostin, J. B., 43. Artin, A. Splendid samples of wheat, barley, and a few

of oats from this quarter of the globe including Van Diemen's Land and New Zenland, 52. Samples of maize, 53. Flours of excellent quality, 54, 55. Good

samples of resins and gums, 26. Colouring matters of the different species of Acathornine well warshy of seeding 50. Samules of back for tanning, 50. Collection the different species of Adminstrato were writing in nodes, 20. Samples of bank for training, 23. Collection of woods, native of or grown in Administ, 119, 129, 148, Case containing 132 specimens of merimo wood, 159. Specimens of printing from Hobart Town and Sydney, See also New South Wales, South Australia. AUSTRALIAN WHEAT, See Wheat.

Arstma. Sheet iron, called iron paper, from the works of Baron Von Kleist, at Neadeck, Bohemia, 4. Imperfect vies afforded of the mineral resources and industry of view afforded or the numeral resources also munory of the enuntry, 12. Working of mines actively carried no., ib. Small number of exhibitors, ib. Contributions chiefly from Carindian, Styria, Upper and Lawer Austria, Hungary, Bohemia, and Salzborg, ib. Priorinal sources of mineral wealth in Austria, 12, 20. Objects exhibited, Prize Medals, and Homorable Memiora

awarded in exhibitors from this country, 20, 21.
Remarks on the chemical and plantascentical products

Remarks on the common and purmacedical products contributed by Austria, 41 et seq. No agricultural produce from Austria worthy of notice, 22. Different varieties of maire, 33. Beautiful samples of red and white millet, 34. The wheat flours of this rountry, especially the Croatian, exceedingly

good, & Samples exhibited, is Samples of oil-cake, 6. Sample of birr stein, fabricated from extract of malt and heps. 60. Samples of starch, dextrine, and starch gum tron, 22. Series of samples

of oils, St. Fine sample of alganet root, 50.

Peroliar value and excellence of the felting wonls exhibird In the Austrian department, 19. Samples of strong and well-prepared flax from Moravia, 22. Spe-

ermig and seil jespared das from Mera k. Z. See temma 4 flower weed, 10t. I. ev of the intention, it, classical flower weed, 10t. I. ev of the intention, it, the intention of weeds, it is, Sections of selected of specimen of weals, it is. Sections of selected articles, 12t. Semple of weed, it is, first ex-dependent of the intention of the intention of the Advanceprip tenholized by the Chrysler De Burg. 10t. 23t. Assenta elements of the intention of the Burger property of the Chrysler of the intention of the Burger property of the Chrysler of the intention of the property property. 25t. Various chronic disputation, calculated by M. Wurm, of Visions, A. Madia of the exhibited by M. Wurm, of Visions, A. Madia of the calculated by M. Wurm, of Visions, A. Madia of the calculated by M. Wurm, of Visions, A. Madia of the calculated by M. Wurm, of Visions, A. Madia of the Chrysler of the C

crystals in glass, 300. Drawing lextraments, 265. Box-eruption of vertices planelarinent, 225. Golden, 3v.8, exception of vertices planelarinent, 225. Golden, 3v.8, Specimens of cotton manufactures, 215. Variety of seedline sleds, 325. Principal seats of the manufac-ture, 36. Good quality, 36. Wavsted stud goods, 215. and the seedline sleds of the seedline sleds of the exhibition of this researcy, 225. Specimens of ribbons, 225. Samples of manufactured silts, 3v.5 vib. Specimens of linen, 372. Great progress made in the manufacture of mixed fabrics within the last ten years, 374. facture of mixed morries account on the hard below the Low price and excellent quality hereof, ib. Bohemia supplies tissues of a quality learing the stomp of decided progress, ib. No originality either of design or eided progress, st. Nn originality either of design or manufocture, it. Objects exhibited, 375, 376. Collec-

manuforture, ib. Objects establistis, 275, 252. Coltre-tion of sharels, 250, 251.

Specimens of terr, 256. Samples of glove bettler, 231.

Specimens of terr, 256. Samples of glove leather, 231.

Samples of boots and shee, 475, 250. Hundone countries and the second point of the second

blaz feed pencins of executent quanty, also of stotionery, pcintleg, booklein-lings, see, 4.2. Observations on the printed goods and dyed yarns, 458. Nonsberless varieties of woollen-dyed yarns contribated, ib. Specimens exhibited, 429.

Articles exhibited in lace and embroidery few and not

smited to the British market, 452. Specimens of em-habler, 472. Carpets, 473. Specimens of rielly-embroidered over-costs; of dress-costs and other wearing appared, 442. Specimens of wearing appared, 45.
Specimens of eurlery, tools, &c., 449-491. Observations on the collection of general hardware and iron manu-

Specimen of works in silver, 517. Articles of jewellery,

Articles of glass exhibited by Austria, for which Medals, &c., have been awarded, 535, 537. Articles of perce-lain, earth aware, &c., exhibited; Prize Medals, &c.,

3 c 2

Baddeley, W., 179

Bader Brothers, 3

Grand collection of furniture in the Austrian collection,

Grand collection of furniture in the Austrana concensor, 314, 545, 505, 501, 502. Considerable fancy and excel-lent workmasskip displayed, 536. Palaced celling, 546. 521. Beautiful specimes of paper-barging, 548. Ar-ticles of Japan ware, 527, 521. Billiard tables and cues, 521. Own dirror frame, 522. Fine specimens of bricks, 526. Vases manufactured of the turia obtained from the bol-water springs of Carishad, Balla, J. C. F., 601. Balla, J. C. F., 601. Bacdeker, —, 332. Bacuziger and Co., 342. Bagatti-Valsecchi, P., 686. Bagen, Bagnall and Jesson, 7. See also Coal. 502. Three fine chimney-pieces of Carrara marile, exhibited by G. Bottiuelli of Milan, 362. Specimens of Fagnall, J., and Sons, 2. Bagre, -, 546 Inlaid work in marble, (6). Specimens of cements, (7).

Specimens of artificial pumice stone, (7). Specimen of artificial stone and marble, (6). Specimens of good Bagster, -, Banasa. Fine series of the woods of the Bahamas. I ist Banasas. Fine series of the woods of the Bahamas. I ist thereof, 155, 147. Very large and fine specimens of sponges in the collection transmitted from 161. Artieummon bricks, 580. Remarks on the large brick-making establishment of Mr. Micebach of Vicana, 580, ficial flowers in shells and wax fruits, 612. Beautiful Ivory combs, 529. Bahnet, A., 161. Bailey, J., 602. Bailey, T. B., 58. Extensive assortment of mother-of pearl ornaments from Vienna, (63) Brushes, ib. Large manufacture of olive-oil scap in Austria; character of the Eau-le-Calogne supplied in the Exhi-Bailly, Comte, and Son, 33), 312. Baillière, -, 405 Baily, E. II., 685, 672 Baily and Sons, 403 bition, 501. Samples of soap and perfunery, 513, 514. Contributions of a dressing-case, dressing-table, &c., Bain, A., 288, 230 Baine, J., 410 preimens of straw work and willow plait, 602 Contributions of tallow-mould candles, 613. Statisties of the manufacture of atearic candles in Austria, 622. Paines, Mesers, 156 Baines, W., 18 Specimens exhibited, 628, 629. Imitation luvifer-Baird, W., 20 matches, 633 Baker, B. J., 39 Contribution of miniature flowers, 642. Specimens exhi-Baker, Capt., 127, 139 Baker and Co., 101 Remarks on the parasols and umbrellas from Anstria, and specimens exhibited, 657. Extensive contribution of walking-sticks; specimens axhibited, 661. Collection Baker, H., 2 5, 301, 302, 315. Baker, R., 327. Baker, W., 420. Baker, W. R., 631. of pipes (principally Meerschaum) from Vicuna, 671. Specimens exhibited, 672-674. Snuff-boxes and papier-mathe wares, 675, 676. Specimens of toys exhibited, 678, 680, 681.

Notices of the principal works of sculpture, 200. Enamel Balance, n. 19, 201.
Balances of all sizes exhibited, 257, 238. Permanence of the adjustments and beauty of workmenship, Austrian Government, 52.

Autrocanosonaph.—Description of this Instrument, 315. 228. The beam and paus suspended on knife edges, with the single exception of Mr. Fox's balance, ib. Descrip-tion of this balance, ib. No example of balances con-structed under the direction of Gauss and Weber, ib. Purposes for which adapted, it. AUTOMATIC MUSICAL INSTRUMENTS. - Remarks of the Jury on this class of musical instruments, 3 Nor of the balances invented by Steinheil, and used in comparing the Russian standard of weights, &. Con-trivances for ebecking the oscillation of the beam and ALTOMATON TOUS-Great variety of, 678, 679, 681 ACTIPHONS - See Barrel Organs. ACTIPHONS — See Barrel Organs.
Annt, M., 253.
Auzoux, Dr. L., 315, 346.
Averseg and Co., 163.
Avignon, Chamber of Commerce of, 42, 43, 50.
Avignon, Chamber of Commerce of, 42, 43, 50. None to be enupared in simpans when in action, sh. herry and efficiency with the apparatus invented by Wollaston, ib. Division to which the index points when the beam is horizontal, marked zero, and the scale numbered to the right and left, ib. Inconvenience of this mode; remedies suggested, ib. Objects exhibited, 2.8-20. Satisfactory nature of the exhibition of balances, 202. Son Aviles, borough of (Spain), 65. Avissrau, C., 512 also Assay Balances,
Balard, M. (Juror and Associate), xxvi, xxx, Process of AWARDS OF THE JURISS. Report of Viscoust Canning on presenting the Awards of the Juries to the Royal Commission, j. ii. Answer of H.R.H. Prince Albert to the foregoing, xxxii, xxxiv. List of the Jury Awards in each of the several Classes, M. Balard for preparing various salts from sea water de-M. Belaru to prepares scribed, 3, 48. Balay, J., 26. Balay, J., 26. Balesce, E. H. (Juror and Associate), xxix, xxx. Bales, J., 53. Balfour, Major, 122. Balfield and Ca., 800. XXXV-CXX. XXX-YXX.
See also Cancil Medals. Henourable Mention. Money
Areads. Prize Medals. Prizes.
Axts-Specimens of, from Canada and the United States,
400, 401.
AXLES.—Patent railway earriage sales and other axles, from
the manufactory of the Patent Shaft and Axletree
Company's Workx Runswick from Works, Wethershury. Ball, Dunnieliff, and Co., 197, 204, 463, 468. Ball, W., 226, 222. Ball, W., Y., and Co., 481. Ballard, R., 448. Balleidier, F., 365. 174. See also Wheels and Axies (Railway).
Ayers, W., 468.
Ayvazoff, S., 51. Balleidier, F., 365. Belling, Professor, 227. Baine, -, 401. Bainy, J. P., juo, 551 Ballacons (various), 500, 310. See also Aerial Machines.
Ballacons Machine. Apparatus for recording votes, 515. Babaleff, Arakel, 2 Well adapted for the intended purpose, ib. Bally and Co., 482 Babarikin, Michael, 22 Balston, Messes, 417. Bam, J. A., 52. Bamber and Son, 507. Bahinet, -, 253 Baboo, Deceath, 101 Baboo Deo Naraya, 378.
Baboo Lakesath, 101.
Bacarat Glass Works (France). Referred to, 528. Bamford, J., 3.22. Bassee, ..., 405. Bancka Brothers, 431, 453. Bacchus and Sons, 33 Bach, G. F. and Son, 471 Buch-Peres, -, 546, 551 Baneroft, Dr., 80. Bank Park Pyropolite Works, 583. Buche, —, 23s.
Bachare, —, 23s.
Bacharen and Vollschwitz, 367, 37s.
Bachrich, J., 101
Bacot, Paul, and Sons, 322.
Badock, John, 346. Bank Park Pyropolite Works, 883.
Bank Park 'romby'r Company (Warrington), 183.
Bankart, F., and Sons, 43.
Banks, E., 165, 463.
Banks, Son, and Co., 449, 412.
Banting, W. and T., 421.

770 TYDEY

100	
Banton, E., 334.	Barrett and Co. (of Fleet Street), 424.
	Barrett and Co. (of Reading), 202.
facture of buttons by pressure applied to a dry body	Harrett, Exall, and Co., 234, 236, 238, 242
facture of buttons by pressure applied to a dry body in a state of powder, 502. Is identical with that of Mr. R. Prosser, carried on for some time by Messrs.	Barritt, J. L., 680
evi, 533, 542. Ban luox. See Iron and Steel,	Barrow, R. II. Barsham, J., 101.
Ban Inox. See Iron and Steel,	Barsham, J., 101.
Barnowski, J. J., 198, 2014 Barnowski, J. J., 198, 2014 Barnowski, J. J., 202, 202 Barnowski, J. J., 202, 202 Barnowski, J. J., 202, 202 Barnowski, J. J.,	Barsham, Son, and Co., 682. Barth, —, 322.
from of no merit. 59 Samules of torrales mais flour.	
	Barth, Massing, and Plichon, 355.
fruits from, 642.	
Barbat, —, 496, 483. Barbenu, J., 481.	Bartlett, A. D., 647, 648, Bartleet and Sons, 263,
Rarbolianna and Co. 502 545 550	Barton, H. W., 254
Barbedienne and Co., 502, 545, 550. Barber, Howse, and Mend, 353.	
Barberi, Cavaliere, 554, 573, 687, 201. Barnesis; of Portland Vase referred to, 521.	Baswoon-Colouring matter, or dye-stuff, extracted from,
Barnesini of Portland Vast referred to, 221	Si. Dyed samples, ib. Bary de and Bischoff, 36.
Barbetti, A., 544, 550, 704, 723, 724. Barbotin, Captain, 217.	
Barbons, —, 401. Barbozs, J., 316. Barelay, A. (Associate Juror), xsvil.	Bastya, Caterric—Method of preparation and uses of, 46. Bastya, Neraatz ar- Specimens of, 43, 45. Bastya, Scrutars or-Samples of, from Nova Scotia, 16, 12. Series of crystals of sulphate of barytes from
Barboza, J., 376.	BASYTA, NITSATE OF Specimens of, 43, 45.
Barclay and Son, 626, 628.	HARVIER, SCLPHATE OF Samples of, from Nova Scotia, 16,
Bardoffsky T 610	Kronnenhere Carinthia 91
Barrioffsky, T., 610. Basries-Specimens of, 457, 459. See also Buces, Spuz.	Krappenberg, Carinthia, 21. BASALTIC MINERALS.— Found in Nova Scotia, 16.
be, Fibries (printing or dyeing).	
BARDIE TARN. See Farms.	Basery and Wicara Wors.—Remarks on the collections
Barres, B., 411. Basicla Specimens of, 45.	of backet and wisher work exhibited 622 Specimens
Barii M. Chioriof of, 45.	of basket and wicker work exhibited, 6/2. Specimens from the School for the ludigent Blind, ib. Specimen
	of willow wood-work, called the Sussex truck-basket, exhibited. Prize Medal awarded, ib.
purposes, 91. Quantities imported in 1843, il. Samples	exhibited. Prize Medal awarded, ib.
of English, ectonial, and foreign, 92, 53. Samples of "Mahout" bark from St. Vincent in its raw state; the	Bas-arisers (in ivory), 686.
fibrous part employed in the manufacture of fishing	BassoonInvention of the bassoon exhibited by M. Adolphe
nets, 102.	Sax, elalmed by Mr. Cornelius Ward of London, 331,
Barker and Co., 80.	332
Barker, C. M., 201.	Bastard, Comto Auguste de, 688, 700.
Barker, J., 412, 433.	
Barker, F. (Juror), xxx. Barker, J., 412, 453. Barker, R., 531	BAVIENA DEFOUND A PARMATE ON N. ISA. Bavies, M., E. J. & St. Bavto, Pirto, and Co., 555, 542. Baraba, F. R., 25, 54, 25. Baraba, F. A., 25, 54, 25. Bateman, -3, 35. Bates, Hydr, and Co., 156. Bateson, J. (Associate Jerov), xxvill, xxxl.
BARLEY.—Samples of naked buriey, 22. Samples of buriey grown at an altitude of 600 feet, at Pitlochry, in Scot-	Hasto, J. F. P., 585
	Baselo, Pinto, and Co., See, 317.
from Australasia, ib. Samples from Port Adelaide, ib.	Rateman,, 315
from Australasia, ib. Samples from Port Adelaide, ib. From New Zealand, ib. From Canala, ib. Extensively exported from Denmark, ib. Of no excellent descrip-	Bates, Hyde, and Co., 196.
exported from Denmark, &. Of no excellent description, &. Fine sample of naked barley from Russia, \$3.	Bateson, J. (Associate Juror), xxvili, xxxl. Bath Chars. Notice of a, 193.
Sample, of good quality, from Egypt, ib. Samples of	BATHS—Specimens of various descriptions of, 504, 507, 508.
Barlow, A., 265, 203, Barlow, A., 196, 203, Barlow, W. H., 187, Barnard and Bishop, 503,	comitive state, 571. Detail of the process invented by Mr. Ruflord of making glazed percelain baths in one piece. Price of these baths, 586.
Barlow, A., 196, 203.	Mr. Rufford of making glazed porcelain baths in one
Barlow, W. H., 184	BATH STONE (works in) The works in Bath colite cahi-
Barnes, J. (Associate Juror), saviii.	
Barnes, J. B., 43.	much used, not expable of resisting the action of an English atmosphere, ib. Falls far short of Caen stone in every respect, ib. Objects in Bath stone exhibited,
Barnes, R. Y., 476.	English atmosphere, ib. Falls far short of Caen stone
Barmer, J. (Associate Juror), savili. Barnes, J. R., 33. Barnes, R. Y., 155. Barnes, W., 155. Barnest, W., 155. Barnest, W., 155.	
	Bathier, V., 473.
	Batka, -, 259, 237, 335.
BAROMETERS General remarks on the various barometers	Bathler, V., 473. Batha,, 229, 227, 345. Batha, W., and Sons, 431. Batton, W., and Sons, 431. Batton, G. 200, 403.
exhibited, 310, 201. Description of Griffith's new barometer, 310. Description of Newman's well-known	Batteria G. 200 413
standard harometer, ib. Invention of an anerold haro-	Battagia, G., 399, 453. Batten, D., 474, 453. Battenberg, M. G., 403.
standard harometer, ib. Invention of an anerold baro- meter by M. Vidi, ib. Description of Negretti and	Battenberg, M. G., 403.
Zambra's barometer, arranged to register the highest	
and lowest readings, ib. Description of Yeates's regis- tering barometer, ib. Low-priced barometers exhibited by Mr. Brown, 301. Description of a barometer of	Bauchau-de-Bare, A., 300. Bauchet, Verlinde, 108.
hy Mr. Rrown 301 Description of a harometer of	Bandry, A. T., %
	Baner, — 328. Baner, — 328. Baughen Brothers, 360.
	Baughen Brothers, 360.
of the United States, principle and use thereof, ib. Baron and Uhimann, 342.	Bauhofer, F., 472
Rerossa Range Mining Company (South Australia), 15.	Boum, E., 502. Baumsam, J., 256.
Barossa Range Mining Company (South Australia), 15. Barosches, Park Baronches, 153.	Bauman and Streuli, 363.
Barrail, C., 161. Barraude, J. P., 303.	Reup, H., 65.
Barrande, J. P., 333.	
Barratt, T., 428. Barrand and 1,nnd, 336, 342.	Bausenne,, 428. Bautte, T. F., 680.
Bannet Ondays Observations of the Jury on the various barrel organs exhibited, 332. Barrel organ called an	Bautte and Co., 500.
barrel organs exhibited, 332. Barrel organ cailed an	Bautte and Co., 500. Raunens, L. F., 624, 628.
outopion, the tunes produced by means of perforated sheets of mill-board, ib.	Bavania.—Sample of peculiar flour from wheat grits, from Bavania, of exceedingly good quality, 55. Specimens
Barres Brothers, 161, 364.	of woods for sounding boards of musical instruments,

153. Specimens of raw silk, 162. Specimens of rifles and pistois, 221. Description of a portable naiversal astronomical instrument, exhibited by Ertel and Son, of autonomical Instrument, exhibited by Éreti and Son, of Munich, 20, 25. Description of an equatorist exhibited by Was and Sons, of Munich, 20, Surveying District by Was and Sons, of Munich, 20, Surveying Black-lead recollèles, 22. High prestation thereof, & Price, very low, ab. Galvanie battery from Zwitbricken, & Drawing instruments, 28.9, Wind instructions, and the strength of t Varfous specimens of faciny stationery, realing-wax, &c., \$41, 424, 435. Heraddie line nat in broater, from Mandré, \$207, Artieles of glass contributed by Bavaria, \$207 nf sculpture on a large scale, @S. Sculpture on a small scale, 622. New processes of painting, ib. Enamels on porcelain and on metal, ib. Painting on glass, mels on porcelain and on metal, ib. Pai ib. Various processes of printing, ib.

Bavay, P. de, 504. Baxter, G., 403, 688, 696. Bayard, H., 276, 278. Bayley, —, 273.

Bayley, —, 273. Bayvet Brothers and Co., 392.

Bazin, —, <u>52</u> Bazin, X., <u>613</u> Baziey, T., <u>95</u> Be, W. Le, <u>see</u>

Beach, W., 450

Beale, -, 43.

Bears, - Excellent quality of the samples of "Augusta"
beans exhibited by H.R.H. Prince Albert, 52. Samples
of beans exhibited in the British Department of the

nt neans exhibited in the British Department of Exhibition, \$1. Samples of beans from Canada, i8. Beards, —, 245, 212. Beardsell, £, and Co., 352. Beardsell, £, and Co., 352.

Beart, R., 202 Beaulieu, A., 252, 254, Beaupré, Beautemps, 222

Beauvais, C., 161. Beauvais Carpet Manufactory, 728. Beauvoys, Chevalier de, 66.

Beaven Clotti-Spe Specimens of, 352

Braver Clotti-Specimens of, 352.
Braver Hars-Specimens of, 481.
Braver Hars-Specimens of, 481.
Braverye, Schenkr of-Samplo of, 47.
Breek, Fr. 11. T. De la (Juror), xxv, xxvi, 223.
Beck, Fr. 425.
Beck and Sons (Belginm), 372, 471.
Beck and Sons (Switzerland), 372.

Becker, C., 254, 260, Becker and Kronick, 549, 551 ecker, F. A. Sapp and Co., 104

Beckett, G., 480 Beds quoted, 52 Beds quoted, 52 Bedford, J., 202

Bedington and Tonks, 503.

Bedington and Tonks, 503.

BEOFFRIADS - Various descriptions of, exhibited, 550, 856.

Brecimens of metallic bedatesds, 522, 505, 506, 508.

Bret, J. F., 25, 140, 664.

Beebe, J. M. (Jury), xxix.

Beecham, Dr., 22.

Beecher, C. Spalin (Associato Juror), xxvii, 212.

Beecher, C. Spalin (Associato Juror), xxvii, 212.

Beecham, A. S. Beecham, A. S. Beecham, C. Beecham, C. Beecham, C. Beecham, C. Beecham, C. C. Yan der, 2021. In 1822.

Beecham, D. Beecham, D. Beecham, D. Beecham, D. Beecham,
64. Novelty and interest of the processes by which procured, ib. Nature of the processes by which procured, ib. Namples of good best-root sugar from Austria, ib. Samples from Russia, ib. From Prussia, ib. Samples from Russia, ib. From Prussia, ib.

nehnes, W., 685, 693, Beisiegei, P., 673, Beissel, Widow, and Son, 262, Beisser, W., 442, Beitl, F., 507, Beffast P.

Belfast Flax Improvement Society, 69, 97.

BELGIANS, H. M. THE KING OF THE Notice of a bust of, by G. Geefs, 705.

BELGIUM

LIZIOU'N: Products of the minss and manufactures of zinc, exhibited by the Vicilie Montagene Company, 4. Mineral by 68 eshibitors, 21, 22. Working of coal brought under notice by only a few isolated sperimens, 22. Greater part of the objects exhibited furnished by the iron works, elay works, refractory sandstones, and graduones, do General account of the different rewards stones, 6. General account of the different rewards granted by the Jury, grouped according to the natura grantes by the Jury, grouped according to the nation of the products, 22, et aq. High reputation enjoyed by the products of the Company of Zine Mines and condries of the Vieille Montagne, 22. Description of two safety lamps exhibited, one by M. L. Musseler, two safety hamps exhibited, one by M. L. Museeler, and the other by F. Eloia, as, Frizes waveful for the manufacture of iron, 25 M. Remarks on the articles exhibited under the bend of Zine and Brans Works; Prizes awarded, 25. The department of mineral industry as regards terra cotta, bricks, cruckless, refractory clays, and ksolin, well represented in the Beighian Court of the Co Exhibition, is. Great number of rocus adapted to the manufacture of grindstones and boues; Belgium being a country which consists in great part of palsozoio deposits, is. Objects exhibited under the class of states,

grindstones, hones, &c., ib.
arge number of samples of wheats from Belgium, 12 Lirge number of samples of wheats from Belylum, 28. Nence of any striking superiority, 5. Samples of press, Nence of any striking superiority, 5. Samples of press, Potesto flour of unusual excellence, 55. Oil-cake of starch, 28. Vegetable oils, 28. Segütenes of oak starch, 28. Vegetable oils, 25. Segütenes of oak natural starch of the s

Discription of a marine engine from Seraing, 172.
Lecomotive engine of good construction, ib. Portable engine and bolier, ib. Duskey engine, use thereof in ateam boats, ib. Cab phastors, 123. Wood made "soft-bobbin" from, 126. Woollen manufacturing machinery, ib. Notice of a singular power loom, 125. General remarks on the manufacture of small arms, 223.

Objects exhibited, 22

Objects exhibited, 221. Agricultural implements, 256, 227, 229-239. Sextants exhibited, 222. Surreying instruments, 224. Balances, 222. Spreateles, 223. Small travelling summenter, 322. Brass musical instruments, 331. Various specimens of cotton manufacture, 348. Assortment of choice woolen cloths, 362. Principal seats of manufacture, 36. Annual value of manufactured goods, manufacture, ib. Annual value of manufactured goods, ib. Market to which beliefly exported, ib. Specimens of woodlen stuffs, 32s. Good assortment of flannest, it. Samples of woodlen yaras, \$\frac{1}{2}\$. Specimens of flan and hemp manufactures, \$71\$, 322. A civit commerce in mixed fabrics in Belghuin, 32s. Increasing desire to take advantage of the demand for exportation, ib. Anterior accordance of the wavers of the ountry, ib. Extensive produce both for home and foreign demand,

Extensive produce both for home and foreign demand, it. Objects exhibited, 257, 246.

Objects exhibited, 257, 246.

Specianess of fars, 262. Horse-taler flow stuffing for further control of the control play of albums, 442. Various specimens of sealing wax, 551. Large variety of printing, paper, and fancy statimery, 522, 433, 454.

Specimens of face and embroidary, 471. Carpets and

table covers, 473 Specimens of cutlery and edge tools, 490, 421. General

Beranger, J., and Co., 191.
Berand and Co., 5, 25... See also Coal.
Banner, Free sample of anime produced by the Simiri, or remarks on the specimens of hardware, iron manufac-tures, and ironnousery, 407. Articles showing the art of inlaying and damascening iron and copper, from Liege, M becust-tree, on the river Berbice, 26. High reputation of the Belgian window glass; large ex-Berden, F., and Co , 334. portation thereof, 225. Articles of glass contributed from Belgium for which Medals, &c., are awarded, 225. Berenguer, J. B., 166 Beretta, D., 163 Berge Brothers, 419, 453, Berger, C. II., 453, Berger, F., 221, Berger, J., and Son, 379. Specimens of paper-langings, 585, 551, Cullection of furniture; mostle floors and tables, 560, 551, 551, 551, Models of paving stones, 555. Works in treatin stone, 555. Marble chimney-piece of considerable merit, 525. Marble columns, 555. Interesting as examples of the Berger, Mad., 453. Berger, S., 77. black marble of the country, it. Specimens of cement, Bergmann and Co., 450 574.
574.
575.
576.
576.
576.
576.
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576.
576 Bergmann, W., 2 Bergquist, --, 221 Berne, C. de, 133, 199, 204. Beringer, B., 221. Berlin Royal Iron Foundry, 693, 707. Berlin Royal Perchain Manufactory, 545 BURLIN WOOL, DESIGNS FOR-Notice of, 689. BURLIN YARNS. See Yorns. consisting of work tores, reading -decks, &c., from Na., 6-33, 6:5. Contribution of parasols, 6:2. Specimens of initial walking sticks, 6:2.; Flourishing state of the fine arts in Belgium, 205. Character of the aculpture, &c. Notless of the principal works on a large scale, i&. Medais, i&. Initial works in a large scale, i&. Medais, i&. Initial works. Britishers I-Land Good quality of rock orchilla con-Berlieg and Co., 536. Berliez, II, (Juror), xxvII. BURNERAS -- Arrowroot from, 62. Bernard, D. F., 267. Bernard, A., 221. Bernard and Co., 370, 372. Bell, ..., 303. Bell and Black, 633. Bernard, J., 678 Bernard, L., 221 Bernard, St., House of Correction (Antwerp), 373. Bernardel, -, sen., 330, 331. Bernardis, B. di (Jurer), xxx Bernenstle, Dr., 672 Bell, Jacob (Almer), xvvi.

Bell, Jacob (Almer), xvvi.

Bell, Jacob (Almer), xvi.

Bell, Jacob (Almer), xvi.

Bell, Vi., xvi.

Bell, Xvi.

Bell Bravese Fares-Are-Model of a, 203. Bernland, W., 3.2. Bernland Mclined, 481. Bernia and Accused, Son. Bernianolile, N., Brothers, 221. Bernoville, F. (Juroy and Associate), xxviii, xxix, xxxii, Bernoville, Larsonnier, and Chenest, 159, 365, 459. Berrand Co., 470. Berrand Messes, 699, 702, 746. Berry, B., and Sons, 196, 204. Bert. ..., 367. on the bells and suspending apparatus, 510. List of on the belts and suspending apparatus, 510. Li Bellangi, A. L. 520. Bellangi, A. L. 520. Bellenille Brothers, 23. Bellans, V. 521. Bellans, V. 521. Bellanset, V. 521. Bellansette, W. 525. Belranster, W. 525. Belvalette Brothers, 123. Belvalette Brothers, 123. Bert, —, 367. Bert, J. J., and Co., 623, 628. Bertand, —, jun., 271, 343. Berte and Grevenich, 427. Bertiche, Chesnun, and Co., 352. Berthault, —, 3:64, 453. Bratur.—Magnificent "berthe," formed of diamends and rubies, exhibited by Koemmerer and Zeftigur, of St. mbies, exhibited by Koer Petersburg, 315. Berthelot and Bone, 370, 321. Heribelot, N., 197, 203. Bertholet, --, 372. Berthon, Rev. E. L., 217, 218. Berthon, Gev. E. L., 217, 218. Bertini, G., 335, 585, 765, 215. Bertomet, --, 221. Bertomet, --, 331, 448. Bertrand, A., 362. Belvidere Company, Richmond (Virginia, U. S.), 435.
Beneden-Bruers, Van., 453.
Beneden-Bruers, Van., 453.
Benedict, Abbot-Window-glass introduced by, into England, 555.
Benes, M., 56.
Benes, M., 56.
Benes, Col. Company, 14. Benham and Sone, 362. Benham, W. A., 58. Benkowitz, Marie, 472 Bertrand, Gayet and Dumoutat, 365. Deverton, Gayer and fromcontar, 355. Beeley, R., and Co., 410, 421.
Beenard, Richoux and Genest, 22.
Bessemer, H., 182, 203, 204.
Bessemer, H., 182, 203, 204.
Bessemer, R., 182, 203, 204.
Berric, News-From Borneo, Ceylon, Singapore, and the Bennatl, J., 517. Bennert and Bivort, 526, 536 Bennett, —, 201, 372 Bennett and Co., 376 Bennett, J. and A., 3./2. Bennett, W. S. (Jaror), xxvil. Bennoch, Twentyman, and Co., 452. East Indies, 57 Bethell, J., 122 Bettignies, M. de, 542 Benoist and Co., 338. Benoix and v. v., and S. Benoix, A., 342. Benoix, A., 342. Benoix, Benoix, Benoix, B. Benoix, T., 360. Bensier, A., 460. Bensier, W., 60. Bensier, W., 60. Bensier, S. Bensier, S. Bensier, S. Bensier, S. Bensier, W., 60. Bensier, S. Be Betts, E. L., S Betts, A., 330, 333. Beuth, Privy Councillor, 697. Beveridge, E., 379.
Bevington, J. B. (Juror), xxviii, xxxii. Bevington, J. B. (Juror), xxviii Bevingtons and Morris, 586, 333 Bevingtons and Sons, 92, 312. Beyer's (Widow) and Co., 371. Bentley, ..., 368.
Bentley, W. II., 500.
Benzostes. See Ammonia, Brazonte of. Beyerhaus, A. 422. Beyerlé, —, 271. Beyne, C. de (Jurne), xxx BENDLE—A colourless oil obtained from gas tar, 44. Benzoni, G. 562. Benzoni, G. M., 685, 704. Beranger, A., 687, 702. Bezroukavnikoff-Sekoloff, A., 160. Bezault and Co., 201. Bhurtpere, Rejah of, 664

Bianchini, G., 567, 687, 704 Bianconeini, Count, 33, 22, Bibbs, T., and Co , 218 Bichanate ur Porasi. - See Potath, Bichrowste of. Blekford, Smith, and Davey, Messrs., 2. See also Safety Fuses (Minos).

Fasz (Minys).

Eddile, -, 225.

Eddile, D. (Jarnev), xxiz, xxxii. (Exhibitor), \$15.

Eddile, G. A., 507.

Eddell, G. A., 507.

Eddell, G. A., 507.

Eddell, G. A., 507.

Eddell, J. G., 1145.

Electric J. and J. Son.

Electric J. and J. Lil.

Electric J. and Son. Lil.

Bienert, D., and Son,

Bietry and Son, 3.6 Bicry and Son, Jan. Bigarlin, P., 43, 506, 675. Bigclow, -, 431. Bigford, H., 507. Bigglow, -, 434. Bigg, H., and Son, 346. Biggs in and Sons, 430. Biggst in Advanced Sons, 438. Bigcotti, L., 556.

Bibet, H., 166. BILLIADD TABLES.—Excellent tables exhibited, 546. Inlaid cues, ib. Tables of British manufacture, of simpler construction than the foreign, but solid and of excellent workmasship, ib. Awards to exhibitors, 500, 501. Tables wholly constructed of slate, a great improvement on the ordinary tables, 574, 572. Slats long employed for the bed of the table, 511.

Billiet and Huot, 350 Billson and Hames, 478 Bingham, -, 271. Binny and Ronaldson, 41

Binny and Ronaldson, 410.

Riodiey, F., and Son, 3302.

Birch, A., 2017.

Birch, J., 2017.

Birch, J., 2017.

Birch, J., 2017.

Birch, W. (Jorry), xxlx.

Bird, W. (Jorry), xxlx.

Bird, W. (Jorry), xxlx.

Bird, W. (Jorry), xxlx. pigs of lend and ainc, and cake of silver from, 3 Birkin, R. (Juror), xxix. xxxiii. (Exhibitor), 197, 204

476, 748. Birkmann, —, 450 Birnbaum, J., 22

Birnie, A., 218. Birrell, D., 371, 730. Bischof and Rhodius, 42, 43. Bischoff Brothers, 367.

Bischoff, C. and J., 365 BISCUIT. -- See Porcelain

BISCHT BELF. See Scops, &c., Portable.
BISCHT-MAKING MACHINER.—Set of effective machines for manufacturing biscults, 202. Model of biscuit-making BISCUTS - Sumples of, from Canada, 54. From Van Die-

Specimens of bitumen, and various products obtained from its distillation, 32, 47. See also Asphalte. BITUMINUS SHALE.—Rectified products of the distillation

of, exhibited, 45. This manufacture has attained more success in France than in England; reasons thereof, ib.

Black, B., <u>507</u> Black, Dr., <u>215</u>. Black, J., <u>198</u>, <u>204</u>. Black, J., and Co., <u>459</u>. Black, J. R. (Juror), xxvii.

Blackburn, B., 508.
Black Flavr - Used in glass-making; gives the name to

Bacer Faxve—Used in glass-making; gives the name to nite plans, 22m.—Mode of munificative of black-load pencils, 3. First quality is known in compare; as Herochama', 26. Sources of supply of graphito, 56. Methods pursued by Mr. Borekeloin for consolidating blied by Mr. Borekeloin reling thereto, 42. Use of plumbago for making black-lead pencils, 420. Best plumbago produced from the Cumbs island mines, 46.

Inferior plumbago found in other places, ib. Mordan's patent pencil and pencil-cases, ib. improvements Inferior plumbago found in other places, ib. Mordan's patent peneli and peacitoses, ib. Improvements effected in the manufacture of penelis in lare years, ib. Qualities necessary in good penelis, 4.6.1. These requisitions completely provided for ib. Aumorous speciment exhibited, ib. Specimens exhibited and awards made to exhibited and awards made when the provided for ib. Aumorous specimens to exhibited and awards made when the provided for its penelis of the provided for penelis of the provided for the prov Blackburn, M. A., exx.

Blackburn, M. A., exx. Blackburn, M. D., experimens of blacking and varoishes referred to, £2. This compound in all probability a very recent invention, §30... A mixture nonevolat suminar used to ancient times, §6. Liquid blacking first imported into France From England, §61. Extensive scale of the establishment of Messir Day and Marrin, £6. Escalishing Marrin, £6. Blacking consists essentially of two control of the control of the control of the first properties. nf two principal components, description thereof, ib.

Process of bording, ib. Manufacture of paste blacking, Process of bortling, ib. Manufacture of paste blacking, ib. Contributions of the blacking nakers of the British Colonies, United States, France, Prassin, Sardinia, and the United Kingdom, 631. Unssification of the exhi-

bitors and the various countries, 632. BLACKING BOTTLES-Description of, having the property of seasch NNO BOTTLES—Description of, having the resisting the action of the blacking, 241. Blackmore, M., 355. Blackmore, W., 202. Blackwell, S., 2. Blackwell, S., and R., 334.

Blueser, G., 363 Blacky Blair, D., 20. Blake and Parkin, 436, 489.

Blake, W., 587. Blakeley, E. T., 37 Blakeslee, J., 15

Blanchard, — Blanchard, H. Blanciard, il. 11., 221.
Blanchet Brothers and Kleber, 425, 425, 432, 431.
Blanchet Brothers and Kleber, 425, 425, 432.
Blank, E. (Jurer and Associate), xxiz.
BLANKERS.—Peculiar make of blankets exhibited from

Tunis, 359. List of exhibitors of blankets; articles exhibited and prizes awarded, ib.

Blanzy, Poure and Cn., 503. Blaquiere -, 417.
BLEACHING PAPER - See Paper, for

BLEACHING POWDER-Samples of, 45, 46, 47. Price thereof

In Germany, 42.
Blech, Steinbach and Mantz, 452.
Blech, Steinbach and Mantz, 452.
Bleckrason, J. E., 470. 507.
Bleckrode, Professor S., 43.
Bleibtren, L., 43.
Blenze, H., 78, 613.

Bleuze, H., 78, 613. Blews and Sons, 60

Bleas and Sons, [63]. Bloas and Teaching The.—Portable typograph or writing machine, all. Benutity inschained contrivance, the Description Beneticing Method of using it, als. Machine for facilitating the writing of the bind, the Printing machine, the Construction thereof, ib. Designer himself blind, ib. Insertion thereof, ib. Designer himself blind, ib. Invention for teaching drawing and writing, ib. Simpletity thereof, ib. Triangular alphabet, ib. Improvement on the circular alphabet, ib. Gall's writing apparatus, ib. Circular printing machine, ib.

Namerous inventions and devices for the instruction of tho blind, 413. Estimated percentage of blind persons to the whose population, ib. Printing for the blind looked upon as a curious or doubtful experiment a few years ago, ib. It is now established that books are true sources of profit and pleasure to them, ib. Brief bistorical sketch of the origin and progress of printing for the blind, together with the present state of the art, 413side. The value errollen for he averdine of proving for the billed belongs to Prance, 133, Provindement of the the billed belongs to Prance, 133, Provindement of the coriginal invention, and his book, 26. Mulliferation of the letter of Hinty, and revised of the primarile by Dr. Johnson, and the book, 26. Mulliferation of the letter of Hinty, and the contract of the contract part of Linds and the contract of the contract of the Lindsitute des Jenues Avengine de Paris, 413, Re-Lindsitute des Jenues Avengine de Paris, 413, Re-turned and the contract of the contract of the billed published by M. Dufan, 41, Pratheliumous to the billed published by M. Dufan, 41, Pratheliumous to the contract of the contract of the contract of the published by M. Dufan, 41, Pratheliumous terminations for the billion established at Herlin and 84. Petersbargh, in 1808, 45. First improvements made in the contract of the published by the Contract of the 760

States, 414. Works published by James Gall of Edinburgh, and price thereof, 414, 416. Intelligent and active interest displayed by the Rev. Mr. Taylor of York in the education of the büml, 416. Works published by him, 56. Efforts of Alexander Hay in the cause of embossed typography, and failure thereof, it. Gold medal offered by the Society of Arts of Edinburgh, In 1832, for the best method of printing for the blind, ib. Result thereof, ib. Establishment of the Perkins Institution for the Blind at Boston, in 1833, ib. Im-Institution for the Build at Boston, in INSS, is. Improvements effected in embossed priating by Dr. S. G. Howe, ib. The alphabet contrived by Dr. Howe has never since been changed, ib. List of the books printed at the press of the Perkins Institution in Boston, with at the press of the Person in Institution in Institution in Institution, Philadelphia, ib. System of instructhou pursued, ib. List of books printed at the Phila-delphia press, 418. Typography of the Philadelphia books exceedingly well encuted, 417. Virginia Insti-Intion for the Blint, <u>418</u>. Press set up at this Institu-tion in 1848 or 1840; elementary and school bost-printed, ib. Much praise due to the American Bible Society at Now York for their commendable efforts in the circulation of the Scriptures among the blind, <u>413</u>. The blind could read in the United States before the Objections to the use of small Roman capitals, type, ib. Objections to the use of small Roman capitals, ib. Publication of a magazine for the bilind by Simpkin, Marshall and Co., ib. Establishment of an Institution for the blind at Stockholm in Ivon, ib. Nearly tution for the blind at Stockholm in 1806, ib. Nearly the same system of lyngerpalpy prevails in all the lustitutions alread, ib. Five existing systems of type-graphy in Great Britain, 413, 282. Bloodvantages resulting from this want of uniformity, 420. Opinion in favour of Howe's American typegraphy, is. Disserv-ations on Mr. Lucas's system; jist of works published favour of Howe's American typegraphy, st. 15eert-ations on Mr. Lucas's system; jist of works published at Bristol, st. Formation of the London Society for Teaching the Blind to Read in 1839, st. List of books printed at the Institution in the Avenue Road. Regent's Park, st. Establishment of the London and Blackbesth Fact, & Statishisteness of the London and Blackbook Amountains In Its, U.S. 12 Higher thereof. & Embardation of the London and Blackbook and Amountains In Its, U.S. 12 Higher thereof. & Embardation of the London and Lond

blind, 432 Blind, School for the Indigent, 602. Blind, Society for Teaching the, to Read (Regent's Park),

Biss, W., 379.
BLOCES, Sattra - Improvements in the construction of, 210.

Blodget, S. C., 198, 201, Bloomer and Phillips, 4:0.

BLONDE. -- Seo Lace. Blondel, Guston and Co., 53.

Bloon Juce - Remarkable colouring material from Norfolk Island, called, 29. Escal for dyeing calico, ib. Indelible 38 a marking ink, ib. BLOOK, PREPARATIONS OF .- Observations of the Jury on Nr. P. Brocchieri's experiments for readering available for food the blood of animals killed for food, 66, 62

for food the blood of animals killed for food, 65, 62.
Samples in its various state exhibited, 56, 52.
BLOSTIVU CASE—Examples of, 456, 675.
BLOSTIVU CASE—Examples of, 456, 675.
BLOSTIVU CASE—Examples of, 456, 675.
SECTION OF ACCUSATION OF A STATE OF A S

Enfer's muchine an improvement on the ordinary blacksmith's bellows; construction thereof, 176. Blumbardt, II., 507. Blumbardt, II., 527. Blumbardt, II., 527.

Hundell, --, 122, 134, 135.
Blandell, Spence and Co., 43.
Blant, H., 312.
Blyck, Hamilton and Co., 163.
Blyck, R., 224, 334.
Blytke, --, 236.
Bo, A., 43.
Bo, A., 43.
Board, J., 574.

Board, J., 574. Boas Betters, 573. Bonns Faare. - Well made "soft-bobbin" frame from the Phonix Company, Ghent, Belgium; description thereof

Boars Nrr. - See Lace Bobee (Widow) and Lemire, 43. Boch. See Villeray and Bock, 42.

Borbe, M., 207 Bock, H., 342. Bocken, H., and Co., 28

Rocken, H., and Co., 25.
Rockmith, Schlieper and Co., 459,
Rodin, J., 256,
Rodin, J., 256,
Rodin, J., 257, 329,
Rodin, J., 257, 329,
Rocker, T., 351, 332, 333,
Rockler, T., 351, 332, 333,
Rockler, R. and Lefeky, 31,
Borler, R. and H., 456,
Borler, R. and H., 456,
Borler, R. and L., 456,
Borringer and Co., 567,
Rockel, J. C., 386, 628,

Boersche, J. C., 588, 628.
Boettger, Dr. R., 533,
Bognert, J. B. Van, 22.
Bognert, Can, Can, 22.
Bognert Canner. distillation of this coal, 43.

Bonnata - latroduction of the glass manufacture into

INTEL—Introduction of the glass manufacture into Bobernia upon the bresking up of the Venetian monopoly, 222. Abundance of raw materials, ib. Illight character of the manufactures, ib. Composition of Bobernian glass, ib. The cylindrical process of glassical biologies was that employed; great perfection to which it was carried, 222. Specimens of the coloured glasses of Bobernia exhibited, 222.

ROBERTAN GLASS-Prize Medals, &c., awarded for, Man-See also Giass. Box Woop-Specimens of, of different kinds and from

various localities, 121 Bobn, -, 401.

BOLLE PLATES.—Excellent quality of the boiler plates from the foundries of Princo Fürstenberg, 21.

BOLLE TUBES OF LOCOMOTIVES.—Jointless boiler tubes of

locomotives, manufactured by C. and H. Chaudoir of Liege, 21. Beauty of the manufacture, ib. Boilean, Sir J. P. (Juror), xxvi. Bolleau, T. E. J., 642.

Bolleau, T. E. J., 642.
Boisserre, Meanrs, 625.
Boissimon, C. De, 583, 585.
Böker, R. and H., 565.
Bolland, A., 262, 203.
Bolland, S., 387.
Bolenins and Nolte, 371, 372.

Bolenius and Notes, 373, 332.
Bolgain, M., Ed.
Bolinghreke, C. and F., 373.
Bolinghreke, C. and F., 373.
Bolinghreke, C. and F., 373.
Bolley, Dr. F., Guror), xxv, xxix.
Bolton, T., 343, 343, 353.
Bosts.—Constrainer for a bolt for double read gates, 228.
Ingremity of the Invention, sb. System of bolts and slides for rendering doors almost sir-light, ab. Security

thereof, ib.
Bolts, W., 617, 618.
Bolzanl, A. M., 152.
Bolzan, L., 520.
Bombay Committee, 76.

enbazines, specimens of, 377. na Mines and Forges Company (Algeria), 29 .- See also

Bonaparte, L. L., (Associate Juror), xxvl. Bonardel, Brothers, 197, 234. Boxnoxs.—See Confectionary.

Box 25 - See Coupers Fond, S. 25 Bond and Son, 251, 246 Bondon, L., 415, 453. Bone, H. P., 657, 694. Bone and Son, C15, 451.

Bonz Blaca .- See Chercoel (Animal). lonfils, Souvrey and Co., 380 Soniface and Son, 371. Sonitto, J. N., 13.

Bonitto, ... Bonjean, J., 43. Bonsal, V. and Co., 161. Bonnasteux, 685, 701. Bonnar, Col., 73, 130. Bonnet, ..., 687, 702. Bonnet, -, 1911, 202.

Bonnet, -, 1911, 202.

Bonnet, J. and C., 365.

Bonnet, J. and C., 365.

Bonneton, J., 364. [13].

Bonneton, J., 364. [14].

Bonneron, J., 564. [14].

Apparel

Bonney, —, 446.
Bonte, L., 525.
Bonte, L., 525.
Bonten, G. (Associate Jarox), xxx. His manufactory for sheet-plan at Choisy-le-Rol, alfueled to 525.
Attention of the Company of the Compa glass for optical purposes, 522. His co-operation with Messra. Chance, 46.

onynn, G. R.,

Bonyma, G. H., 23.
Bosbyer, J. H., 483.
Bosbyer, J. H., 483.
Bosonaumano.—Spreadour in binding books, a taste which Boonaumano.—Spreadour timos, 423.
Attempts made to submit bookbinding to general principles, 48. Ornals and the submit bookbinding to general principles, 48. Ornals ments davised so as to mark the period in which books were written or the subjects on which thay treat, if. Magnitude of the scale on which bookhinding is carried Magnitude of the scale on which bookhinding is carried on in England, &. Application of machinery to this on in England, &. Application of machinery to this called a scale of the United Kingdom, 425. General want of good de-signs, ib. Attempt at emblematical hinding generally nusuccessful, ib. Imitations of eid English style of bindings a nearer approach to simple, useful, and good work, ib. Specimens from France, ib. Remarkable for superier taste in their design as well as for neatness, ib. The best designs imitations of old artists, ib. Bookbinding carried on en a large scale in Vicana and Boox forming carriest on en a large scale in vienna and Prussia, & Specimens from Austria, & From the Zollverein, 425, 426. From the Netherlands, 425, From Sweden, & From the United States, & Book-binding bas not advanced in that country to much as ether branches of the book-trade. Specimens from Van Diemen's Land, ib. Observations on vellum-binding for Diemen's Land, ib. Observations on voltum-binding for account-books, ledgers, &c., ib. Specimens entiblized, is. List of awards showing the names of the exhibiters, lxxiii, lxxxii, 461, 454, 245, 254, 254. Principles on which this art should be founded; grest extent to which they are everlooked in the present day, 740, 741. Various specimens of book-covers and hindings, and of designs

for the same, criticised, [41] BOOK AINDERS' CLOTH-Various specimens of, 451, 452 BOORGASSE.—Various descriptions axhibited, 550, 551. Remarks on a carved bookcase by Helland and Son,

YERS, DESIGNS POR, 522

Boote, T. and R.-Process of injaying one clay upon another, patented by, 541.

Boots, J. P., 387.

Boors axa Snors-Specimens of, from almost every de-

ors ANN SHOEs—specimens of, from almoss every us-scription of material and from most parts of Europe and the United States, 479. Great novelty of con-struction and adaptation manifested in some instances, English manufacturers enabled to compete with the fereign, from the improvements made during the last five or six years, ib. Increase in the consump-tion of English boots and shoes, ib. Articles exhibited; names of exhibitors; awards, &c., 473, 483. Specimens of waterproof boots and shoes from the United States, 525. Also from France, ib. Specimens of vajcanized India-rubber boots and shoes, 526.

of vuicanized India-rubber boots and shoes, 555, Actic Actus.—Preparation thereof by Count F. de Lan-dered, of Tussany, high character of his appraisions, 35. Process of preparation described, 56. The product ex-ceeds in quantity the limited supply of borax from British India, 56. Extended uses in manufactures of BORACIC

porcelain and crystal, 28. Caution required in the use of borneic acid from the facility with which it fuses carely particles, 262. Samples of boracie and, 46, 52. Bonax.—Borax nacel in glass-making, 524. Not generally adopted on account of its expresse, 16. Formeir's supplied from Taibet, but impare, id. Boracie acid now supplied from the works of M. de Lardreit in Tucanay;

origin of this manufacture; its high price, ib. Objections to its employment, ib. Discovery of this material on the western coast of America as bornte of lime; denominated Hayessine, from its discoverer, ib. Samples of borax, 46.—See also Boracie Acid.

Borde, J., Sh.
Borden, G., Sb.
Borden, G., Sb.
Borie Brothers, 202, 204, 580.
Borise Tools—Sets of, from Switzerland, 206, construction thereof, ib. Set of powerful. Successful construction thereof, ib. Set of powerful tools from Paris, b. Excellence of the apparatus, b. Used in the formation of the celebrated "Puit Artesien" of Gre-

formation of the concursed that are an incident of antimosy; pepties of gold, and rolled diamonts, 15. Large series of rices from Borneo, 55. Berel nuts, 52. Coffee, 52. Arrow-root, 52. Sample of cotton grown from Pernambuco seed at Sarawak, 94. Specimens of woods

from Labuan, 138, 139. saownale (Cumberland) - Mine of graphite at, nearly exhausted,

Borzone, J., 162. Boschetti, B., 577, 687, 704, 723.

Boschetti, D., 311, m. Boss, -, 43, Boss, L. A., 660, 661, Bossard, I., 331, Bossi, J., 452, Bossi, J. P., 569, Dossi, J. P., 569,

BOSSIMON, -, de, 103. BOTANICAL CASES, 314, 315.

Botten, C., 507. Bothway, J., 218 Bottler, L. N., 1 Bottineili, G., 56

rtner, 6., 552.

True-coarism Mactine.—Appearatus for corking bottles, in the British Department, 203. Similar apparatus in the French Department, 46.

the French Department, in:

THE GLASS.—Great importance of the manufacture of
bottles, 228. Extent to which carried in France, ib.
Care necessary in the flabrication of bottles used for
effectivenesing wines, and for acid, ib. Loss of bottles,
by bursting, in the champagne trade, ib. Prize Medals,

&c., awarded for bottle glass, 536, 537.
BOTTLES (STONEWARE)—Samples of, 541.

Bottomiey, M., and Son, 356, 358. Bounsse, Madame, 448. Bounsse, Lebei, and Co., 165.

Boussey, Lebel, and Co., 152, Boucke, T., 218, Boucke, T., 218, Bouckert, F., 318, Bouckert, F., 328, Bouckert, Z., 23, 555, Bouckert, Z. A., 121, 153, Bouckert, J. A., 121, 153, Boucket, A., 680, 691, Boucket, C., 353, Boucket, C., 353, Boucket, A., 480, 691, Boucket, B., 4

Bouches-Bothier, 35th.
Bonchen, L. A., 202.
Boudoin and Lebare, Messre., 16,
Boudoin and Lebare, Messre., 16,
Boudon, L., 161.
Bouhardel, C. P., 546, 550.
Bouillette and Co., 118.
Boulogre, P., 303.
Boulogre, P., 303.
Boulogre, E., 303.

oulennois, -, 507. oulton, W., and Sons, 503. oulton, W., and Sons, Mougoi, Const von, 21. ce also Iron.

ourdon, E., 301. ourgery, Madame, 550. ourgery, Carmenaal.—Painted windows in, referred to, 535. ourgogne, J., 268.

Bourgoin, B., 531.
Bourgoin, B., 531.
Bourgois and Moll, 215.
Bourne, J., 541.
Bourna, L. A., 243.
Bousson de Vlieghere, 42

outcher, Mertimer, and Co., 300, 301. Souvard and Lancon, 365.

Bouxwiller Mining Company (France), 39, 43, 155. Bovet, C. (Juror), xxix. Bovey, J., 564, 569. Bow Instruments. - See Stringed Instruments.

- 762 INDEX.

Bower, J., 43. Bowerhaak, J. S. (Associate Juror), xxvii. Bowers, Challinor, and Wooliscroft, 585. Bowling Iron Company, 10 - See also Iron Bowring, Dr., 22 Bows AND Annows.—Excellence of the several contribu-tions, 522. Classification of the exhibitors and coun-tries contributing, ib List of Awards, 577, 578.

Box. R. D. (Associate Jurou), axis. Boyd, J., 564. Boyd, Major, xxv. Boyer, V. P., 518, 698, 702.

Beyle, -, 264, Bezzoui, Brothers, 152, Bracal, Proprietors of the Mises of (Portugal), 33,

Bracci Filanda, Al Fano, 361.

Bracci Filanda, Al Fano, 361.

Bracci Ellanda, Department of bracelets is the British Department of the British Depar ment, and from various foreign countries, 513, 516 Description of two oxidized silver beacelets, of beau-tiful design, from Parls, 313. Bracelet in the reusi-sance style, from Parls, 36. Magnificent bracelet from

Russia, 117.

Brace, II., 224.

Brace, III., 224.

Brace Specimens of, in taste, and of good workmanship, from France and Switzerland, 182. Specimens of India-

rubber braces, 596. Bradbuy and Evans, 401, 431.
Bradbuy and Evans, 401, 431.
Bradford, R. and W., 433.
Bradford, R. and Co., 426, 426.
Bradley, B., and Co., 426, 426.
Bradbuy, M. R., 227.
Brody, M. R., 227.

Bruinam, —, 273. Brahmfeld and Gutruf, 512. Braine, C. J., 163, 548, 550, 667. Braithwaite, -, 273. Braithwaite, Mr. and Mrs., 642.

Bramsh and Co., 510, 503.

Bramwell, Messes. T. and Co.—Manufacture of Prussian Brambi and Co., 225, 225
Bramwell, Messex, T. and Co.—Masufacture of Prussuablue formerly carried un by, at Newcastle; experts
made to Clino for colouring grees tess, 23. Experiments male by for the manufacture of prussitates of
potash by the air process, 24. Prize Medal awarded to
Messes, Bramwell, 45.

W. W. 7 Ausopiatia Juncel, xxiz.

randels, Branden, Van der. and Co., 500. Branden, N. D., 623, 628. Branaum, J., 587. Branaton, R., 403, 404.

Braquenie and Co., 4

Brass Instauments (Musical). — General Remarks by a Juror of Class X. on the exhibits is this class of musical Instruments 330

BRASS MANCIACTURES.—Admirable workmanship of the hrass manufactures of Messra. Estivent of Givet, France, 2. Objects of extraordinary dimensions and difficulty of execution exhibited, st. Annual make difficulty of execution exhibited, in: Annual make of Mesirs, Estivant, value represented, §6. Objects in rolled and hammered brass from France, 26. Excellence of the brass-work of the United Kingdom, 42. Eminent examples of work of this character, & Ornameatal brass-work scarcely to be considered in a very advanced condition, & Innumerable applications very advanced condition, ib. Innumerable applications of brass-work to which the use of gas has given rise, 497, 438. Brass-work struck from dies, 528. Remarkable skill and artistle treatment of the ornamental brass-work of French manufacture, ib. Ornamentation of every kind exhibited, ib. Comparison of the celesiastical brass-work of British and French manufacture. facture, ib. Inferiority of the French productions, ib. Specimens of general braziery from France and Belgium, ib. List of awards and exhibitors, 502. Brassworks of Belgium, 23.

Brass Trains-Specimens of, from Paris, 27. Purposes for which used, ib. Bent tabes of great incensity, ib. Superiority of these tubes, ib. Used for couveying gas under the name of "rope tubes," ib.

Brasseur and Co., 4 Brasseur, E., 44. Bratton, J., 221. Braus Brothers, 35. Braun, C., 683, 702. Braun, G. E., 41. Brasseur and Co., 44. Braun, G. J.,

aund, J., 4

Braunschweig, J. A., 490, 502 Braux D'Anglure, Madame I e De, 458, 504. Benvo, Michel, 102, 354. Bray, C., 507.

BRANCHA ANTHERMINTICA - The flowers of, a remedy for tape-worm, 46

Brayshaw, J., exx. Brazier, J. and Son, 220. Braziery. See Brass Manufactures. BRAZEL - Remarks on contributions of artificial flowers

from Brazil, 612. Specimens exhibited, 611.
Brenney, W. A., 41. 80.
Brendelbure, Marquis of, 13, 121.
Banawaress - Designs for, 28. See also Plymouth Breaknater.

Breels, D. J. Van, 159. Breel, N. A. and Cu., 480. Brediff Brothers, 481

Bredt and Co., 3 Breitenstein and Co., 31). Breitlaupt, F. W. and Son, 254

Breitkopf, -, 208. Breitkopf and Hartel, 333. Bremiger, -, 41. Bremmer and Sons,

Bremner and Till, Breadon, -, 55

Breton, —, 527.
Breton, C., 544.
Breton, F., 164.
Breton, —, 253, 283, 334, 422.
Brett, B., (Juror), xxviii, xxxl.
Brett, J., 289, 253.
Brett and Little, 288.

Bietri and Little, and Bietri and Little, and Bietri and Little, and Bietri and Wietriams, 265. Bietri and Wietriams, 265. Bietri and Wietriams, 265. Bietri and Wietriams, 265. Bodiet et a brevery, 265. Breeding and Mindel et a brevery, 265. Bietri and 155. Bietri and Bietri specimens of bricks from Austria, 554. Extensive and admirable manufacture of bricks by Mr. Micsbach of Vienna, &. No materials, among those used for con-struction, of more real importance than bricks, 578. Even the smallest improvement, whether in the mi of the material, the method of burning, the method of of the material, the inethod of burning, the method of uniting, ce any other matter, of really national importance, 525, 529. Remarks on the improvements in the art of construction, as applied to dwelling-bouses, by the Society for Improving the Condution of the Labouring Unisses, 3.22. The principle of tubular bricks put forward by the Society as of the first Importance, 3.5 Specimens of bricks from various countries exhibited; remarks thereon, awards, &c., 580, 581. Ingenious, and apparently effectual method of rendering common mm apparently effectual method of rendering common bricks perfect it water-tight at a triffing ents, 281. Specimens of B. th bricks, ib. Bricks must always be the prevailing maserial for building purposes in London, 211. Effects of the removal of the Excise duty on bricks, ib. See also Fire Bricks. bricks, ib. See also Fire Bricks.

Basca-Making Machines.—Specimens of two hollow brick-

making machines, one in the British and one in the French Department, 202. Ingenious machine for the manufacture of tubular bricks, from France, 580.

Brica Tra - See Tea Bridard, J., 481 Bridge, J., 46. Bridges, G., 234

Bridges, Mr., 664.
Bansius (Models).—Observations on the models, &c., of bridges, illustrative of the science of bridge building,

208. Bridges, W., ext. Bridgett, T. and Co., 354 Brie, J. and Co., 469, 482 Bricars, J., 65 Briel and Co., 3 Brien, C., 628 Briere, A., 44. Briggs, G. and Co., 193. Briggs, S., 420. Bright and Co., 423.

Bright, R., 563, Bright, S., 564, 566, 568, Brindley, —, 545, Brine, Brothers, and T. Sharp, 562. Brown, R., 557. Brown and Redpath, 503. Brown, Robert, 581. Brown, Rusby, and Booth, 55 Brinton and Sons, 423 Brown, Shurps, and Co., 464, 469. Briquet and Perrier, 482, 526. Brown and Son, 3,14, Briquet and Perrier, 322, 222, Briston, 1, 201.
Briston, 1, 202.
Briston, 1, 202.
Briston, 1, 202.
Briston, Rasty, Kamples of the geological formation exhibited by the Bristol basin, 13.
Burrastia Mrt the Collection of ten and coffee services Brown and Sous, 4 0. Brown and Sous, 4 0.
Brown, S. R., and T., 464, 462,
Brown, T. (Jusor), xxix.
Brown, W., 76,
Brown, W. (of Hallfax), 356,
Brown and Wells, 461, BRITAWAM, MPTAL— Collection of ten and conce services made of Bettumin meral, 210, 203, 638, 636, Britamina Tubular Bridge (Model), 203, 638, 636, Britamina Tubular Bridge (Model), 203, 638, 636, Britamina Tubular Bridge (Model), 203, 638, 638, Britami Giaska,—Samples of rice and maire from, 53, Laurel and crap or craspa oil, 83, Lana dys, 20, Laurel and crap or craspa oil, 83, Lana dys, 20, Tanning barks, 22, Curk wood, [107, Tubular and other woods, [107, 126], Staffed Bridge, 628, Walking-sticks, 561, Kross, 638, Phys. 673, Commercial Society of Browne, F., 388, Browne, W., 1.3 Brownings. , 118.
Bruce, L. and G., 410.
Bruce Muse (Canada)—Richness of the products of copper ore from, 16. Bruck, H. von, and Sons, 267.
Brucker, H. von, and Sons, 267.
Brucager, A. 192.
Bruch and Nagler, Good specimens of oak bark from, 93.
Bruhm and Nagler, 266. British Guinna, Agricultural and Commercial Society of, British Plate Gloss Company, 527, 526.
Brosslowod, J., and Sons, 328, 327, 333.
Brockner, Magnificent specimens of gold and silver bro-Brutin and Sagier, a.c. Brutneck, Oberburggraf, von, 158. Brunime and Co., 63. ende from Russin, 350. De ATELLES - See Sills, Monsfactured. Brunne and Ch., 63.
Brun, Le, -, 425.
Braneau, L., A., 519.
Bruncaux and Son, 159.
Brunel, L. K. (Juror), xxv, xxvll.
Brunel, Le Comie, and Cu., 555.
Brünnek, O. von, 158. BROCATELLES. Baccatallia. See Nota, Monufactured.
Brechierl, P., 28, 45, 450... See also Back Lead Pencils.
Brockalon, W., 3, 4, 125, 339, 400, 411.
Brocklearst, J. and T., and Sons, 365.
Brock., 333, 912.
Brocklearst, J. and T., and Sons, 365.
Brocklearst, J. and T., and Sons, 365. Brunselen and Shipton, 78. of wax, 624. Brunswick Green-Specimens of, 44. Banne's Mines (New Zealand), 15. See also Copper Oce. Brusselin, A., 32, 44.
Brussels, — Brusles of all kinds, made from bristles,
exhibited; Prizes awarded, Honourable Mentions, &c., Broling, —, 406.
BROMINE—Samples of, 44, 45,
BRONOTORN—Specimens of, 4 BEOMOTORM—PSPALIMON.
Bronnel, Jai.
Bronnel Bronskl, Major Count de, 161.
Bronnel Bronskl, Major Count de, 161.
Bronnel Bronskl, Major Count de, 162.
Bronnel Bronskl, Major Country, 162.
Bronnel BRUSSELS LACE .- See Lace, Designs for Bruzghin, A., 372 Bryan, -, 263. Bryceson, 11, 312, 233. Brymbo Coal Company, 11. Bubenitsrek, J., 490 Buccleuch, Duke of, 8. See also Lead Ore. Buchanan, A., 140. Italian manufacture, ib. Awards, exhibits, &c., 502. Natices of works of art in bronze in the Euglish Buchman and Law, 164 Natices of works of art in brenze in the English Department, 635, 526. Contributed by France, 700. [19]. In the Evidence property, 715, 515. [19]. [19 Buchman and Law, If Bucher, II., 612. Büchner, W., 41. Buck, J., 482. Buck, P., and Son, 54. Buck, R., 62. Buck, R., 92.
Buck, R., 22.
Beckwitz. — III represented in the Exhibition, though of great importance in many parts of the world, 55. Samples of backwheat from Belgium, 54. From Canada, ib. From Russia, ib. From the United States, ib. BROOK IS.

514. Specimens of various kinds or proceedings of the Prussia, 520.

Brook, J., and Brother, 3.

Brooke, C., 244, 271, 280, 331.

Brooke, J., and Sons, 452.

Brooke, J., 480. Specimens of various kinds of brooches in the BUCHWHEAT-FLOUR - Sample of, from Canada, 54 Bucker, H., 687.
Buckingham (second) Duke of -- Manufactory of plate glass established by, at Lambeth, 527. Buckland and Toplis, 50. Brookes, J., 4:30.
Brookes, W., and Son, 483.
Brooklyn Flint Glass Company (United States), 536. Buckle, 8, 245, 2 Buckle, 3, 24, 25.

Buckley, w. The Trustees of the late, 44.

Buckmaster, W., and Co., 462.

Buckmaster, W., and Co., 462.

Buckmaster, Y., and Co., 462.

Buffault and Trusbon, 265.

Buffault and Trusbon, 265. Brookman and Langdon, Brooks, man and Langdon, Maroks, E., exx.
Brooks, E., exx.
Brooks, T., 367.
Brooks, T., 367.
Broseen and Co., 365.
Brotherton, W., and Co., 80.
Brough, J. and Co., and Co., 50. BROUGHAMS. - Specimens of this class of vehicle exhibited. station buffer, 181 Buffet, A., 333. Buffen, M., 533 Pr mesa, Sericiculture School of (Turkey), 162 er usea, recreicature senoot of (turkey), 162 Brown, --, 195, 201, 373, 310, 313. Brown and Co. (af London), 43. Brown (a colour), derived from the smut of corn, 43. Brown, F., 44. Brown and Forster, 315. Beacy (a carriage). - Silde-top buggy from the United States, 123.

Broot Dank of Take enterments of the March 2016 Income Dank of the Books, a culturated French calibratemaker, 54.

The French pressity seed in lits work, in. French and the March 2016 Income States of the March 2016 Income callibrate, 52.

British of the March 2016 Income Callibrate of the March 2016 Income Corresponding to the March 2016 Income Corresponding to the March 2016 Income Corresponding to the March 2016 Income Comment Comment (March 2016 Income Comme States, L'G. Brown and Forster, 313.
Brown, Henry, 529.
Brown, Hugh, 459.
Brown, J. and H., and Co., 459.
Brown, J. R., and W., 459.
Brown, M. R. and W., 459.
Brown, Maclaren, and Co., 475, 724.
Brown and Polson, 27.

BULLDING STONE .- Compact fine-grained grit contained in the carboniferous system in Wales, furnishing a solid freestone resisting the action of fire, 2. Obelisk of this stone exhibited by the Aberearn and Gwythen Collieries Company, 2 Specimens of different varieties of coal from the same locality, ib. Description of the methods adopted by the Company for deepening the shafts of mines, ib. Peculiar nature of the tools used by the mines, B. Peculiar nature of the tools used by the L'onjuany, bl. Specimens of building stone from New Zealand, L. See also Greatter. Buth Stone. Bujant, F., 557. Bujant, F., 557. Bullston and U.S. Bullstone, See also Greatter, See Bullstone, Brick Manufactory (Portugal), 557. Bullstone, Brick Manufactory (Portugal), 557.

Bull, J. P., 28, Bull and Wilson, Bull and Wilson, 352, 376. Bullock, E., and Co. (of Galway), 44.

Bullock, E., and Co. (of Ga Bullock, G., 1922 Bullock, J. L., 41. Bulner, W., 397, 400. Buno, L., and Co., 296. Bunnen, C. Van, 78. Bunnett, J., and Co., 228. Bunniett, J., and Co., 288. Bunniett, Bunniett, S. (57. Bunniett, Bunniett, S. (57. Bunniett, Bunniett, S. (57.

Burat Brothers, 346 Bureh, W., 86, 87, 83, Burehardt and Sons, 475,

Burchett, W. (Associate Juror), xxix.

Burdett, J., 211.

Burrent, -432, 433, Burrent, W. H., 610, 613, Burg, Chevalier A. de (Juror), xxvi. (Exhibitor), 169, 324. Bürger, J. 611

Burger, R., 462. Burgers, A., and Co., 350. Burgess and Key, 238, 239, 242.

Burgo, R., 462 Burgoyne, Sir J. (Juror), xxvli, Burgun, Wailer, Berger and Co., 506

Borgons, i.i., forger ass Borgon, W. H., 266. Border, W. H., 266. Border, W. H., 266. Border, W. H., 266. Bornet, N., 266. Bornet, S., 267. Bornet, S

Burnouf, -, 405.
Burnouf, -, 405.
Burnouf, -, 202, 254, 264, 267, 269, 271, 273, 275.
Burr, T., W., and G., 12.
Burra-Burra Mines (South Australia).—Large yield of copper from the ores of the Burra-Burra mines, 12. Pre-

copper from the ores of the Burra-Burra mines, L. Pre-sence of phosphate and chlorida of copper therein, 12 Burre and Kuster, 28. Burroughes and Watts, 26. 252. Burroughes and Watts, 26. 252. Burrows, M. Allister, and Tannichill, Mesers., 62.

Burrow, M'Allister, and Tannichill, Messrs Burrill. — 201. Burt, W. A., 253. Burr, S. J., 44. Sept. Burr, S. J., 44. Sept. Burrill. — 201. Burrow, W. S., 207. Burrow, W. S., 207. Burrow, W. S., 207. Burrow, W. S., 207. Sunday, W. S., 207. 208. 201. 202. 203. 203. 201. Burch, P. A., 207. 203. Burrow, W. S., 207. Burrow, D. S.

Busk, C. J., 140 Busk, H.

Buss, II., 520.
Buss (Marble).—Interesting bust of Grattan well executed in Irish marble, proving the existence in Ireland of a highly crystalline, yellowish marblo, adapted for the use of the sculptor, 364. Sutcher, W. and S., 10, 489.

Batlin, -, 231. Butterley Iron Company, 12, 13, 123. Butterley, R., 482. Butterworth, Hon, Lieut,-Col., 71.

Button, C., 43.
Batton, T., 44.
Berrows, "Specimens of pearl and silk huttons, 420, 507.
Berrows, "Specimens of metal lustions, 503, 509. Process of M.
Baptersuses for the manufacture of buttons by presume
Language Computer of the C applied to a dry body in a state of powder, 539, 542. Byers, J., 2 .. See also Lead. Bywater, W. M., 315.

CAB PHARTONS-From Belgium, 198. Calsanas, De, and Cabazai, 61.

Cabanes and Rambie, 5 Cabello, E., 21

Campers.-Various descriptions exhibited, 550, 551, 55 Cabinet made for Her Majesty, including a certain amount of inlaid work in British marbles, well designed

and well executed, 569 .- See also Ferniture.

and well executely, difficultural site Furniture.

Alkirol, J. M., 2015, 2016.

Cabel and Hone, Ed.

Cabel and Hon

EX STONE (Works In).—This stone used in ecciesantical architecture for many centuries, 556. Nature and qualities of this stone, 557. Objects exhibited in the British Department curved from this stone; remarks

thereon and awards, 357. CATTEINE - Specimens of, 11 Caffort, J., 3

Cahn, D., 166. Cail and Co., 203 Caillet Franquevillo, 356. Cain, J., 503.

Cairaccosa, D. J., 84. Caister, A. B., 394. CAKE-MOULDS.—See Confectioners' Moulds.

Calamal, Professor L., 346.

Calamal, Professor L., 346.

Calaman, Specimens of red and white calamine, from the mines of Scharley, 31. From the mines of St. Margaret and St. Joseph, near Mülheim, so the Rhine, ib.

Calandrell, — (23).

Calandrell, — (23).

CALCILATIVE MACHINEL—Two such machines exhibited, performing well and accurately, 236. Attempts made to perform numerical calculations by mechanical means, 233. Illustress such instruments have been limited to the performance of the first two operations of ariththe performance of the first two operations of arithmetic, & Executals for rendering such instruments really useful, & Staffe's the best machine exhibited, & Organic construction and operation thereof, & Operation performed with accuracy and despatch, & Machines from France, & Principle of the instruments, & Satisfactory performance, id. Various other machines exhibited, sing 3.11. Dr. Boger's invo-other machines exhibited, sing 3.11. Dr. Boger's invo-other machines exhibited, sing 3.11. Dr. Boger's invo-

Caldron, J., 162.
Caldron, J., 162.
Caldron, J. M., 29.
Caldron, J. M., 29.
Caldron, J., 162.

Caledron, J., 152.
Caldicot, R. and R., 255.
Calicot-Plantras—Use of the red prussiste of potash in, introduced in 1842-43, 41. Complete libertration of the operations of the calloo printer, 85, 52. Notice of certain designs for ealloo prints, 655. See also Designs for Calloo prints, 655. See also Designs for Calloo prints, 655.

Calloo Printed and Wieser Falvin, 8c.

Calloo Printed and Wieser Falvin, 8c.

Calloo Printed Macania.—Culino-printing machine, for

printing eight colours at one operation, 126, u.cos.—imperfectly represented in the Exhibition, 347. Specimens exhibited, 348, 349. Specimens of printed calloos, 459

effices, 452.

Cultury 452.

C

Calvert, F. A., 195, 204.

Calvi, J., 84. Cambaics.—Observations on the samples of cambries and cambric handkerchiefs, exhibited, 348, 371, 372, 373. Cambridge University, 400

CAMEDING CHICKETHY, NO.

CANGLINE SEED.—Sample of, from Canada, 56,

CAMEDS.—Remarks on the specimens of this kind of art
contributed to the Roman Department of the Exhibition, 704.—See also Diesinking, Works in, he., Shell Countries.

CAMERA OBSCURA, See Photographic Cameras.

CAMERA MARRIES—Collection of, from the Pyrences, 27.

Peculiar geological Interest attached to these marbles,

Campbell and Co., 745

Campbell, Dr., 97.
Campbell, Major H., 127, 136, 137.
Campbell, Harrison, and Lloyd, 365.
CAMPACOT (South America)—Logwood obtained from, 87.
CAMPACOT (South America)—Logwood obtained from, 87.

CAMPLACHY (SOUR, America)—Logmond obtained from, 87. Camprehoudt, C, Van and Co., 623, 628. CAMPLINE.—Turpentine separated by distillation into oil or spirit of turpentine, 75. Campinine Company (Hull), 72. CAMPLINE.—Samples of, 44, 46, 47.

Camus, -, 65.

Camus, —, 63. Camuzat, —, 404. Camwoon.—Dye-stuffs extracted from, 87. Dyed samples.

CANADA. Superiority of the collection from Canada, so fas

sea, ... - Supernority of the concerning from Landers, so far as the minoral kingdom is concerned, to all countries that have forwarded their products to the Exhibition, 15. Systematic manner in which the collection has been made by Mr. W. E. Logan; nature of the arrangement adopted by him, 15, 16. Oxide of iron an important mineral amongst the iron ores of Canada, 16. Richness

of the ores of copper from Lake Superior and Lake Huron, ib. Fine samples of wheat from Canada, all of the ordinary English kinds, 52. Barley also good, ib. Samples of pulses, 54. Clover seeds, ib. Flour and biscuits, ib. Linseed and camelino seed, 56. Hops, ib. Arrow-root,

Samples of hemlock bark for tanning, 92. Samples of Canadian flax, 98. Specimens of the chief varieties of Canadian tlmber and woods, 140. Raw silk, 163. Spe-eimens of oil obtained from porpoises, ib. Pair of fine cimens of oil obtained from porpoises, ib. Pair of fine moose horns, ib. Specimens of glue, 165. Surveying Instruments from Canada, 254. Bow or stringed

musical instruments, 330. musical instruments, 530. Few specimens of woollen cloths, 352. A few common and low fisance's are produced in Canada, but much has not been utterspited, 358. Specimens of sleigh harmess, 354, 355. Specimens book containing a large number of besuttleful types, also stereotype plates, 407. Large and well-formed collection of printing types cast at Mon-

well-formed collection of printing types cast at stoom-freed, 453. Articles of wearing apparet, 454. Speci-mens of edge-tools, 470, 491. Specimens of stoves, seales, wire, 4cc, 507, 509. Examples of articles of clothing and furniture orna-namented with porcupine quills, 670. Specimens of cooper's work, 602. Collection of brooms made of fu-dian corn straw, In Inferior nature of the wap from uan corn straw, ib. Inferior nature of the scap from Canala, 610. Stearte canalles, 623. Confectionary, 638. Fans made of the bark of trees, 668. Collection of chay-pipes from Canada, 671. Specimens exhibited, 673.—See also Gold. Iron. Iron Iron Iron. Canada Agricultural Association, 52. Canales, a., 84.

CANABA-Collection of the woods of, contributed by the Indian Government, 132. CANDELARIA. - Specimens of candelabra in silver, 512, 513 Two candelabra of cast iron, lolaid with sliver, from Berlin, 517.—Largo candelabrum with bacchanalian figures, from France, 518. Objectionable excess of ornament in candelabra composed of porcelain and

metal, 725. CANDLES.-Little known of their early history, 615. possibility of avoiding the mention of lamps noder this head, ib. Intimata connexion between camiles and lamps, ib. Probable antiquity of candles, 616. Torches may be regarded as a course description of candles, may be regarded as a course uncorrupted as which possibly originated from them, \$\bar{n}\$. Notices in Pliny and Apuloius, also in Fosbreke's works, with regard to the me of camilles, \$\bar{n}\$. Manufacture and consumption of wax candles in the middle ages, \$\bar{n}\$. The occupation of the wax-chandler existed in England at a very early period for making tapers for religious rites,

616. By the sixteenth century the trade of wax-chan-dler was extensively established in England, 617. Manufacture of wax tapers at Venice in the seventeenth century, &. Introduction of the invention into Paris about the middle of the same century, ib. Mode of making Hampshire rushlights in the eighteenth coutury, ib. Improvements effected in the form and quality of candles by W. Bolta in 1729, ib. Great luterest would attach to a complete bistory of domestic illumination, ib. Want of space and numerials for the Jury undertaking such an inquiry, ib. Also to enable them to follow the many contrivances invented in modern times to facilitate the manufacture and combustion of candles, i.b. Chemical improvements of the last thirty years, ib. Many disadvantages under which the ordinary tailow candle labours, ib. Disagreeable smell of tailow candles arises from the tailow being imperof tallow canalles arises from the tallow being Imper-fectly parified, & Requisite conditions in preparing tallow for candle-making, 617, 618. Plaintel wicks not applicable to tallow candles without some special con-trivance, such as is effected in Palmer's lamp, 618. Description of Palmer's candle lamp, its Improvement in the tallow candle educated by a reduction of the Guidhitz of the materials are measured. When of res. In the tallow candle enected by a reduction of and fusibility of the materials employed, ib. Mode of pre-paration of stearine for caudle-making, ib. Fusing-maints of atearic and margaric acids, ib. Transition of paration of steams for canal-maxing, to, result-points of steams and margaric acids, 3b. Transition of the tallow candle to the steam candle, effected, 5b, Tallow candles of two kinds, "dips" and "moulds," th. Manner in which both descriptions are made, 4b. Several improvements of late years in the mechanical arrangements for the manufacture of tallow candles, ib. General introduction of stearie candies impeded by their price, ib. Samples of mould condies from Austria and the British colonies, ib. The manufacture of tallow candles in the United Kingdom a most extensive trade, ib. Table exhibiting the amount of duty on tallow, wax, and sperimenti can lies received in each year 1820-1829, 612. Number of candlemakers in 1830, ib. Quantity of tallow entered for hone con-sumption in the years 1841 to 1830, ib. Samples of tallow candles exhibited, number of exhibitors, ib. Price of tallow, composite, and stearle candles, ib. General remarks on the manufacture of steric candles, ib.
General remarks on the manufacture of steric candles, ab. Discoveries of Chevroni, ib. Separation of fatty acids from storps, ib. Difficulties neighbard to the control of the starter manufacturer, ab. Numerous experiments reconstruct prevent the crystallization of the startie acid during the monthing of the candles, ab. Subhardson, and the control of the candle of the candle of the candles of the candles, ab. Subhardson, and the control of the control of the control of the candles of the candles, ab. Subhardson of the candles of the candles, ab. Subhardson of the candles of the candles, ab. Subhardson of the candles during the moulding of the candles, ib. Sulphuric suponification, experiments of Freecy, Gwyane, and Clark, ib. Remarks on the discoveries and patents of Clark, 16. Remarks no the discoveries and patents of Dubrandaut, Jones, Wilson, and Price and Co., 620, 621. Improvements effected in the manufacture of stearic caudies, 16. Principal candle manufactures in foreign countries, 16. Description of the line pro-cess practised at Messrs. Ogleby and Co.'s works at Lambeth, 621, 622. Description of the mipharies sup-Lambeth, 621, 622. Description of the sulpharie supo-nification and distillation process employed at the works of Price's Patent Candle Company, 622. Stathicts of the Austrian manufacture of steerie canalles, 627, (223, Manufacture of stearie canalles in Belgium, Canada, and Bennauk, 623. Nextric manufacture of stearie canalles in Belgium, Canada, and Bennauk, 623. Nextric manufacture from Rossia, Streinia, and Stearie production of Holiand, Infla, and Prussia, 6. Creditable manufacture from Rossia, Streinia, and Syssia, 135. Time steeric canalles from Newlear and North Canada, 135. New Proceedings of the Streinia and Syssia, 135. Time steeling of the British stearie canalles from Turkey, 136. Details of the British stearie canalles from Turkey, 136. Details of the British stearie canalles from Turkey, 136. Details of the British stearie canalles from Turkey, 136. Prices of stearie canalles, 36. Perference between the stearies of the Streinia of the British stearie canalles, 136. Perference between the stearies of the Streinia and Streinia tistics of the Austrian manufacture of stearie camiles, shown by the British public for candles coloured yel-low to resemble wax, ib. Absurdity of lowering the beautiful white of the pure stearic candle, ib. Wax, candles discarded at grand fetes in France, and use of the pure white stearic candle, ib. No stearic candles also exhaused in the Wurtenhurg Department, ib. Geniera remarks on wax and spermaceti candles, ib. Substances of various origin and of very different composition included under the name of wax, ib. Descrip-tion of wax employed in candle making, ib. Chinese wax not a regetable wax, ib. Knowledge of true che-mical composition of wax owing in Mr. Brodie, ib. Results of the researches of this chemist, 624, 625, Paraffin too coatly to be converted into candles if made

from wax, as its preparation entails a considerable loss of material, 625. Paraffin much better adapted than any other substance for Illuminating purposes, sk. Experiment of James Young with a view of obtaining coal paraffice; results, and specimens exhibited, ib. Observations on wax blenching, ib. Processes emploved, &. Wax more valuable when bleached, &. Quantities of wax imported into the l'autod Kanadom in Qualitities of wax imposed into the test 1850,625. There is no duty on wax, il. Quantity of wax candles imported, and duty paid thereon in the year 1834, 626. Wax not adapted for mortling, ib. Manner in which wax casalles are noode, ib. Wicks of wax candles always made of twisted unideached Torkey cotton, ib. Plaited wirks not adapted for wax can-dles, ib. Mode in which large wax candles used in churches are made, ib. Process of natural acturing long wax tapers, ib. Materials used for colouring wax can dies, ib. Wax mortar lights used as night lights, ib. Samples of wax candles and tapers from China, Egypt, Iodia, Russia, Tuois, and Turkey, & Messrs Barday and Son's collection of wax candles and specimens to Illustrate wax bleaching, & Collection of ornamented wax candles for weldings and lete-days, In fair proportion, ib. Candles made of vegetable wax in its natural sinte, ib. Chemical relations of spermaceti closely allied to wax, ib. Description of the process of sper-maceti refining at Mesers. Oglehy and Co.'s works, Lamboth, 626, 627. Price of spermacetl, 627. Manuer in which spermacetl candles are made, st. Remarkably fine specimens of spermaceti and spermaceti candies in the English Department, & Specimens from the United States and New South Wales of a less important character, ib. Very little spermaceti imported into the United Kingdom; United Kingdom; major part obtained by refuling sperm oil, & Number of exhibiture from the various

in Scotland; well adapted for lubricating machinery,

ib. Objects manufactured from cannel coal, 553.

CANNINO, VISCOUNT.—Report of Viscount Canoling, Presideat of the Council of Chairmea of Jurie-, on prescoing the awards of the Juries to the Royal Commission. Answer of H. R. H. Priace Albert to Lord Can-

olog's Report, xxxlii, xxxlv. Juror, xxv, xxx, ett. CANNON AND THEIR CARRENGES.—Small number of cannon exhibited, 220. These exhibited sent rather as samples of manufacture and materials than for their original merits as instruments of war, ib. Remarkable specimens of wrought-iron guns presented by Spain and Tarkey, ib. Sperimens of east-iron ordoance from the celebrated foundry of Liege (Bel-gium), ib. Remarkable beauty of the workman-hip of a piece of ordinaces from Prussia, ib. Models of the construction of guns for the English service, ib. Mo-dels showing the construction of artiflery used in the East Indies for slege and field service, . Onluance d for sea service, it. Observations on the Swedish guns exhibited; general description thereof, 223 Shell-gun constructed for towning.

Experiments made to ascertain the merits of cannon constructed by Major Cavalli and by Bason Wahrendorff; results thereof, 223, 224. Great in-genuity and merit of Baron Wahrendorff's construcgeauity and meret of paron wantenesses a consequen-tion, 221. Excellent samples of Swelish and Daniels cast-iron field gans, ib. Substitution of east Iron for brass gans in the Swelish service, ib. Cast-Iron gans of the same weight as brass not suited to the tropialthough they might be to many climates, is. Models of Swedish field-guns extremely well executed, ib. Model of a 30-penoder long gun on a carriage and slide for casemates, ib. Cantagalli, L., 503

Carrinanins,—The blistering principle of cantharides; how obtained, 44. Samples of cantharidin, 42. Canthar, C., 163, 263. CANVAS. - General excellence of the specimens exhibited,

370, 371, 579, 373 CAOUTCHOIC AND MANUFACTURES THEREFROM.—Samples of caoutehout or indian rubber of considerable interest, particularly those from Sumatra and Java, 21. Coout-chouge is ubtained from certain plants yielding milky

juices, 200. Though the great majority of these plants are tropical, still they are not without their Luropeau representatives, &. Families of plants which furnish this milky juice in the greatest abundance, in. Period of the first introduction of caoutchesse into Europe. of the first introduction of chomesone time and con-sumption of caoutchene or lodino rubber suice its apsamples of reservience or holize gather sure it application to the waterprofiling of garmets; 4. Emmuration of some of the plans which are employed for carried by the military, 4. Obtained both from the told and New World, 45. Numerous speciment formedock by the East Ballet, 46. Great quantum te imported into the plant part of the pla the last thirty years both for snothery and Industrial pur-poses, 502. Observations on the two most important purposes to which it has been applied, namely, the repdering of various tissues waterproof first discovered in England, and the art of drawing it out into fine threads for the maunfacture of clastic tissues, discovered in France, 502. Remarks on the mode of vulcanizing indis-rubber, as first discovered and applied to practical purposes in America by Mr. Charles Goodyear, 5:23.

Articles manufactured from caoutelone exhibited; particular remarks thereou; Exhibitors and awards, 503-506.

Cape, —, 122. Care or tioon Horz.—Samples of galena, graphite, and ireo ra or tiom Horz.—Samples of galeta, graphic, and ireo over from the Lyn, L. Samples of visite, M. Milar, M. Piede Turis, M. Mustard acced, iz. Specimus of supplies of berry sat, 25.8. Lichean ordeline seed, M. Tomaing bork, M. Albert, M. Milar, M. M. Milar, M. 11, 123. Samples of word, izi. Specimens of cit-latined from steep's talls, IEL Collection of root of historic from steep's talls, IEL Collection of root, ib. Specimens of grant, ib. Articles of specimens of ricipanat' unka, IEL The specimens of orner, ib. Specimens of grant, ib. Articles of specimens Peculiar kind of udaid work in marble, 263, Comera mosale, in imitation of wood and marble, 276. Specimen of yellow soap, 610. Cullection of conserved fruits, 638, 642. Specimens of stuffed aximals, 636.

Cape of Good Hope Agricultural Society, 71
Cape of Good Hope Moravian Mission, 111. CAPE TEXES MINES (Algeria) .- Observations on the products thereof, 21.

Care V and Islamin - Rock orchilla from, worthy of favour-

alde notice, 10. Capello, B., 544. Capello, G., 540.

Caprus Semides of, from Portugal, 62. Caplin, J. 345, 316. Caplin, Mad., 346.

Cappellemans, Deby, and Co., 44. Capelleste, L. (Juror), xxvi. Capellette, L. (Juror), xt Capper and Waters, 461. Capronnier, J. B., (3)

Carabe, Maonel, Carebet's Wife, 45 Caradus, J , 100

CARBUNES.—See Guns, Sr. CARBON, BUT LIBIDE OF Samples of, 46, 47. Carron, Structurer or is one of the newest of chemical manufactures, 32. Its application in electro-plating, ib. Carronates. - See Ammonia, Carbonate of. Soda, Carbonate

of. White Lead. ABBONATING OR ACRATING MACHINES. Specimens of, for making seda water, seltzer water, he, 2011

Card, W., 221.

CARD CARS.—Elegant variety exhibited, 470.

CARDOLE—An oily substance, how prepared, 46.

CARDO (for Carding Machines).—Machines for making, 17

199. Excellent samples of cards for cotton and wool.

Camps (Paper).—Introduction of a superior description of blank visiting and message earls by Mr. Creswick, 417. Great encouragement given by printers, &c., to these eards, ib. Several important innufactories in existence, ib. Several important innufactories in existence, ib. Superiority of the English productions over those of other countries, ib. See also Playing

Cardwell, C., 409.

Carew and Co., 65.
Carey, Dr., 127.
Carl, A. T., 207.
Carl, C. C. (Jurer), xxviii.
Carles, H. R., 383.
Caalusgroun Laurencee, (Ireland)—Particulars relating

CARMINE - Specimens of, 45 - See also Cochineal. Carnegie, W. F. L., 555.

Carnegie, W. F. L., 5225 Caron, A., 512. Caron, E., 16. Caron, J. M., and Cn., 507. Carpenter, F. S., 455. Corpenter and Tiblesley, 503. Carpenter and Westley, 271.

CARPETS.-General excellence of the specimens of earpeting contributed, 370, 373. The first specimens that claim attention are those from India, Persia, Turkey, and Tunis, 322. These carpets all made on the same principle, 25. Manufacture not carried on in any large establishments, but in pastoral districts, 25. Descrip-tion of the loom employed in the manufacture, 472, 473. Silk carpet from Cashmere, sent by Glodab Single, 473. Silk carpet from Turkey, deserving of special notice, ib. Large and beautiful carpet from the Golselins is. Large and beautiful earpet from the Gelevina manufactory, ib. Seats of manufacture of the most magnificent and costly expest in Europe, ib. Manu-facture of Arminster entrepts caseed to exist about 20 years ago, ib. Observations on the Aubusson tapestry and carpets, 422. Manufacture well repre-sented in the Exhibition, ib. Progress made by France in the manufacture of velver pic carpet, ib. rrance in the manufacture of veived pile carpet, is, Monnette or veivet pile and Bransche carpet are woven upon the same principle, is. Introduction of the manufacture of Brussels carpet into Kidderminster about 90 years ago, is. Seenly progress and increase about 90 years ago, ib. Steady progress and increases up to a recent period, ib. Introduction of Whytock's patent tapestry carpets, ib. Three new kinds of carpet have been invented and brought into extensive use navo been inventors and proligent mor extensive use within the last 22 years, 36. Great perfection to which Whytock's parient tapestry carpet has been brought, if. Peculiarities of this manufacture, 46. Simplicture, 45. Specimens exhibited showing the capabilities of the Specimens exhibited showing the capabilities of the manufacture as regards design and colouring, ib. Execlience of the specimens of the patent Axmi orpets, &. Object of this invention, &. Remarks on corpeia, b. Ubject of this invention, sb. nemarcs on the carpets sowen plain by sieam power and after-wards printed, sb. Large sale of this manufacture more especialty for expertation, sb. Novelly of the carpeta, ruge, &c., at patent wood mounts, sb. Rapid extension of the earpet manufacture in Gereal Brisans, 474. Patents recently taken for the application of steam power to expet wessing, ib. Application of steam power to three waxing, so. Apparential of steam power has been successively accomplished, so, Reduction of price likely to result therefrom, so. Promising aspect of the carpet manufacture, is. Estimated number of looms employed in Great Letimated number of fooms employed in Great Britán, B. Average earnings of the operatives, ab-Estimated value of the manufactures, b. Progress making in the carpet manufacture in Austria, Por-tural, Sanllinia, and Prassila, th. Numerous exhibitors of Berlin work, B. Benutiful specimens exhibitors of Berlin work, B. Benutiful specimens exhibitors of Berlin work, B. Benutiful specimens exhibited by Mrs. Alterson, B. Contributions in embosidery extrenely luteresting, is. Power-loom invented and patented by Mr. Bigelow of the United States for carpet weaving, ib. Excellence of the specimens of carpet woven by tho loom, ib. Invention of the first loom for weaving Brusseis carpets by steam power, by Mr. W. Wood, ib. This was patented in 1842, ib. Great economy of labour and other advantages result-Great economy of moour and other advantages resum-ing from the application of steam power to carpet weaving, ib. Mode of weaving invented by Mr. Faveret, of Kidderminster, al. Importance of in re-utility, ill. Improvements made in capter waving by Menies. Humphries and Son, of Kidderminster, ab. Comment children for furniture by the Government numarizatory of Gobellus and Heurriss upavery, ab. Speciment exhibited, namels of Prizz Medals and Speciment exhibited, and the Arriva Medals and Speciment exhibited, namels of Prizz Medals and Speciment exhibited, namels of Prizz Medals and Speciment exhibited, namels of Prizz Medals and Notice of designs for carpets, GEL. General remarks on carpets and the principles to be observed in designs for their erransentation, 222. False principles of the Xmidit designers in a new order and just tarty. Fawcett, of Kidderminster, & Importance of its re-

the English designers in a more soler and just taste,

Criticism of certain of the oxamples, French and Criticism or crease or the examples, resuch and English, in the Exhibition, ib. Superiority of Turkith and Indian designs, 728, 722. Druggets and felted goods used as carpets, 722. Floor-cloths, ib. Carpi, Hugh di, 413.

Carquillat, -, 361

Carr, C. J., 231, 235, Carr, J., and Riley, 430, Carr, T. and W., 3-2

CARRAGE BREARS .- See Railway Breaks. CARRIAGE CLOCKS .- See Watchen

CARRIAGES (CLASS VA),-Tabular elassification of objects In the Exhibition into which this class is divided, vili, List of Jurors and Associates appointed for this Class, List of exhibitors in this class to whom Prize Medals have been awarded, lv, lvI.

Roport on carriages generally, not including these con-nected with rail or tram roads, [92, 1-2]. Table showing the apportionment among the various countries of the contributions in this department, 192. Want of variety in the kind of carriages, sb. Absence particularly of as now arm of curranges, a. Assence particularly or the higher class of equipages, b. Absence of tra-velling carriages, properly so ralled, b. Abso absence of vehicles included for the public service, b. Tuese deficiencies to be accounted for, in some measure, from the general introduction of railways. b. Observation of the Jury, that although they recognise the use of on the Sury that atthough they recognise the use of superior woods, leather, and other materials, and ex-cellent workmanship, they perceive many defects in style, and the display frequently of had taste, ib. Great Improvement which has taken place with reference to "lightness," and a due regard to strength, St. The many innovations and contrisoners in springs, steps, fore carriage, locking movements, &c, not always improvements, ib. Great deficiency of "delegance of design" in the cabibi ion of carriages, flow far astributable to the new demands of the age requiring vehicles to be constructed to convey oge requiring venicles to be constructed to convey the greatest another of persons, ib. No successful application of any new material, 1231. The application of canutchour to the wheels of earringes to render them miseless of very doubtful general utility, ib. Genered use of very superior pattent and ennotedied leathers, ib. Carriages now beautifully appointed as rate cost, arising from the perfection which textilo manufactures have attained, ib. Great difficulty of eletermining the exact intriusic value of an article like sietermining the exact intriesite value of an article like on carriage, \hat{n} . Unanimous opinion of the Jury that in this class there is no article possessing such pre-eminent and indispatable merit as to be entiried to the "Council Medal," ab. List of contributors to whom the "Frizz Medal" has been awarded, and list of their exhibits, ib,

Carrier, Rouge, 507 Carriere, F., 161. Carriere, F., 161. Carrington, F. A., 20 Carron Company, 422. Carson, 567.

Carstangen, A. F., 61 Carstangen, D. H., 65. Carte, A. G., 219. Carter Brothers, 372.

Carrier, John, 683, 623.
Carrier, John, 683, 623.
Carrier, Vavascer, and Rix, 365.
Carringena Royal Arsenal, 372.
Carrossacz Paren Boxes.—Only within the last few years that manufacturers have adopted this mode of years that manutacturers have adopted this mode of packing their goods, 526. Large quantity of boxes manufactured in England, ib. Superiority of those made in France, ib. Large number of persons employed in the manufacture, ib. Traile divided into six branches, enumeration thereof, ib. Specimens exhibited, sb.

CARTON-PIERRE, DENAMENTS IN .- Recently manufactured in England, although employed for many years in France, 512. Importance of its introduction for nrebitectural decoration, from its lightness and other adsecurars uscorfation, from its tigniness and other ad-vantages, ib. Mode of composition of the material, ib. Great extent and beauty of design of works exe-cuted, ib. Advantage of this moterial over plaster of Poris, ib. Objects exhibited, and awards to exhibitors,

547, 540.

Great advantage of the one-horse earts used by the Scotch and Northumbrian farmers over the three-horse waggons and three-horse dung carts of the south country tarmers, 232. Improvement in one-horse carts by Mr. Busby, 232, 233. Approval of Crosskiil's wheels, 233. Description of a cart made by Mesers. Gray and Co., of Uddingston, near Glasgow, ib. Approval of Crosskill's

es awarded, 212 Cartwright and Hiroos, 52 Cartwright and Warners, 478 Carvalho, L. de, 163.

Carver, T. and T. G., 197

CARVING BY MACHINERY. - Various specimens of carved

work executed by machinery, 550, 551. Operation of the machine, 550. Great economy, 35. The work the machine, 550. Great e requires finishing by hand, ih CARVINGS IN INDRY .- See Irory Curring

CARVINGS IN WOOR. See Wood Carrings.

CANVINGE IN WOOD.—See Wood Currings.
Crack, J. H., 252,
Casey and Phillips, 365.
CASINERES.—Specimens of, from various countries, exhibited, 355–358, 355.
CASINERES NATURE—See Shorels, Designs for.

CASHMEDE YARNA - Sen Farna. Casisan god Sous, 162

CASAS (Ships.),—See Cuopers' Work.
Caslon and Co., 410, 431.
CASSANA MEAL AND BREAD—Samples of, from Demerara,

62. Cassebohm, J. H., 688, 200. Cassels, A., 556

CANIA. See Cinnamon CASSINETTS Specimens of, 375, 376.

Castellar, F., 641

Castelle, H., 165. Castellini, H., 687, 704. Castellon Municipal Corporation (Spain), 100.

Castertoan, -... 406. CASTINGS IN BRONZE .- Notices of the principal works in the Exhibition in this department of fine-art casting, 563, et seq., 706, 707.—See also Broaze.

CASTINGS IN IMP.—Remarks on the works in this depart-

ment of fine-art casting, SCI, et seq., 197. CASTROS IN ZINC.— Notices of the chief works in this division of fine-art casting, 503, et seq., 705.

Caston U1L - See Oil. Casuccini, C. F., 162

Caraceria, (a. dys-staff)—Samples thereof, S.L. Cartheiros Menezes, J. L. de, 84. Cator, Nelson, and Co., 98, 370, 372. Catteaux Brothers, 373.

Catteanz-Gauquié, -, 375. Catz and Co., 160. Cauchois, -, 264 Causse, D. A., 58

Cansse and Garion, 161, 367. Cavaillon, De, 45

Cavalli, Major, 224. Canvet, —, 350, 361. Cavaar, — Sample of Russian cavisre of the finest quality,

Cawood, J., 164.
Caxton, W., his works as a printer referred to, 307, 400, 408.
Cazal., - 500.
Cazalet, Rev. W. (Associate Jurov), zavii.
Cazalat, -, 304, 305.
Cazalet, Rev. Septements of, in various styles, 516.

Critisto 192004.7333 - Speriaments of, in various styles, 326.
Awards to exhibitors, 331.
Critistas Stepasyers. - Only three substances included under this head, 163. Cork, rice-paper, and German timeler, ib. Good samples of those articles exhibited; awards made, 103, 183.

Number of exhibitors. CEMENT, MANUFACTURES IN.-Number of exhibitors not

large, nor the objects exhibited numerous, nor from many countries, 522. Countries from which contribu-tions have been sent, ib.

CEMENTS, ROMAN, PORTLAND, &c.—Common mortar and other simple lime cements, Parker's, Portland, Medina, and other hydraulic cements, various artificial stones (not terra cotta), and singlion work included ander this head, \$22. Brief statement of the basis of the this head, \$22. Brief statement of the basis of the various cements above enumerated, and the elemical principles involved, \$72, \$23. Different exhibitors in three materials, specimens exhibited, remarks thereon, awards, \$62, \$23, et sep. Specimen of a kind of earthy fire-proof cement or paint, from America, \$35. Result of experiments by two exhibitors of Portland cement, Meetrs. Robins and Co. and Meetrs. J. B. White and Co., showing its superiority over Roman censent, 587-589.

CEMENT (undescribed)-Specimes of, 48 Cento Chamber of Commerce, 32

Cesto Chamber of Commerce, 20.

CETURIPLECE, SULVAR.—Description of a centre-piece in reposses work, manufactured by Fromest Meurice, of Paris, Lil., Also description of a nitror control-free and the control-free
315. Principle of construction, ib. TERPOGAL PURES. Description generally of the nat construction, and utility of the centrifugal pump, 179-Construction, and using or and countries, pump; table ishowing the result of experiments on this pump, 181. Yahle of experiments on Gwynne's centrifugal pump,

182. Also on Bessemer's centrifugal pump, so. CERANIC MANUFACTURES (Class XXV.). Tabular classifieation of objects in the Exhibition Into which this class is divided, xxi. List of Jurors and Associates appointed

for this Class, xxx. List of exhibitors in this Class to whom Council Medals have been awarded, evi. The like of those to whom Prize Medals have been awarded, And of those of whom Honourable Mention is made, evi, cvii.
View taken by the Jury of the duty assigned to them:

particularly with reference to the award of the Couocil and Prize Medals, 508, 529. Importance to the eramic art of the material termed Parian, Carrara, nr statuary porcelula; is a modification of "biscuit," 538. Process of M. Bapter-sees for the manufacture of buttons, by pressure applied to a dry body in a state of powder, 22. The series of articles exhibited gives a very adequate idea of the present condition of the ceranic art; countries contributing; the British side most art; countries contributing; the British side most largely represents the singertance of the manufacture, largely represents the singertance of the manufacture, represents the singertance of the singertal season of variety, and beauty of their articles; remarks as to a desert service and other articles, 202, 260. Observa-tions as to the collection exhibited by Mr. W. T. Cope-ton and the singertal season of the singertal season Song, 26. As to Neerst. J. Rose and Co., 26. No cother English exhibitors to whom Price Medals are avariled, 243, 261. Critisms to which some of the avariled, 243, 261. Critisms to which some of articles are open, 540.

Remarks on the articles contained in the French Depart-

ment of this Class, 242. Special reference made to the products of the Sevres Mounfactory, &. The like as to M. M. Joshanneaud and Dubois, &. As to Le Baron A. Du Tremblay; particulars as to his process called "email ombrant," is. Similar mention of the articles "email ombrant," id. Similar mention of the articles exhibited by J. M. Gille, and also by others to whom Prize Medals are awarded, id. Names of exhibitors of whom Honourable Mention is made, 542, 543. Other exhibitors in this class to whom Prize Medals are

awarded, 542 Observations in regard to the articles in the Anstrian Department, ib. And in the department

the Amatrian Department, ib. And in this department of the Zoll-series, 125, 245. Critical and poweral remarks on the examples of porce-lain and potters' ware contained in the Exhibition, 731, et seq. Antiquity of pottery among all nations; detile fabrica slone often mark the progress of a speole, 241. Hopefal position of the ceramic arts in the present day, of The condense published distibled into previous ib. The works exhibited divided into two classes, ornaments and works of utility, 732. The danger of producing mere ornaments illustrated in regard to the works of the Royal Dresden Manufactory; deficiencies of Dresdeo porcelain, ib. Various examples in the Sevres Court criticised, ib. Deficiencies of English artists; the statuettes of parian by Copeland and Min-ton on evidence of a desire for improvement, ib. Works arisis; the statectics of plarish by Coperand and Mil-non excidence of a desire for improvement, \$\text{A}\$. Works of the Royal Minnufactories of Berlin and Bavaria; many of the errors prevalent in the china-ware of Dreaden avoided, \$\text{23}\$. Constructive form should have the first attention in works of utility, \$\text{A}\$. Helled when used, should be low, \$\text{A}\$. The application of handles an important point connected with constructive design, \$\text{A}\$. suciples to be observed in the application of colour, 731. Sec also Earthenware, Por

Sel.—See 8800 Zaraneaeure. Porceain.

Cerceail, L. P., 434

Caratas.— Very few samples in the Exhibition of eats, rye, and bariey, the stuple crops of northern and mountainous hurope and Asia, 23. Whest is very insufficiently represented from the United Nates. better from Northern India, ib. Three collections of cereals pro769

minently interesting, viz., those of Messes. Lawson, Mr. Maun I, and Mr. II. Raymbird, 51. Samples exhibited in these collections, 51 et zey. No wheats exhibited superior to the South Australian, 51. No bulk of corn exhibited by France, 52. Those exhibited chiefly intended as illustrations of manufacturing processes,

Observations on the cerealia, rarely cultivated in Europe, such as rice, maize, and the Coir backryone (Job's tears).

53. Remarks on millet and other small series. Remerks on millet and other small grains used as food, 53, 54. See also Barkey. Beaux. Moize. Malt. Outs. Rior. Ryr. Wheat.
 CEYLON. – Minerals and ores obtained from the crystalline

rocks of Ceylon, 15. Samples of millet of fulr quality 54. Tamarinds, 56. Cocon nuts and betel nuts. 57 Great extent and importance of the cultivation of coffee in this island, 59. Samples thereof, & Arrow-root, 62. Samples of eighteen descriptions of oil, 82. Various dye-stuffs, 90. Specimens of native, Bourbon, Various dye-stulis. 90. Specimens of native, Boarbon, and Sea Island enton, grown in Ceylon, 20. Specimens of woods, 133, 140. Fine tusks of the Ceylon was of woods, 133, 140. Fine tusks of the Ceylon variety of elephant, 164. Specimens of introiseshell, ib. Collection of pearls, ib. Ornamental occoa-nation of the collection of the

of fans and lvory fan-handles, 663. Chabot, -, 88. Chadbourne, Dr. T. (Juror), xxviil.

Chaddung Borthers, 273.

Chadractin Borthers, 273.

Chart-cattino Machiness. — Improvements which bare been made in these machines, 238. Great advantage and economy resulting from the use of them, ib. Result of a trial of three of these machines, showing a Result of a true or tireo of these inachines, snowing a great difference as to the labour required by them for preparing a given amount of chaff, ib. Superiority of Cornes' chaff cutter, ib. Approval also of Garrett and Son's and Smith and Co.'s chaff-cutting machines, ib.

Desk of poreupine quills, 653. Collection

Prizes awarded, 238, 242

Chapet, A., sen., 644. Challioux, Lepage, and Poehon, 66. CHAINS AND CHAIN CARLES.—Introduction of chain cables into the navy, 210. Improved capetan for ships of war, adapted to the use of, 210, 217. Specimena of

carious descriptions of chains and chain cables, 504, Chairmen of Juries. See Council of Chairmen of Juries.

CHAIRS. - Various descriptions exhibited, 550, 552. CHAIBA, —Various descriptions exhibited, 350, 352.
Challiner, E., 541.
Challiner, Ch. B. (Juror), xxvii, 226.
Chalmers, D., 197.
Chalmers, J., 83.
"Charmers, J., 83.
"Charmers, J., 85.
"Charmers, J., 85.

France, 356. Chambellan, G., and Co., 380.

Ciumberlain, —, 315. Ciumberlain and Co., 541. Chamberlain, T., 682. Chambon, C., 161, 364

CHANGIS LEATHER.—See Leather.
CHANGES LEATHER.—See Leather.
CHANGES LEATHER.—See Leather.

CHAWARNE DOTTERS.—Care required to a thereof, loss per cent. by bursting, 528. Champagne and Rougier, 353, Champanhet-Sargeas, J., 367. Champernowne, H., 363.

CHAMPLEVE ENAMELLING-Specimens of, 738.

CRAWLEVE ENAMELISS—Specimens of, 738.
Champoiseau, N., 161.
Chance, Brothers and Co., Messrs.—Manufacture of sheet-glass commenced by Messrs. Chance and Hartley in 1832; co-operation of M. Boatemps, 268. Partnership dissolved in 1836, d. Manufactory for coveragiase established by Mr. Hartley at Sunderland, 266. Improvements introduced by Nessrs. Chance, Brothers.

improvements introduced by Messes. Chance, Brothers, and Co., ib. Success of the Messes. Chance in producing large discs of flint and erown glass, 529. Other notices relating to this firm, 269, 270, 271, 275, 530, 533, 536, 686, 695, 715. 536, 536, 536, 536, 516.
Chanee, R. L. (Juror), xxx, xxxii, 533.
Chanee, R. L. (Juror), xxx, xxxii, 533.
Chandelen, Professor J. (Juror), xxx.
Chandelen, Professor J. (Juror), xxx.

Chandelen, Profess Chandler, Mr., 230. Chapel, M., 62, 78. Chapin, W., 417.

Chapman, -, 345. Chapman, J. E., 122, 132. Chapon, Mad., 612.

Chapot and Selon, 28 Charageat, E , 661

CHARCOAL .- Sec Bur Produce.

Charcoat, Aximal.—Specimens of animal charcoal, bone black, and ivery black, exhibited by different nations; names of exhibitors and awards, 166. Charles and Co., 507.

Charley, W. (Juror), xxviii. Charriere, J. F., 345, 346. Chartron and Soun.161, 364. Chassagne, Mariette de, 702, Chatelain and Foron, 358.

CHATELAINEN—Beautiful specimens of, entirely of wrought steel, 516 Other specimens thereof, ib. Chatelaine in gold and torquoise-blue cuarnel, 520.

Chater, J. (Associate Juror), xxx. Chatter, J., and Sons, 600.

Chaudiere Mining Company (Canada), 16.—See also Gold.

Chaudier, C. and H., 23.—See also Boiler Tules of Loco

Chauvin, G., 507. Chavin, -, 339, 342.

Char Roor (a dye).—Deserves a better reputation than it at present possesses, 83. Attention drawn to this dye in 1795 by a special minute of the Board of Trade recommending its importation, ib. Specimen cuntri-

buted, if Cheavin, S., 174. Chebeaux, J., 689, 702.

Cheeseborough, W., 159. Cheesewring Granite Company, 556.

CHEMICAL AFFARATIS AND UTENSIA - Specimens of chein-

cal glass apparatus, 43. Observations on apparatus for manufacturing chemistry, 203. Small number of manufacturers who have contributed, 205. With the exception of Quennessen, France, and Staffell, Russia, exception of Quenassen, France, and Staffell, Russia, no great preference can be given to one or other of the principal exhibitors, ib. Glass and china apparatus from termany, adapted to practical use, ib. No new lavention, except M. Staffel's, ib. Chemical cabinet combining inscluiness with economy, ib. Chemical furnace on the same principle as that of Dr. Black, ib. Various galvanic batteries, ib. Graduated glass in-struments, ib. Purposes for which adapted, ib. Re-torts, philals, and capsules, covered with an electrotyped precipitate of copper, ib. Covering of glass vessels with copper although not new, its uso very little known in England, ib. Blowing apparatus, for the purpose of a continuous hlast, ib. Boxes fitted with chemical tests, 296. Saccharometer and lactometer, ib. Optical analysis of sugar surpasses all other modes, ib. Palisdium crucibles and capsules, ib, Advantages of palladism for this purpose, th. Prac-ticability of coating the interior of clay or plumbago cracibles with films of platina, &c., th. Galvanic machines of navel construction, th. Presumatic leaters machines of navel construction, h. Pessumatic lattery for leghting quotowher in bistering operations, d. Ity-for leghting quotowher in bistering operations, d. Ity-or all fluids, h. Accuracy and efficiency obtained by this instrument, h. Apparatus from France; pitched his instrument, h. Apparatus from France; pitched alember for subpartie sold, db. Gazoneope, principles and the subpartie sold, db. Gazoneope, principles miles of St. Elizeme, efficiency thereof, db. Satery lamp for chemical purposes, ib. Assay furnace, db. Collection of chemical unesuits, 275. Galvanie battery, Collection of chemical utensils, 227. Galvanie battery, ib. Biack-dead crueibles, ib. Siesm apparatus for elemical and pharmaceutinal purposes, ib. Assortment of chemical apparatus, ib. Carbon battery, ib. Galvanie battery from Bavaria, ib. Silver bydometer, ib. Apparatus from Prussia, ib. Grudusted vewels for measuring fluids, it. Apparatus for analysis of beer, ib. Apparatus for assaying precious metals from Russis, ib. Remarks on the various chemical utensils in refractory clay exhibited, 585, 586. Specimens of

In refractury elay exhibited, 385, 866. Specimens of chemical apparatus from Prassis and from Belgium, 285, 566. See also Porocian for Chemical Purposes. CHEMICAL BLANCES.—Shape interturents, resultable to the 100th of a gra n, 238. Good example of a make-shift for a balance, sh. Chemical balancer from France, 239, From Prassis, sh. From Sweden and Norway, 260.

matches placed in an anomalous position with regard to the other contributors in the Great Exhibition, from their not being permitted to send their actual produce, 632. This precaution deemed a visiable as a security against fire, it. Impossibility, in consequence, of the

Jury moking any equitable awards to this brouch of Industry, 632. Opinion that this result is much to be regretted, ib. Remarks on various succent analogous layentions; production of fire by the friction of woods, 632, 633. Apparatus of the middle ages for procuring light, 632. Perfection of modern chemical matches; accomplished chiefly within the last 30 years, 633. Remarks on Dochreiner's hydrogen lamp, which has con-tributed indirectly to their improvement, ib. Introduc-tion of what was called the "phosphorous match," ib. common source(ty to their Improvement, ib. Introduc-tion of what was called the "phosphorous match," ib. Covering the sulphurized end of a match with a mixture of segar and whorate of potsols, and Immercing the concentrated sulphuric sciu, the first Important and persasient Improvement in the means of obtaining light, ib. Observations on the Introduction "Prometheans," and also on the introduction of lucifers and congresses, ib. Various chemical match manufactories established in Germany, ib .- Statistics, and other information respecting the progress of the art in Germany 633, 634. Large production of chemical matches in Austria; number of exhibitors, 631. Number of exhibitors from other parts of Germany, ib. Statistics relative to the unsunfacture of incifer matches in France: unrepresented in the Kahhiliton, ib. Reporters unable to obtain information respecting the extent of this manufacture in the United Kingdom, ib. No exhibitor of lucifier matches in the American section, although made to some extent in the United States, & Low price at which these articles are now produced, io. Point of which these arrives are now prouseed, so, roun of perfection which the match has at present reached, 635, Recipe of Dr. R. Boettger's composition for match tips, ib. Reference to Mr. R. Partridge's patent for forming wooden splints, ib. Remarks, in detail, on the disease attanding phosphorus match-tippers, ib. Number of axhibitors of imitation matches, and other means of obtaining light, classified according to the several countries from which they have been sent, ib. List of ex-hibitors; objects exhibited, ib.

CHEMICAL AND PHARMACEUTICAL PROCESSES AND PROthe Exhibition Into which this class is divided, vi. List of Jurors and Associates appointed for this Class. xxvl. List of exhibitors in this Class to whom Council Medals have been awarded, xxxix. The like of those to whom Priza Medals have been awarded, xxxix, xl. And of those of whom llonourable Mention is made, xl.

Total number of exhibitors, English and foreign, in this Foat sumber of exhibitors, English and foreign, in this Class, 37. Georgical outline of the contributions, & Details respecting the principal novelties, via, red, or carbon, & Boncie, etc., i.e., Suphorate etc., i.e., Suphorate etd., 32, 39, Salis of sew water, 32. Bichromate of potods, 39–17. Carbonate of ook, 41. Stannate of potods, 39–18. Carbonate of the contribution of the production of the company, 42. White lead, 42. Zine white, 36. Garmeter, 42. White lead, 45. Zine white, 36. Garmeter, 42. White lead, 45. Zine white, 36. Garmeter, 46. — Liquid products from the distillation of each and peak, 48, 43. Enumeration of the principal battless, 48–14, 49, 40. Salis of the Salis of th hutions; statement of the awards of the Prize Medal, and of the distinction of the Honourable Mention made by the Jury, 43, 50. See also the various articles refer-rible to this heading.

CREWICAL AND PHARMACEUTICAL PROOUCTS (undescribed). -Specimens thereof referred to, 43-50. CHEMITYPY.—Obtaining easts in relief from an engraving, 407. Description of this ingenious process, io. Chenard Brothers, 481.

Chenavard and Clerget, 405.

Chency, G. H., 507. Chennevière, T., 352.

Chenet, A., 28, 577. Chert, A., 28, 577. Chertrow Railway Baidge (Model) - Referred to, 208. Cherdon and Sons, 403

Cherles and Son, 403
Cherist, G., and Sons, 56.
Carsuster—Products from the salt mines of, 13. Annual
Carsuster—Products from the salt springs of Cheshire, 44.
Carsonace, Nature and springs of Cheshire, 44.
Carsonace, Nature of a set of chesomen and cheshourd, in gold and silver, and canacided, by C. Monter, 8, 66, 76, 81.
Carsonace, Nature of the salt
of sculpture, 688, 691, 634. Chevat, -, juu., 65, 641.

Chevreul, E. E. (Juror), xxix, 403, Chichizola, J. and Co., 365, Chickering, J., 333.

coar. Report of the Jury on the samples of chicory ani-other substitutes for coffee, 59. The cultivation not extensive or remuocrative, ib. Sample of chicory from Great Britain, ib. From France, ib. From Russia, ib.

Childs, C., 193. Childs, J., 503.

- Great development of the mines of copper in Cinti Chili within the last few years; large supply to En-rope from this Republic, 24. Nature of the ores of this metal worked in Chili, ib. Purity of the ore, ib. Remarkable speelmen of copper pyrites, stated to con-tain 12 ounces of gold and 220 of silver, ib. Speelmen of native silver, weighing 154 lbs., ib. Chilson, Richardson, and Co., 503.

Chison, Richardson, and Co., 203. (A)—Carvel oak, re-Cuisaver-rices (Sruse, Mera, &c.) — Carvel oak, re-Cuisaver-rices (Sruse, Mera, &c.) — Check-chimme-piece In the Louis XIV, style, in gitl bronze, from France, 519. Chimmey-pieca In Cane stone, howing much skill, 557. Chimmey-piece censtrated of polyphant freestone, obtained from Cornwall, &c., Qualifies which the Jury have taken into consideration in making their the Jury have taken into consideration in making their awards with respect to marble chimney-pieces, 562. Objects exhibited; remarks thereon, awards, &c., 562, 563. Particular reference to the chimney-pieces of statumry marble of Carrara, exhibited by G. Bottinelli, of Milan, 562. Vhimney-piece from Belgium, constructed of heautiful Carrara marble; the architect tural design of considerable merit, and the details admirably executed, ib. Specimens of chimney-pieces admirably executed, ib. from France, ib. The English chimney-pieces not re-markable either for design or execution, ib. Veined Carrara marble chimney-plece by Messrs. Porzelt and Co., of Cologne, Prussla, 563. Specimens of porzelain chimney-pleces exhibited in the British Department, and from France, 587.

NA .- China, though richly represented in the Crystal NA.—China, though richly represented in the Crystal Palace by its silk stuffs and porcelain, has obtained only a solitary Honourable Mention for its mineral productions, 23. Collection of materials employed in porcelain manufactured from China, ib. Shipments of Prussian-blue formerly made to China for colouring Prinsing-time parametry made to claim for colouring green teas, 39. Specimens of vegetable wax, 83. Co-louring matters or dyeing stuffs, 90. Specimens of cleaned and nucleased cottons from Shanghae, 95. Samples of rice-paper, 104. Collection of the woods of China, 151, 152.

amples of raw silk, 163. General remarks on the ex-hibition of manufactured silks from this country, 362. China is one of the earliest known sitk manufacturing nations of the world, 458. Complete assortment of dyed silks used in her manufactures exhibited, ib. Magnificent dresses for the higher classes of Chioese

in silk and richly embroidered, 481. Observations on the specimens of general hardware man factures from China, 497. Paper-hangings supposed to have been first made in China, 546. Extensive manuhave been first made in China, 546. Extensive manufacture of japan ware in this country, 548. Method of applying the lacquer, ib. Namerous and interesting specimens of ware, particularly elaborate folding screens, 548, 549, 550. Collection of Chinese furniture, 550, 551. Small series of manufactured judes, 552. Objects carred in jude and quartz reck, 565. Collection of carriags in various kind of hards offer the previous formation of the proposal country of

Employment of bees-wax in Claim for the purpose of candle-making, 626. Description of confectionary from candle-making, 655. Description of confectionary from China, and remarks on sugar-conserves, &e., 633. Spe-eimens of writing-desks and work-boxes, 653. Re-marks upon the use of univerlais in China; specimens exhibited, 657. Specimens of two carried bamboo walk-ing-sticks, and of two Chinese sceptres; trade of Canton in caces and hamboos, 665. Remarkson formaking in China, with specimens exhibited, 667. Re-marks on the habit of smoking, and the use of pipes in China, with specimen of no opinm pipe, 671. Contri-China, with specimen of nu opinm pipe, 671. China, with specimen of nu opinm pipe, 671. Chinese carving, 675. CHINA AND EARTHENWARE. See Creamic Massfactur

CRIVA-GRASS .- One of the most interesting smongst fibrous Hemp.

CHINA TEA-Sec Tea. Chinard, C., 380,

CHINE RILEGYS .- See Ribbons.

CHERE SILES. See Siller, Minsipfortured.

CHISTZES.—Samples of English and French furniture
prins, 457, 458, 499. Remarks on the extravagant decoration of chintzes at the present day; principles by
which such decoration should be regulated, 730.—See

also Woren, Span, &c., Fabrics (Printing or Dyring). Chlozza, C. L. and Son, 613. Chirio and Mina, 400, 431.

Chisholme, E., 644.
Chirranosa.—Collection of woods from, contributed by

the Indian Government, 137. Chitty, E., 54 Chicagos. - See Barium, Chloride of. Copper Ore. Indiae. Potassium, Chloride of. Sadium, Chloride of. Zinc,

CHLOROFORM - Specimens of, 45, 47. Price thereof in Gormany, 49. CHOCOLATE - Machinery for making, 203. - See also Coon

Chocquer, Christinvart.—See Confectionary, Chocqueel, F., 380, 745, Choqqeel, L., 380, 459, Chopin, F., 503,

Chopping and Mannd, 507. Choquart, C., 59. Chosson and Co., 481. Christiani, C. H., 60. Christie, D., 52.

Christie, D., 52 Christl J., 479.

Caristi J., 422.
Christoffe, C., and Co., 518.
Christy and Co., 481. See also Hats.
Christy and Sons, 518.
Christy, T. (Juror), xxxii.
Christy, T. (Juror), xxxii.
Chrona xxxx.—See Lead, Chronate of. Zinc, Yellow Chromate of. Cusons. - Specimens of chrome iron, raw, and purified by

stamping and washing, from Norway, 35.
CHROME ALUM, CAYSTALS OF, 44.
CHROMIO ACID—Use thereof, in blenching palm oil, &c., 39. Samples of the acid, 46.

CHROMICM, GREEN OXIDE OF, 45. CHROMO-LITHOGRAPHY-Notice of specimens of, including

tinted lithography, 688. CHRONO-Typogaaphy - Awards made for, 688. See also Printing in Colours.
CHROMOTTPS.—See Printing in Colours

Cunovogromus. - Description of this instrument, exhibited

in the Austrian Department, 307. CHRONOMETERS. - Marine chronometers the most important of all machines for measuring time, 336. Invariable rate of going of the utmost consequence, ib. No Council Medal awarded from the great number ex-hibited, ib. Principles of construction bave been settled for some years without any material alteration, ib. Adopting the results of the trials at the Royal Observatory the only satisfactory plan of testing, ib.
Many makers have not exhibited, ib. English makers
to whom Prize Medals have been awarded, ib. Prize to whom Frize Medals have been awarded, do. Frize Medals awarded to foreign exhibitors, do. Single point in which any material difference in construction has been made, ib. Earliest inventions for this purpose, and the discovery made by Mr. Eiffe and Mr. Dent, (b. Mr. Loseby's the most ingenious construence, do. Method of compensation adapted by Mr. Dent, ib. Observations on the chronometer with a glass balance and balance-spring exhibited by Mr. Dent. 336, 337. Difficulties in m-king these glass springs, 337. Great

advantages would result from these difficulties being overcome, ib. See also Watches.

Chuard, -, 236. Chubb and Son, 500, 503. Chuffart, -.

Church and Chittenden, 596 Church and Goddard, 198, 204.

Charch and Goddard, 198, 203.

Cuncen Lux-T. Description of a monstrance exhibited by Cuncen Lux-T. Description of a monstrance exhibited by silversmith's art. 513. [Hele collection of articles for charch use in lativer, and silver grid and cassandled, 516.

Cuncas.—The speed of the charm first accelerated by the Americans, 35. Doubt as to whether too great or feel americans, 35. Doubt as to whether too great of the Camparant o

Chwalla, A., 367. Ciaudo, J., 351, 666.

CHAR CASES-Variety of specimens of, 676. CIGAR HOLDERS, See Amber, Merrichaum and Meerschaum

CINABETTE MACHINE. Description of a machine for making eigarettes, 198.

Cigans. Samples of different varieties and qualities of cigars and cheroots exhibited in the British Departcigars and cheroots exhibited in the British Department, 60. Samples of cigars from the British Colonies, 61. From Holland, ib. From the Grand Ducky of Hesse, ib. From Praish, ib. From Germany, ib. From Spain, ib. From Portugal, ib. From Algiers, ib. From Russin, ib. From the United States, ib. Caccinosa Banas—Specimens of, 46.

CINCHOLINE—Sample of, 47.

CINNABAR—Specimens of, 45, 47.

CINNABAR—The product of cinnamon, cassis, &c., at present confined to the Continent and Archipeingo of India, 62. Various samples exhibited; none equal to those from Ceylon, ib. Ciner (France)—Glass-works at, 527.

CITESC ACID-Samples of, 45, 46, 48. Civil Engineering, Architectural and Building Con-TRIVANCES (Class VII.)-Tabular elassification of objects in the Exhibition Into which this Class is divided. viii, ix. List of Jurors appointed for this Class, xxvii. List of exhibitors to whom Council Mednis have been List of exhibitors to whom Council Mechan may neen awarded, ivid. The liknof those to whom Prize Medals have been awarded, the And of those of whom Honeur-able Mention is made, it. Objects comprised in this Class not numerous, and generally speaking not important, 200. Circumstances which have tended Important, 206. Circumstances which have tended to limit the extent and importance of the contributions to this Class, ib. Comparatively light labours of the Jury in consequence, io. Opinion that their labours might have been somewhat devoid of interest but for the circumstance of the Exhibition Building itself, for the circumstance of the annotation Bulaing iterit, and the Model Lodging Houses erected near it having been brought under their consideration, 26. Eulogium passed on the Grest Building in which the Krhlibinon is placed, 206, 207. Commendation of the Model Lodging-houses erected under the anspices of H. R. H. Prince Albert, 207. Observations on the

various architectural models and designs oxhibited, 207, 208.

207, 208.
Clabharn and Son, 579.
Clabhurn, W. (Juror), xxvlii, xxxii.
Claes, P., 227, 229, 242.
Clair, P., 191, 304.
Clara, A., 483, 602.
Clart, G., 239.

Clarenbach and Son, 360.

Clarenc, R., 56, 163. Clark, —, 273, 425. Clark, B., 480. Clark and Donaldson, 425.

Clark, G, 620. Clark, J. and T., 352.

Clarke, J., 610. Clarke, e., 610. Clarke and Davidson, 676. Clarke, E., 208. Clarke, C. and J., 393, 479. Clarke, Esther, 468.

Clarke, James, 400. Clarke, Jane, 469. Clarke, J. P., 349. Clarke, Morgan, and Co., 99. Clarke, Morgan, and Co., 366. Clarke and Restell, 503.

Clarke, T. and C and Co., 503.
Classification of Subjects.—Tabular classification of subjects in the thirty classes into which the Eahihitlon is divided, v—xxii.

Classon, J., 121. Claude, L., 83. Claudet, A. F., 244, 274, 276. Claudet and Houghton, 201, 536.

Claudin, F., 221. Claus and Carron, 63. Clausen, P., 97, 197, 204, 370. Clay and Co., 549, 551.

Clay and Co., 549, 551.
Cary Manyacrears is.—Number of objects belonging to this class considerable and of great importance; nature of the various exhibits and countries from which sent, 578. Division of this group into various classes; ist. Bricks and tiles: general remarks thereon; objects

exhibited; particular remarks; names of exhibitors; exhibited; particular remarks; names or exmutors; awards, &c., 178.582, 20. Terra cottas; general re-marks; particular remarks on the specimens exhibited; names of exhibitors; awards, &c., 582, 583. 3ed. Gas retorts, fire-bricks, &c., and elemical ulemilis; trenatios thereou; objects exhibited, and awards, 584, 585. 4th.

Ginzel free-clay goods, 585.

CLAY PIPES -- See Pipes, Nucleig.

CLAY AND PLASTER, See, Words of ART IN-Notices of the

Case Avn P. Aversa, &c., Worss or Art 1s. Notices of the principal, \$25,000.

Cast, Porreas, Poncasa, &c., Percelain and pottery clays distalated from a deposit near Plumpton and in the office lays, \$12.

All the clays in the clays in the case of the clays in the c Deering, 14. Employment thereof in the manufacture of porcelain, fine pottery, and term cotta, ib. Specimens of porcelain and other citys of different qualities from Belgium, 23. Clays exhibited by the Egyptian tovern-ment, 24. Specimens of pottery clays from St. Omer,

CLAT, BYRACTORY (FIRE CLAY).—Refractory nature of the Steurbridge clay, 11. Purposes for which used, ib. Beda in contnet with coal generally yield refractory clays, ib. Facility with which this clay is worked, ib. elays. 8. Eachly with which this clay is worked, 66. Samples of fire elay from Belgium, 22. Quartases conplomerate with a sillelous cement, yielding material
absolutely refractory, 66. Use of the material, 26. Objects whiltend, 6. Refractory leits, fractory being, for lining the interior of blast furnaces from Niegburg, Chemical analysis of the Stourbridge elay or fire

clay; purposes to which adapted; various objects made thereof exhibited, &c., 584, 586. v-working Machings.—Number of brick and tile ma-CLAY-WORKING MACHINES. chines in the Exhibition, 202 - See also Tile Mu-

chines.

Clayton, G., 400. Clayton, II., 233, 242. Clayton, Mr., 382. Clayton, Shutleworth, and Co., 172, 234, 237, 212.

Clayton, Shuttleworth, and Co Cleaver, F. S., 613. Cleburne, R., 610. Clement, J., 55. Clement XIV., Pops, 322. Clercq, N. le, 165. Clerget, C. E., 689, 703, 727. Clebinger, J., 685, 511. Clibborn, Hill, and Co., 371. Charms, Collection of for Il

Clacues-Collectica of, for lithography, from Niederbronn,

25. Clifford, G., 41. Cliach, J., 331. CLINGHETER - Patent, for showing the inclination and trim

of ships, 217 Clinton, J., 332. Cloer, C., 55.

CLOGS. - Specimens of India-rubher clogs and over sloes, 500 Clocas, Astronomical, &c.—Spherical geographical clock, places whose longitudes are known, ib. Intended to be places whuse longitudes are known, b. Intended to be of more general nes than those ordinarily constructed, b. Astronomical clocks sometimes called regulators, 337. Little that requires special notice, b. Several of the umal construction, both English and foreign, b. They may now be had of all good clockmakers, b. Resson why so few Medals awarded, bb. Several with now

why so free Medala awarded, ib. Several with nor enagements, ib. Chelly on the resource prefetch, and examine the consequence of the control CLOCAS over the rest as to justify the Jucy in awarding them Medala, ib. Handsome collection from France, 339, 340. Nearly dead escapement in ornamental clocks, invented by M. Brocot, 340. Cheap house-clocks from America, Small weights or moving force which the American

elocks require, 340. Various forms of striking and chiming elocks and alarunes, 8. Also tell-tale or watercuming ciocks and alaruna, ib. Also tell-tale or watch-men's clocks, ib. Perpotual almana clocks, ib. Inge-nions contrivances displayed for effecting their different objects, ib. Gilt, porcelain, and essand clocks from France, 512. See also Ciocks, Astronomical. Turret Clocks. Watrhes.

Circle. Histories. Cloud-Guistens—Croskill's eled-crusher, well known as one of the most popular of our new inventions; its principal use, 227, 231. Description of Mr. Gibson's clod-crusher, ib. Prizes awarded, 242. Cloris.—See Historic Circle.

CLOTHING. See Wearing Apparel

Clongh, R , 338 CLOVER-SLUSS—Specimens of, in the British Department, 54.
Samples of clover-scells from Canada, ib. From Egypt.
ib. From the United States, ib.

Cleares and Sons, 400, 404. Cleares and Sons, 400, 404. Cleares and Sons, 400, 404.

pair of stones in a flour-mill, without stopping the mill, 173. Serew friction-clutch, commonded as a good invention,

Clymer and Dixon, 128. Coat. Thickness of the coal beds of South Staffordshire and Dudley, L. Preparation of a colamn representing a complete section of this coal, by Messrs. Bagnall and a complete earthen of this ceals, by Masser, Biggant and intervenion and infragrancium, the American of and from intervenion and infragrancium, the American of and from the intervenion and infragrancium, the American of south from the Discounterior and the profusery of the ceal districts of Continuation and Derivana, 120, 100-100 of order from the Storych Works, the Black actamated From the Storych Works, the Water, Li, Black actamated From the Storych Works, the Works, Jesson, ib. Importance of this specimen as an object of on the Ruhr, 5. Numerous specimens of coal from Turkey, of good quality, leading to the supposition that Turkey possesses, at a short distance from the capital, a considerable coal-field which may become an capital, a considerance content which may become an important source of wealth, 26. Machines, with revolving cutter wheels, intended for cutting coal, 201. See also Ligaite. Minerals.

3. Distribution—Liquid products therefrom; their

COAL OF GAS TAR-Oils and other products obtained from,

43, 44, 45.

COAL MINE MACHINEAY.—Apparatus for the extraction of conl, and ascent and descent of mines. 25. Description of apparatus, 45. Advantages thereof, 45.

COAL MINE MOULE.—Model of a coal mine worked by the

Hetton Company at Newcastle, 12. Accuracy of the model in all its details, ib. COAL WASHING AFFARATUS.-System of washing conl in-

At Washish Apparatus - System of washing coal lin-troduced into France, 4. Description of parifying apparatus of M. Bernarl, 4.5, 25. Superior quality of coke manufactured from coals thus purifield, 4. Tri-fling cost of washing by this system, 5. Specimens exhibited, 8. Adoption of the system by nating com-panies in France, ib. Erection of an apparatus at Newcastle, 6. Newcastle, ib. Coalbrook-dale Company, <u>175, 498, 499, 500, 502, 685, 706,</u>

707. Cnates, E. J., 587. Coath, T. (Associate Juror), xxviil.

Continues and Co., 350.
Co.ars.—See Hearing Apparel.
Conts. Mr., 201.
Conar. —Specimens of, from Sieges, 31 Perfect method

subspeed by Mr. Graff in working it, 31. Specimens of Collard, Messrs., 328, 329, the richest and purest ores of Scaadinavia furnished by Collas, A., 613, 688, 691, 70 be Tunnhore Cohalt Works. 33. Preparations of Collas, M. A. C., 41, 53. the richest and purest ores of Scandinavia furnished by the Tumberg Cobalt Works, 33. Preparations of the cobalt, 45. See also Nichri, Cobb, T., 158. Cobbold, E., 44. Contao Chorus-Specimens of, 357, 338. Specimens of dycing Coburg cloth, 459.

Cochingal — Nature of this dye explained; samples of the insect and of the coleuring matter shown, 85, 166, Coehius, E. E. Cochius, E. E., 44. Cochois and Colin, 478. Cochran, J. W., 201 Cochran, J. W., 201. Cochrane, A., 507. Cochrane, J., 507. Cockburn, Messrs, 27. Cocker, Itanling, 199, 204. Cocker and Sons, 507. Cocker, S., and Son, 10, 48), 503. Cockerell, C. R. (Juror), xxxi.

Cockerill, -, 138.

Cockerill, J., 22, 23, 172.

Cocks.—Improved water-cock for connecting pipes without breaking joints, Est. Hermetic tap, from France, a good and simple contrivance, not likely to get out of onler, ib.

order, ib.

COCOA AND CUCCOLATE — Samples of, exhibited in the
British Department, ib. Sample of inferior occoa from
the Mauritins, ig. Samples of cocoa from Barbadoes
and Trinklad, ib. Extensive collection of checolates
from France, ib. Samples of checolates from Science, ib.

from France, b. Samples of chocolate from Switzer-land, ib From Spain, b. From Prassis, b. From the Netherlands, b., Cocoa-ver Frank.—Varieus specimens of manufactures from occos-nut filter, 101, 662. Cocoa-ver Out.—See Oil.

COCOA NETS Samples of, from Ceylon and the Mauritius, 57. Coeu, A., 376 Con-Lives Ott.-Extracted by steam heat, and rendered

colourless without the use of charcoal, 45. Samples of this oil, 45, 45, 45, 49. Coed Talon Mines (Film), 11. Sec also Coals.

COTTEL—Observations on the samples of codec, 58. Many good samples exhibited, ih. Some of excellent descrip-

good samples exhibited, ib. Some of excellent descrip-tion from British Cokolles, ib. Samples of R. Snort-den's patent purified coffee-nibs, ib. Samples of coffee from the East Indies, 35, 50. From Java, 20. From Borneo, ib. From Ceylon, ib. From Norfolk Island, ib. From S. Helena, ib. From Demerara, ib. From Trialish, ib. From West Africa, ib. From Portugal, From France, ib. From Turkey, ib.—See also A. From Turkey, ib.—See also

Corres-Leaves.—Dr. Gardner's pulp and coffee leaves worthy of notice, & Afford a really palatable drink when infused as tea is, ib. Coffey, J., 296 Coffey, T., 200

Corrix Franctice - Specimens of, 507, 508. Coben and Orr, 50.
Colgnet and Son, 44, 165.
Colgnet and Son, 24, 165.
Colmbatore.—Collection of the woods of, contributed by

the Indian Government, 131. Coimhra, the Nunnery of, 641.

Commer pursers.—Examples thereof in the Exhibition, 200. Const.—Series of French coins of legal currency, 252.—See also Dis-rinking, Works in, &c. Medula and Coins. Cons-wramma Macruss.—Observations on the want which has called these machines into existence, 2

Practice at the Bank of England in weighing coin, sh Difference in the weighing-machines, and inconvenience arising therefrom, ib. Machine invented by Mr. Cotton, the Governor of the Bank, which removes all Cotton, the Gorrance of the Bank, which reserves all difficulties, ib. Description thereof, 252, 252. Swing resulting from its use at the Bank, 251. In a comparable constructed by Capacian Smith, ib. Description Herrof, ib. Machine from France, 261, 262.

CORE.—Superior quality of color manufactured from coal washed by 31. Bernaria purifying apparatus, ā. Speciesborne. Lord Line.—See the Coal.

Colborne, Lord (Juror), xxxi.

COLUMNUM, ACETIC EXTRACT OF-Samples of, 50.

Colemica, Acerte Extended Co. 28. Colemin, R., 226, 227, 228, 242. Coletta-Lefebyre, 5.28. Colin, J. R., 27, 561, 566. Collines, Simon de, 204.

Colladen, Professor D. (Juror and Associate), xxvil.

Collen, -, 276. Collette-Doucet, F. L. 23 Colliard and Comte, 351. Collie, -, 279. Collier and Son.

Collier and Son, 507, Collin, C. E., 252, Colling, C. C., and Co., 172, 203, 507, Collins, Florence, 629, Collins, Robert Nelson, 44, Collinson, Rev. J., 163, Collinson, Rev. J., 163, Collinson, Rev. J., 163, Collins Gr., 520, Collot Brothers, 259, Collot Brothers, 259, Collins Gr., 17, 278,

Collag. R. and L., 278.
Colman, J. and J., 27.
Colman, J. and J., 27.
Colman, T. de, 310.
Cologue. Fine specimen of glue from, 165.—See also Eun de Cologue

Celonization Assurance Corporation (Australia), 71, 76, S3 90, 93, 148. COLOUBED GLASS.—See Glass

Commission and Caleston See Links.

Commission Arthrew Sections of 47, 48, 501—See also Caleston Arthrew Sections of 47, 48, 501—See also Caleston Francisco of, 45

COLOURS, MINURAL—Samples of, 43, 45.
COLOURS, PAINTERS'.—Specimens of painters' colours exhibited, 43, 44, 45, 46.—See also Mineral Colours. White

Painte COLOURS, PAPER STAINERS—Samples of, 46, 48.
COLOURS FOR PAINTING ON PORCELARS—Set of, exhibited, 44.
COLOURS, PRINTING IN.—See Lithochrony. Printing in Oil

Colquhoun, Lieut,-Col. J. N. (Juror), xxvii, xxxl. Colt, S., 23

COLUMNS (MARRIES) .- General remarks on the marble columns, pedestals, &c., exhibited; objects exhibited, awards, &c., '63. Fusts of columns from Tuscany, ib. Marble columns from Belgium, ib. Two columns of large size and great beauty from a quarry in Davonshire, ib.

Colville, Anna, 44. Colvin, J. R., 122. Comba, F., 647, 648. Combes, C. (Juror), xxvii.

Combs., C. (Jure), 2xvs..

Combs.—Specimens of Ivory combs from Austria, France, and the United States, 522. Specimens of tortoise-shell and iron combs exhibited in the British Department, and also in the French Section of the Ex-

hibition, 600.

Comins, J., 226, 242.

Communion Services (Silver, &c.).—Fine communion serrices, of silver git, and in the medieval style, well engraved and chamelled, 516. See also Courch Plate.

COMPASSES, ASTRONOMICAL — Description of the instru-ment, 255. Purposes for which intended, ib. It has rendered good service la magnetic districts where instruments constructed with magnetic compass bave failed, ib

COMPASSES, DRAWING-Specimens of, 254.
COMPASSES, MARINERS'. - Experiments tried with one of Mr.

Dent's to ascertain the effect of the discharge of guns Deal's to ascertain the effect of the discharge of guns thereon, 212. Undisturbed state thereof during the experiments, & Various descriptions exhibited, id, ingenious self-discetor compuss, 232. Particulace in which it diffees from the ordinary compass, & Cone-compasse, and brans gimbal compasses for use In small boats, 22 Compasses, Miners'. - Specimens of the miners' compass, 224. Miners' compass from Belgium, used in dater Miners'.- Specimens of the miners' company

mining the co-ordinates of a miles, is.

Corresses, Peck ex-Specimens of, 281.

Corresses, Persexer. Purposes to which sdapted, 261.

Corresses Persexes Rollers. See Printing Rollers.

Corresses Persexes Rollers.

Concan.-Government and mercantile yards of Bombay

chiefly supplied with timber from the, 132.
CONCENTRATED ALL M .- See Alumina, Sulphate of. CONDINENTS. - See Spices

Coxe Courasses. See Companies, Mariners'. Conerding, Ida Von.

Conference Any .- This species of preparations consisted of

fruits preserved with sugar, and confections, com-prising sweetments made both from sugar and from prising Sweetments made notes from Hugas mass accordenced to 60%. Mosphritty of ancient confections, Louev and the juice of the sweet (or sugar) cane being the principal, ib. Remarks as to the intimate countries of the sweet which so long existed between the preparation of conserves and the compounding of drugs, 636, 637. Sugar in accient times more commonly captored by physicians for the disguising of disagreeable mediphysicians for the disguising of disagreeable medi-cioes, and in the planmaceutheal preparation of syrups, electuaries, and confections, 525. Not till the neven-teenth centrory that the art of making sweetments became established as a fashionable feminine accom-pliance, and taggit publicly both in France and Eogland, 527. Description of the manifacture of complishment, and taught publicly both in France and Eogland, 637. Description of the manufacture of comfits and other boutous, 637, 632. Description of the manufacture of chocolate, 338. Remarks on the exhibits from America, the British Colonies, China, Egypt, 18 and the various countries on the Continent of India, and the various countries no the Continent of Europe, (33.64). Note on the large sugar confec-tionary traile of France, (38, 50). Enormous extent of the confectionary traile of the United Kingdom, §20. Classification of exhibitors according to the various countries; list of awards; names of exhibitors and articles exhibited, 641, 542. Conformation of the Name of the Conference of the

faucy ornaments exhibited, 453.
Conyactroyra' Mourry, -Varieties of well-made jelly and

Cake moulds, 602.
Congreve, Sir W., 443.
Congreve Marches.—See Chemical Matches.

Contact, Marrian-See Chemical Matches.
Connick, A. oft, E. Connick, A. oft, E. Connick, A. oft, E. Connick, A. oft, E. Connick, A. oft, E. Connick, A. oft, E. Connick, A. oft, E. Connick, E. oft, E. Connick, E. oft, E. Connick, E. oft, E. Connick, E. oft, E. Connick, Mining Commission of the Previous Connick, Mining Commission of the Previous Connick, E. Connick, Mining Commission of the Previous Connick, E. Connick, E. Onto, E. Onto, E. Connick, E. Onto, E.

Cooke, -, 288 Cnnke, E. W., 315 Cooke, H., 198. Cooke and Sons, 451

Cookes and Sons, 546, 550, 634, Cookes and Sons, 546, 550, 634, Cooking Apparatus - Specime uens of, 504, 506, 508, 509.

Cooksey, H. R., 507. Cooksons, Messrs., 527

Conmbe and Co., 202, 503.

Commbe and 10, 202, 503.
Cooper, C. 22.
Cooper, Sir Astley, 314.
Cooper, M. Barnill, 202.
Cooper, D. and J., 322.
Cooper, D. and J., 322.
Cooper, J. Querey, avviii, 223.
Cooper, J. Querey, avviii, 223.
Cooper, J. Querey, avviii, 223.

of all kinds rewarded with Prize Medals, 602 Cooreman, A. J., 371. Cootnis, Government of, 154

Cotton, Covernment of 153.

Corneal—Fire smapple of copel, from Angola, Portugal, 25.

Cope and Collisson, 253.

Cope and Collisson, 253.

Copeland, Fattor, Copeland, Caller, Copeland, Alderman W. T., 203. 540, 657, 634, 253.

Copeland, Alderman W. T., 203. 540, 657, 634, 253.

Copeland, Alderman M. T., 203. 540, 657, 654, 253.

Copland, Barran, and Co., 56, 653.

Copland, Barran, and Co., 56, 653.

Copland, L. M., 103, 578, 653.

Copeland, J. A. 203.

Copperation, 7, 42.

Coppers, F. (Suroy), XX.
Correa Avo Correa No.
Correa Avo Correa Open.—Specimens of tin and copper
ores from Cornish mines, 12. Products obtained by
the mechanical preparation and fusion of the ores, 5.
Important medifications introduced by Richard Taylor

Important modifications introduced by Richard Taylur in the mechanical preparation of copper ores, it. Chiefly applicable to the poor ores cailed failvens, it. Objects exhibited, it. Datalla of the neeration, it. Improvement in the weshing of copper by Mr. Taylor's invention, ib. Collection of ores of copper from mines

in Perthabire, 13. Copper ore obtained from South

Australia, L. Beautiful specimens exhibited by the Barossa Range Mining Company, ib. Series of nres from the Burn-Burn mines, it. Yield of copper from these eres, ab. Smelting of these ores originally at Swanses, il. Construction of an establishment lately on the spot by Messrs. Graham and Hallett, ib. Pre on use spot of Messar, transm and Hallett, it. Pre-sence of phosphate and chloride of copper among the specimens exhibited, it. Geological series from the copper mines of Kawali, New Zeakand, it. Specimens of cupriferous pyrites and blue carbonate of copper, it. Copper cres from the Great Barrier bland mines, it. Specimens from Brodie's mines, ib. Richness of the ores of copper from Lake Superior and Lake Huron, 16. Products from the Bruce mine, ib. Existence of copper ore In Nova Scotia, ib. Blocks of native copper discovered at Lake Superior of surpassing richness, 17, 18.
Specimens of copper ore from Boston, Massachmetta,
18. Notice, from the Report of Mr. Jackson, on the
deposit of native copper in Lake Superior and the liel

TER MANUFACTURES.—Contributions not numerous, 498. Corra Manyacturus.—Contributions not numerous, 428.
Improvement in form, &c., of the copper manufacture
of the United Kingdom, &c. Copper culinary utensila
giving way to resuch of Iron, &c. List of Prize Medals
awarded, 450 et acq.
Corra, Niractur or -Samples of, 45.
Corra, Niractur or -Samples of, 45.

Corra, Utua or—Specimen of all.

Corra-Darra Fasses—Meera, Grigit copper-plate press,

12. Parent steam press for plating the finger-sites

Corra, Sectors, or — Nethold of presstation, ill. Samples

thermal, 44, 45, 45, 26.

Corra Tarra, Fasses—The Proposition, ill. Samples

thermal, 44, 45, 45, 26.

Corra Tarra, Ta

oppock, J., 41.
Coral, II., and Sons, 472.
Conal, Fine examples of red and black coral exhibited,

Cona...—Fine examples of red and black coral exhibited, 154. Awards tu the ethibitors, 8. Corcoran, B., and Co., 202, 563. Comea.or, &c.—Limited extent of the collection exhibited, 222. Improvibility of forming any idea of the progress made of late years. In these mounfactures, ib. Speci-near exhibited, 222, 233. See also Rope and Cordays.

mens exhibited, 272, 213. See nine Rope and Cordupe.
Cordinat, A., 269, 210.
Cordinat, A., 269, 210.
Cordinat, J. C., 255, 210.
Cordinat, J. C., 255, 210.
Cordinat, Apricultural Bourl of Spatis), St.
Cordinat, Apricultural Bourl of Spatis), St.
Cordinate, Apricultural Bourl of Spatis), St.
Cordinate, Apricultural Bourl of Spatis), St.
Cordinate, Apricultural Bourl of Spatis), St.
Cordinate of Spatis, St.
Cordinate of Spatis, St.
St.
Cordinate of Spatis, Spat

and glass from, 14, ax Woon.-Hesemblance of this wood to cork, Might possibly be employed as a substitute for cork in some of its applications, is. Specimens exhibited, is. Cornaldi, D., 322 Conx Churstens. - See Linseed and Corn Crushers.

Conx Mills.—See Grinding Machines.
Countlan, Works in.—Ten service of coloured cornellan from Oberstein, Prussia, 517.

Cornelius and Co., 503. Cornelius, Director, 683 Cornell, Lycil, and Webster, 364.

County, J., 233, 242. County-A-riven, Superiority of M. A. Sax's cornets-apiston, 332.

Cornilion, J. II., 520.

Cornish Mines.—Specimens of tin and copper ores there-

from, 12. Cornwali.—Samples of various cerealia cultivated in

Cornwall, 52. Corridi, Professor F. (Juror), xxvl.

Corridi, G., 44. Corrosive Sublimate - Specimen of, 45.

Corry, Blain, and Co., 372. Corry, J. and J., 3.43.

Coasers - Specimeos of, exhibited, 483. See also Wearing

Cosers - Specimeos ot, exmus Apparel. Cort, Mr., L. See also Iron. Cortie and Rac, 164. Coste, F., 22, 585. Costoll, Professor A., 685, 704. Cottam and Hallen, 563.

Cotterill, E., 563. Cottingham, N. J., 503, 686, 606, 713 Cotton, W., 260.

Cotton, W., 250.
Cotton, W., 250.
Cotton Mani ractures (Class XI.).—Tabular classification of objects in the Exhibition into which this Class List of Jurora and Associates appointed for this Class,

List of exhibitors in this Class to whom Prize Medals have

Liet of exhibitons in this Class to whom Prize Medals have been awarded, Iax. And of those of whom Honourable Mention is made, ab. Remarks on the cotton manu-factures exhibited, 347, 282. Articles exhibited and prize awarded, 343, 349. Corrow, Kaw.—Unrivalled excellence of the long-staple cottons of the United States, 52. Total quantity of rotton amonally imported look forest Britian, 33. Table showing the proportion in which It is Imported from different countries, ib. Samples exhibited; remarks thereon; names of exhibitors; prizes awarded, &c., 23 26. Useful collection of the cottons of different countries arranged so as to show the peculiarities of each fibre, 33. Extensive series of cottons imported into Liverpool, exhibited in the Liverpool collection of imports, ib. Uncertainty existing respecting the botanical distinction of the various cotton plants of different countries, ib. Classification thereof by Dr. Royle, ib. Remarks on the important discovery by Mercer, of the influence of caustic aikali io modifying the fibre of cotton, 24. Large and highly interesting collection of raw cotton from hadis, ib. Statistics reistive to the cultivation, consumption, and export of cotton, as regards India, sb. Chief varieties of cotton Indigenous to India, sb. Chief causes of the inferiority of the Indian cotton as compared with the American cotton, ib. Promising sample of cotton from Borneo, ib. Interesting series of samples of cotton from Maita, Promising specimens of cotton from Port Natal, Samples of cotton from the West Coast of Africa. ib. Remarks on the various specimens and samples of cotton from the West India Islands, ib. Samples of cotton from New South Wales, ib. Great superiority of the collection of long-staple cotton from the United States, ib. Specimens of cleaned and uncleaned cotton from Shanghae, ib. Several good samples of cotton shown in the Egyptian collection, ib. Interesting and promising samples of cotton from Algiers, demonstratremarkable manner the progress of that colony, ib. cosony, io. Samples of cotton from Fortugas, in. Samples of cotton from Russia, ib. Fine sample of cotton from the Society Islands, ib. Sample of raw cotton from Spain, the growth of the province of Serille, ib. Valuable and interesting series of samples. or of cotton shown in the Turkish collection of raw produce; general character of these cottons, ib. See also Raw Produce.

COTTON-SEEN CARE-Sample of, from Edinburgh, a novelty worthy of especial notice, 55. Extensively used as a cattle food, 36.

COTTON-SEED (III.—See Oils.
COTTON-SEED (III.—See Oils.
COTTON-SEED NING, &c., MACHINERY.—Spleodid series of nineteen machines, in the British Department, showing
the whole of the process of spinning cotton, III. Other he whole of the process of spinning cotton, 152. Other specimens of some of ibesa machines, distinguished by peculiarity of construction, important Improvements, or beauty of workmanship, ib. Few machines for the manufacture of cotton in the Foreign Department, ib. Machine from Panet. Machine from France, called "L'Epurateur," for open-ing and cleaning cotton upon a new system, promising nys and ckeaning cotton upo a new system, promising great advantage, 125, 126. Large roving frame, of ex-cellent workmanship, also from France, ib. Well-made: "soft-hobbin" frame from Beiglum, 126. Drawing frame for cotton from the United States, ib. Saw-gin for cotton, also from the United States, ib.

COTTON, SUBSTITUTES FOR.—Large number of fibrous sub-stances used as substitutes for cotton, shown in the various collections of raw produce, ico. Nature of

these substances, articles exhibited, names of exhibiters, and awards, 160-1

Corron Waste—Specimens of, restored after being used in cleaning machinery, 45.
Corron Yann.—See Yara, Cotton.

COTTON 1 Ann. - ce rura, comps.

Cottons (coloured woven). - General remarks on the coloured woven cottons exhibited, 348. Specimens

exhibited, ib. See also Calicos.
Couder, A., 582, 702.
Couder, and Soucaret, 161, 364.
Couliet, Societé Annoyme de (Belgium), 501.

Coulsux and Co., 489.

Coulaux and Co., 420.
Coulboin, ..., 200.
Coul

List of the Members of the Council, xxv COUNCIL MEDALS .- Number of Council Medals awarded Minute of Royal Commission on the award of the Council Medal, xxiv, xxv. List of Exhibitors to whom the Council Medal was

exiil, exvil.

Coupin, J., 481. Cour, L. F. de la, 50

Couracrie and Co., 38, 44. Courtauld, S. (Juror), xxviii, xxxi. Courtauld, S., and Co., 362. Courtepec, Du Chesney, 321.

Courtin, Reoult, 62

Courtuis, -, 38

Courtois, —, 38. Courtois, Antoinc, 331, 534. Courtois, Auguste, 331. Courtois, E., 322. Courvoisier, F., 342. Cousins and Whiteside, 341, 342.

Cousin, -.

Cousins and Sons, 49 Cousteliers, 401. Couvert and Lucas, 545, 550

Couvert and Lucas, 243, 253. Coventry Ribbons Committee, 254. Cowan, L., 225. Cowan and Sons (of Edinburgb), 198, 426, 431, 448. Cowan and Sons (of Shadweil), 613.

Cowen, J., and Co., 584, Cowley and James, 564.

Cowiery and Januer, anna Cowing, J., 525, 598, 502. Cowper, E., 125, 598, 502. Cowper, E., 125, 598, 502. Cowper, E., 125, 502. Cowies E. (Associate Juror), xxvi, xxxi. (Excowinded and Loveloy, 128.

Cox Brothers, 371.

Cox Brothers, 321.
Cox, F., 615.
Cox, G., 254, 368.
Cox, G., 254, 368.
Cox, R. S., and Co., 365.
Cox, W. H., and Co., 360.
Coxe, Col. R. E. (Juror), xxviii.
Coxe, W., 233.
Cuxeter, J., 344, 345, 346.
Coxess and Greatrey, 321.

CHAR OIL - See Oils.

Crabtree, T., Crabtree, J. G. (Ju 475, 718, 723, -, 271 (Juror), xxx, xxxii, lxxxviii. (Exhibitor), CRADLE IN BOX-WOOD-Notice of a, by W. G. Rogers, 551,

686, 694,

cos, 224.

draulic crane for unabipping coals and for railway sta-

stions, docks, and quays, 183. Working model of a pa-tent steam travelling crane for lifting and removing heavy weights in timber-yards, goods-depôts on rail heavy weights in timber-yarda, goods-depost on rau-ways, &c., & Description thereof, 184. Iron crase for weighing and lifting, constructed on an ingention principle, & Patent weighing crans for raising heavy goods, and at the same time obtaining their weight, &c. Patent safety apparatus, for preventing those of life and property when a rope or chain breaks in the shafts of Model apparatus for the extraction of ores, and for the free and safe ingress and egress of miners to and from the mines, it. Description of this apparatus, it. Model of an improved hobsting machine for raising and lowering goods, which can be worked by

hand or by steam, ib. CRAPE - Sperimens of, 365-368. Caasa. - General excellence of the samples exhibited, 371. CRAYATS. - Specimens of exceedingly beautiful crayats from

France, 482. Craven, J., and Son, 358

Crawford, --, 82. Crawford, H. M., 390. Crawhali, J., 196, 204.

CHATONS Speciment of, 455.

Cresk J., 480.
CBEAN OF TANTAR—An important article of commerce in

wine-growing countries, 47. Samples thereof, 50. Cagas-Specimens of, 372, 373. CREATIVE - Specimens of, exhibited, 44.

Cheatining Specimens of, 44.

CREATINIAE—Specimens os, ses. Cremar, J., 545, 550. Cazotorz.—Prepared from tar, 43. The term "creosote" applied rather indefinitely in Germany, 48. Samples of crossote, 47. Crespel-Delisse, T., 63

Crospie-Delisse, I., 63.
Cresson, E. (Juror), xzix.
Cresswell, -, 283.
Cresswell, T. J. and N., 516.
Cresslek, W., 447.
Creuse, A. F. (Juror), xxvii.
Creyke, Lleut, A. S. (Jasociate Juror), xxvii.

Cribb, J. T., 680.

Critical, T., 600.

Chiboto, B., 19, 195, 294.

Criction, J., 292.

CHERTE BER, Ke.—Implements and appliances used in cricket, 677. Number of Contributers, 48. Ingensity of the manufactures, is. Remarkable reachlores of the contributer of the critical contributer of the contribu

Exhibitors, i6.

Exhinators, to. Crickett, -, 250. Cristofoll, A.,574. Cristofoll, A.,574. Critchley, Brinsley, and Co., 365. Critien, E., 529.

Cascurr-weak Specimens of, 469.

Croceo, C. (Juror), xxx, xxxii. Croce, F., 375, t'roisat, J., 198, 388. Croll, --, 44.

Croll, —, 44.
Crombie, Ju, and Co., 352.
Crompton, T. B., 427.
Crock F. 567.
Crock F. 567.
Crock W. 504.
Crock, W. 504.
Crock, W. 504.
Crock, C., 719.
Crosier, — Le, 475.
Cross, C., 197.
Cross, G., 449., 451.
Cross, S., 121.
Cross, W., 382.
Cross, Cross, worked.

Cross, W., 522.
Cross worked from a single block of granite from Sweden, 356. Cross of large size, scalptured in Caes stone by the Hon. Mrs. Ross, 357.
Crosskill, W., 173, 202, 227, 231, 233, 236, 238, 241.
Crossky and Sons, 473, 473.

Crossman, Lieut., xxv. Croughton, W. P., 54. Croutelle (Nephew), 360.

Crowley and Sons, 242. Cnows Glass.—Methods of manufacture of this description of glass; particulars as to improvements, &c., effected therein, 525, 526. Prize Medais, &c., awarded for crown glass, 536, 537.

Crutchet, V., 549, 550, 714. Crutchley, -, 222. Caretnizs. -- Use of crucibles for metallurgle purposes, by copper and brass founders, i4. Execilence of man

facture, and quality of elsy, 14. Crueibles made of a mixture of plumbago with clay, intended for fusing steel, 23. Description of the erucible, ib. Crucibles steel, 23. Description of the crucible, ab. Crucinies of refractory (say only, ab. Crucibles manufactured by M. Deyeau of Liancourt, France, 27. Reputation of the plumbago crucibles of Bavaria, 32. Black-lead crucibles, 296. Purposes for which adapted, bb. light-reputation of these rerubles, ab. Veyleng, ab. Specimens of fire-city crucibles exhibited, 85. New Complex of the city and brick crucibles from West Samples of fire-city and brick crucibles from West Samples of fire-elay and hrick crucibles from West. Prussia, 585. Samples of crucibles manufactured of an admixture of fire-clay and plumbago, adapted for purposes where an indense heat is employed, id., Specimens of black-lend crucibles from Bavaria, id., Plumbago crucibles of good quality from Bavaria, id., Plumbago crucibles from the Linted States, id. Crummack, E., 509, 600.

Crutwell, Allies, and Co., 12, 13. Curreat. See Flint Glass.

Carytal Forwards.—Commendation of this work; a Council Medal awarded by the Jury, but withheld by the founcil of Chairmen, SSL. Caveral Palace (Exhibition Building). - Remarks on the Exhibition Building as an architectural design,

206, 207, 502, 688, 696. Suggestion for the erection of a statue to Prince Albert on the site of the Exhibitton Building, 6:0.

Catstallowmarut. Remarks on the verious collections of crystals exhibited, 3:0. Cena. Specimens of dye-woods from Cuba, 91. Specimens of several of the textile vegetable fibres of Cuba, 103.
Extensive and interesting collection of the woods of

Cuba, 154. List thereof, 154-156. Cubero, J., 650, Cubero, Specimens of, 45, 88.

Conservat. Collection of the woods of, contributed by the Indian government, 127, 128. Cuff. R., 384.
Cugnot, A., 507.
Culinary Utersha. - Cast-iron vessels, coated inside with

enamel, from Charlevilla, 26.
Culverwell, W., 507.
Cumaralann.—Best plumbago used for the manufacture of

CEMERIAND—Best purmings uses on an inner man-hasel-lead specifis, obtained from the mines of, 450. Cumming, A. (Associate Juror), xxix. Cumming, Rev. J. G., 355. Cumont-Deviercy, —, 371.

Cumdall and Addey, 424, 452, 454. Cundy, S., 564, 682, 696, 713. Cunningham, J. S. (Jurer), xxviil. Crrs, Surra.—Cup of cast and ebased silver, of very good shape, representing the history of the borse, in seven medallions, from France, 514. Cup of cast silver, par-tially gilt, representing subjects of the chase, also

from France, st. Crassen Stones, Specimens of curiog stones made of greenstone trap, 536,

Curmer, -, 412. Certain Poles, Glass, 537.

CRETAIN FOLIA, GLASS, 557.
CLETAINS AND HANCHING—Principles on which the ornamentation of textile hangings proceeds, 729, 730, Remarks on the Freuch father is this section, 739, Frassian, Austrian, and Russian fabrics, ds. False taste displayed in the decentation of chitarce; true principles that should be observed, ds. Defective designs of work and endourned musitus for curtains, it.

Curtet, -, Jun., 84. Curtis Brothers, and Co., 91. Curtins, J., 44.

Cussous and Co., 451 Cur-Gass Prize Medals, &c., awarded for, 536, 537. Cutch, 11. 11. the Rajah of, 89, 95.

Cuthbert, J. S., 683 Cutler, J., 496.

Certeav Ann Engr Toots (Class XXI.) .- Tabuiar classification of objects in the Exhibition into which this Class is divided, xix. List of Jurors and Associates appointed for this Class, xix. List of Exhibitors in is Class to whom Council Medals have been awarded, The like, of those to whom Prize Medals have Iciii. Lie like, of those to whom Prize Alcoha have been swarded, activ, xev. And of those of whom Bioneurable Mention is mudo, xev, xevi. Extent and general characteristics of this Class, 485. Surgical instruments and weapoos of war not included under cultery, ib. Number of exhibitors; number British and ounsher foreign, ib. Comparative predictory of the respective countries in the prediction of these

than the cutlery of England, is. Pre-emisence in cutlery maintained by England, is. Excellence of the articles exhibited, is. Mixed collection of cutlery and articles exhibited, io. Mixed collection of cuttery and tools from the Zollverein States, 485, 486. Collection from Austrio chiefly consists of simple implements of husbandry, 486. Manufacture of watch-work in Switzerland renders delicate files a matter of necessi seriand renders delican files a matter of uncersity, å.

Numerous oblication of files calibilitei, å. Belgian

quality, å. Miscellaneous collection of cuttery and

tools from France, å. Woodnisses implements from

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from France, and the State

Jackson, åb. Complete assortment of files of varian

sizes, åb. Knion of van outsittes of cut steel (bard and

combinations of ext and by zet etc.). Superior reflex soft) In the same article, (b. No advantage over the combinations of cast and bar steel, ib. Superior order of cutlery from London, (b. Articles of Mr. Darham deserving of a Prize Medni, ib. His consenting to act as a Juror disqualified him from competing, ib. Various articles of considerable excellence from Ireland and Scotland, ib. Manufacturing tools largely supplied from Birmingham, ib. Seythes and files from Stour-bridge and Warrington, ib. Observations on the articles contributed by the colonies, 486, 487. Various Hindoo and Malay tools in the Indian Department, 487 titingoo and Malay fools in the Indian Department, 487. Extensive associations of cult by from France, & Extensive associations of the cultery from Beigium, & Cutlery well finished but the metal convenient ord, & Fair quality of the cultery from Switzerland, & Cutlery well finished but the metal convenient ord, & Fair quality of the cultery from Switzerland, & Cutlere loon of pocket Manufacture generally improved in France, Beiglum, and Switzerland, & General remorks on the contribution from Austria and the swutters natter of General contribution from Austria and the swutters natter of General contribution from Austria and the swutters natter for General contribution from Austria and the swutters natter for General contribution from Austria and the swutters natter for General contribution from Austria and the swutters natter for the contribution from Austria and the swutters natter for the contribution from Austria and the swutters natter for the contribution from Austria and the swutters natter for the contribution from Austria and the swutters natter for the contribution from Austria and the swutters natter for the contribution from Austria and the swutters natter for the contribution from Austria and the swutters natter for the contribution from Austria and the swutters natter for the contribution from Austria and the swutters natter for the contribution from Austria and the swutters natter for the contribution from Austria and Austria many, ib. Excellence of the specimens contributed, ib. Observations on the contributions from the Zollveroin and Northern States, 487, 488. Small collections from Denmark, Sweden, and Norway, ib. Little that re-Denmark, Sweden, and Norway, ib. Little that requires notice, ib. Ordinary quality and description of the articles exhibited, ib. Contributions from Russia, ib. Character and quality of the articles exhibited, ib. Small collections from Spain and Partugal, ib. General remarks on the contributions from Turkey, Egypt, and Tanis, ib. Scissors from Turkey deserve special notice, ib. Very fow articles exhibited from China, ib. Singular form of ruzor used for shaving the besid in China, ib. Contributions from the United States, ib. Signal proofs

of proficiency in such manufactures, &. Objects ex-hibited, and awards of Council Medals, Prize Medals, and Honourable Mention for this Class, 488-491. CUTTEMENDOO. - Specimens of Cuttemundoo, or Kattlmunitoo, from Vizagepatam, promising to prove a valuable addition to the India rubber series, 74.

Cuyere, Madame, 199, 204. Cuyper, J. F. de, lxx, 349. Cwm Avon Iron Company (Glamorganshire), 13, 189. See also Taplate.

Cyanogen - is rapidly converted into summonia, 40

CYMBALS. - Improvements in this class of musical instruments, 332.

-, 103. D. Do -, of Marcia, 100. D. Do —, of Marcus, 100.
D. Do —, of Saragons, 100.
Dabaret-Tempé, 470.
Dabaret-Tempé, 470.
Dafrique, F., 518.
Dagres, N. F. Le (Associate Juror), xxix.
Dagoerre, —, 273, 276.
Dag ERROTTEE APPARATIS.—General remarks as to the

Invention, nature, and use of photographic cameras. Improvements made therein, ib. Description of 274. Improvements musto ineven in. Description of Ross's camera, 274. Principles and construction of other cameras exhibited, 274, 275. Machino for clean-ing and polisbing the plates, 315. Portable mercury box, i6. Plate-holders, i8. Head-rests, i8. Glass and porcelain dishes for preparing sensitive plants, ib. I'se made of lodine in photography, 39. See also Photography Glass, Photography.

articles, 485. Importance of this branch of manufactors in England, it. Wite september 1997 of English steel wares even in the Middle Ages, it.

Blades of Theled and Damasers scarcely more value to the English, 277. Chroate Department of the Depa the English, 211. Unaracteristics of the Praguerren-type pictures exhibited in the French Department, 278. See also Photography.

Daguet, F., 271, 529, 537. Dakin and Co., 202. Dalby, J., 338 Dalgetty, A., 199, 204 Dalgleish and Co., 459 Dallamoda, T., 562, 564. Dalling, -, 388. Dalphin, J. E., 23 Dalton, Capt., 668

Damainville, --, 66.

Damasceneo ison. - Specimens of the art of damascening

DAMASENED LIOU.—Specimens of the art of damasteening and inlaying iron and copper, from Liège, Belgium, 517. Also from Madrid, h. DAMASE (LION)—Large costement contributed; excel-lence thereof, 571, 572, 573. DAMASEA (Worsted)—Specimen of, in the British Depart-ment, 356, 358. Damasks for furniture, of excellent architecture, from Austria 576.

meett, 3-9, 3-8. Damasks for furniture, of excellent combinations, from Austria, 3-6. Specimon of da-masks from France and Saxony, 3-7, 3-8. Dawaw Tantz Liarsa. Specimens contributed, 371, 372. Faulty teste predominating in the ornamentation of damask table linen; serious rovision needed, 730.

Damiron and Co., 379. Damoudab Vailey (India).—See Coal. Davie Detectors - Specimens of, 316. Danby, C. and T., 469. Danbetton, Extract or—Samples of, 50, Danbetton, F., 335, Dandekor, F., 335, Dandoy, Maillard, Lucq, and Co., 199, 204.

Daniel, E., jun., 507.
Daniel, E., jun., 507.
Daniel, A. B. (Associate Juror), xxx.
Daniell, Lient-Col. H. (Juror), xxvill.
Daniell, J., 667.
Daniell and Wilkins, 350.

Daniell and Wilkins, 350 Daniesn, --, 202. Darey, E., 445. Darier, H., 201, 204. Dark, M., and Sons, 677. Dark, R., 677. Darling, W., 18. Dormanin and Sons, 569. Darnell, -, 308, 315.

Darriet, —, 470, 482.

Darras, R., 162.

Darras, R., 162.

Darrasons Fostor:—Dartmoor Forest rich in magnetic oxide of iron, 7. Decomposition of the granits of Darriet. moor; china clay obtained from a natural process of washing, 11, 12.

washing, 11, 12.
Darvieu, Valmale, and Co., 162.
Daubet and Dumaret, 546, 550.
Daudre A., 372.
Daudrielle, A., 348.
Daufries, B., and Co., 376, 475.
Dauphinot-Pérard, 356.

Dauphinot-Pérard, 336.
Dauptain, Gorton, and Co., 42, 44.
Dauthuille, A., 423.
Dautremer and Co., 371.
Davenport, J. L., 196, 204.
Davonport, J. T., 44.
David, -, 700.
David Brothers, and Co., 336.
David Brothers, and Co., 336.

David, C., 392. David and Dc Boe, 99.

David-Labbé, and Co., 356.
Davidson, J., and Co., 191.
Davidson, N., 388.
Davidson, N., 388.
Davidson, W., 102.
Davies, D., 192, 193.
Davies, D., 192, 193.
Davies, J., 36.
Davies, J., 34.
Davies, J., and Son., 352.
Davies, J., and Son., 352.
Davis, Greathead, and Green, 568.
Davies, R. S., and Sons, 352.
Davis, Greathead, and Green, 568.
Davison, R. Casceinte Juvert, xxx David-Labbe, and Co., 356.

Davison, R. (Associate Juror), xxvii. Davison and Symington, 122. Davison, W., 62. Davison, W., 62. Davitti, L., 162.

Davy, MackMurde, and Co., 45.

```
778
Dawbarn and Co., 350
Dawes T., and Sons,
Dawson, C., 532, 534.
Dawson, J., 253.
Dawson, J., 253.
Dawson and Morris, 165.
Day, H. H., 265.
Day, J. and W., 148.
Day and Martin, 544, 631.
Day and Millward, 191.
Day and Newell, 500, 504
Day, J., and Son, 37
Day and Son, 688, 62
Descon, -, 147.
Desdoe, J., 322.
Deadle, J., 322.
Deadle, J., Schrishane, Extract or, 50.
Drankt Nonvisioner, Extract or, 22.

Deakin, G., 220.

Deakin, G., and Co., 420.

Dean, L., 55.

Dran and Son, 404.

Dran Forest,—Important velus of hematitic iron es
              In the carboniferous or mountain limestone of the Forest
              of Dean, Z
Denne, Adams, and Co., 220.
Denn, Pray, and Deane, 22, 543.
Denn, Dray, and Deane, 22, 543.
Debair, A., 233.
Debair, A., 233.
Debair, A., 243.
Debair, A., 253.
Debair, A., 254.
Debair, A., 254.
Debair, A., 255.
Debair, A., 256.
Debair, A., 257.
Debair, C., 257.
                        Adams, and Co., 2
   Debdaudt Brothers, 45
 Debeaune, U., 202.
Debeaune, U., 202.
Deccan, The Supply of timber in, very limited, 132.
 Deresare, P., 508.
Decker, R. L., 399, 452.
Decock-Wattrelot and Baudouin, 371.
 DECOCTIONS AND INFUSIONS OF MEDICINAL SUBSTANCES (UB-
 described) - Samples of, 45.

DECOLATIONS, AMELITECTE AL-Specimens of, for walls and cellings, 346. Imitations of woods and marbles and painted blinds, ib. Cellings under the galleries decreated, ib. Examples of wall decoration and panelling.
              rases, so r.xampses or was usecoration and panelling,

ib. Excellent limitations of woods and marbles, ib.

Good samples of painted bilinds, ib. Wax-cloth lang-

lages, ib. General remarks on the objects in the Exhi-

bition having reference to designs for architectural
               decoration, 712-714
 decoration, 712-714.

Pendir, J., 322, 313.

Deed, J. S., 322, 313.

Deed, J. S., 322, 313.

Derne, Warrisua, &c. — Process for restoring deeds, writings, engravings, &c., Injured by fire, socioed, 44.

Deference Telescoper. See Telescoper.
 Defree, T., 14.
Defree, C., 201.
Defree, C., 201.
Defree, N., 501.
Detries, N., 501.
Degrave-Defortorie, -, 92.
 Degrave-Destorvere, —, and
Degrave, I., 56,
Delicselle, A. J., 352,
Delicselle, A. J., 352,
Delicselle, State Company, 13, 555.—See also Sinter.
   Delacour, —, 221.
Delacour, H. P., 338.
Delacevita and Fourcade, 528.
Delacevita and Fourcade, 528.
Delacevita and Fourcade, 528.
Delace Montigrate, F., 528.
Delace Montigrate, F., 528.
Delace Montigrate, F., 528.
 JE LAISE PRINTING.—Successful employment of red and
yellow prussistes of potash in "de laiso" printing, 41.
Delarber, V., 162, 252.
Delarber, V., 162, 252.
 Delaroche-Daigremont, — 470.

De la Rue and Co., 447, 241.

De la Rue, T. (Jurcy), xxxii, xxxii.

De la Rue, W., (Jurcy), xxx, xxxii.

Delatours, — 404.

Delattre and Son, 159, 336.

Delegue and Co., 360.

Delegue and Co., 360.
 Detegue and Co., 360.
Detelhaye, A., 421.
De Lecon y Rico, E., 613.
Detenti, L. J., 299-261, 383, 282.
Detecae, A., 162.
Detegae, A., 162.
Detegae, Detecae, S., 162.
Detegae, Detecae, S., 163.
Detecae, V., 45.
```

Dollale and Co., 33

IXDEX. Della Ripa, L., 162. Della-Valle Brothers, 22 Delloye-Matthicu, C., 22 Deistanche and Leroy, 62 Deisanarie and Leroy, 1933 Debianarie, P., 295, 242. Debigne, M. G., 219. Demanet, Lieut. Col. C. A. J. (Associate Juror), xxx, xxxii. (Exhibitor), 315. Denexana. — samples of mairs and plantain meal of good quality, & Dried fruits, & Demerara once the great coffee country; now cultivates very little, 59. Quality of the samples, 3. Arrow-root, 62.78. Samples of plaintain meal, §2. Sperimen of Hawai gum, a species of plaintain herense, §6. Cacotchoor and cow-tree, milk from, 506. Dembloff, Messra, 34, 507, 554, 569, 571. Dempster, II., 218.
Dempster, II., 218.
Dench, E., 38.
Dencirouse, Boisglavy and Co., 379. Dencirone, Boisghavy and Co., 322.

Denison, E. B., (Juror), xxx, xxxii.

Denison, E. B., (Juror), xxx, xxxii.

Denison, E. W. T., 62, 71, 75, 40, 148, 665.

Dexana.— Barley extensively exported from, 52. Of an excellent obserpison, 38. Belances of various construction, 320. Air-pamp of ingenious construction, 323.

Sperimens of metallic hermoneters, 322. Chronomor of metallic hermoneters, 322. Chronomo bester, 33, 342. Fur earpet, 287. Sample of glove leather, 33. logenious machine for composing types leather, 223. Logenious machine for composing types on an entirely new system, 286. Specimens of paper, 235. Satisfacts of the paper-making of this country, 243. Specimens of playing causing of this country, 245. Specimens of playing causing of the country, 245. Small quantity and high price of steerie crain, 245. Small quantity and high price of steerie rankler perduced in Demark, 263. Namples of the same, 228. Notices of the principal works of scalpture arm from Demark, 265. Pror. Jewel-case with reliefs, Dent, Alleroft, and Co., 481. Dent, E. J., 218, 336, 338, 340, 342. December 1, Single 500. Decemrain Sing Dent, L., 352, 340.
Dentith, W., and Co., 59, 43.
Dentun, J. B., 254, 302.
Dennent Baboo, 101.
Depierre Brothers, 483. Deponilly Brothers, Bolvaux, and Co., 331. Dequidt, Widow L., 56 Derbent, Government of (Russia), 20.
Derbyshire—Specimens of inlaid work in marble or me marbles from, 555. Articles in malachite from, 571.
Deriog, G. E., 235.
Dermer and Mayer d'Anemarr, 455. Derner and Mayer d And Dernets, H., 5:2. Derney, M., 4:8, 410, 451, Dervaux-Lefebre, 507. Dervaux-Lefebre, 507. DESIGNS FOR PRINTED AND WOVEN FABRICS, &c .- Primary

Derville and Co. 25, 261.

Derville and Co. 25, 261.

Derville A.
law to be observed in regard to such designs, 62 Notices of the prinripal contributions in this section of the Fine Arts, 659, 605. Remarks on the patterns of the oriental stuffs sent by India, Turkey, and Tunis; high character which distinguishes the Indian stuffs, 675. Particulars of the principal contributions to this section

of the French Department, 102.
Importance of the subject of the consideration of design as applied to garment fabries, 141. Principal sources of error in this class of design, ib. Necessity for the of error in this class of design, ab. Neccessly for the designer carefully attending to texture, lastic, &c., &. Conditions essential to good patterns, 741-743. Sim-plicity of desials be Indian patterns, 233. Comparison between English and foreign garnect fabric patterns, & Geometry essentially required as the basis of orna-ment, 743, 744. Quantity a great source of excellence, 744. The subject of tratures and surface, as important erations in the regulation of design, recurred to,

744, 745. Excess of ornament in gold or silver thread prejudicial; the priests' dresses in the North-East Gollery and in the Mediæval Court adverted to, 745. Dieterici, Professor, 442 Dieterie, J., 687, 202. Dietrich and Son, 26, 504. Dieudonné and Bindel, 334. The style of ornamentation in some respects better under tha old and simple methods of cottom printing, Dies, Marble Manufactory of (Nassau), 35 when the resources were few, than at present obtains, Dies de Ribers, A., 84. Dicces La Touche, Miss, exx. sh. Circumstates reducing it impossible to connect of carried to the reducing control of the reducing Dill and Mulchabey, 61. apoe Individual works in the Exhibition, ib. Less Dillon, Lord, 121. Dimech, F., 168.
Dimerk, T., 168.
Dimmock, T., 141.
Dinneford and Co., 45. Diaglinger, A. F., 425. Dink, ..., 302. Digethic Limitiscus: Accadatus.—Models thereof axhihited; remarks relating thereto, 500, sources—Great variety of, in the Vosges, 27 Dierin-Negaris.-See Magnetical Instrumen DIEECT-ACTING ENDINES. - See Steam Engines. DISTANCES, INSTRUMENTS FOR MEASURING .- Description of an instrument for measuring distances et sea, and manner in which used, 253. Other instruments for determining distances, 254. Altitude and azimuth Devisme, -, Instrument for surveying purposes, ib. Instrument based opon the principle of similar triongles for dotermining distances, ib. Instrument to determine the dis-Devoashire -Specimens of inlaid or mosaic marble from, Devoashire—Specimens of inlaid or m 508 502. Devoashire, Duke of, 508. Devanga, B., 448. Dewar, T., 52. Dewar, T., 54. Dewhery, J., 431, 451. Dewherst, T. (Associate Juror), xxviii. Devantars.—See Sorock. mining distances, sb. Instrument to determine use un-tance of objects either by night or day, sb. Instrument for determining the distance of inaccessible objects, sb. Disattimetra, invented by M. Kinzelbach, of Bavaria; description of the instrument, 225. Micrometrical and double-image telescope, and "confine-up glass," for measuring distances either on land or sea, 254.
Distilling Accanatis roa Ska Water - Valuable opp Tank apparstus for distillation of water, 316. Adapted to the use of a ship of the line, ib, Ditchburne, T. J., 217. Diti, Madame, exx. Dittmar Brothers, 48 nzi, F., 508 DIVERSOREM ARTICM SCEDULA."-This work, by the monk the Queen of Spain, is. Sparking diagons from Russia, rich, and the stones perfectly set, 517.

"Dial of the Scasons."—A chart intended to illustrate the Theophilus, alluded to, 525 Divining Machines.- Machine for dividing hydrometers and other valuable scales, 257. Great accuracy of the machine, is. Description thereof, is. Plan adopted for working, is. Various machines from France, is. Description thereof, is.

Divino Accanatis.—Sets of dresses and apparatus, of sua's declination at all sessons, and the coincident offeets of light and heat npon various animal and vege-table productions, 313. Description thereof and observ-ations thereon, ib. Book accompanying it too diffuse for educational purposes, ib. DIALS .- See Sun-dials. excellent construction, 20 DIAMENDS. - Collection of crystelline diamonds from Am Dix, E. R., 28.
Dixy, -, 202, 273, 301, 302, 305.
Dixos, G., 558.
Dixos, J., 28.
Dixos, J., and Son, 504.
Dixos, J., and Son, 544.
Dixos, P., and Son, 545, 635.
Dixos, Son, and Co., 45, 635.
Dixos, Son, 566. Diz, E. R., 28. rica, 15. See also Diadems. Jewellery. Precious Stones. Diamonds for Glass-cutting.—Thouse thereof dates from the sixtecoth century, 525.
Diapens—Samples of, 371, 373.
Diamocua—A carriage so called, 123. Dixon and Fons, 516. Dixon and Whiting, 302 Diezairglou, -, 162.
Djezairglou, -, 162.
Djidjivadze, Prince Niko, 96
Dobbelaere-Hulin, -, 572.
Dobbs and Co., 431, 448. Dohbs, G., 234 Didot. A. Firmin (Juror), avvili, xaxii. (Exhibitor), 60, 10400, Ambros, 641, 1040, Throngois, 621, 1040, Thro Dobson, -, Dobson, J., 288. Docquir and Parys, 78. Dodd, E., 333, 331 Dodd, J., 333, 334 Dodge, Catherine, 163, Doe, Hazinton, and Cn., 264, Doe, W., 480, Doerner, F., 334. Doerr and Reinhard, 322 &c., ib. Diepers, T. 11., 166 Diergardt, F., 363. Dies, Signor, 565. Dozsans-Specimens of, 352, 253. Dolan, D., 575 Dolberg, -, 2 Dolfouse, —, 225. Dolfouse, — (Juror), xxvil. Dolfons, Mieg, and Co., 459, 745. Dolford, G., 246, 247, 249, 253, 222.

Dolland, John, experiments conducted by, in co-operation with Enter and Klingenstierna, for discovering tha with Euler and Kingenstierne, no were proportion of curvature in achrematic lenses, 522, and delig dresses, 521. Great Dolle - Collection of dolls and dolls dresses, 681 skill displayed in the manufacture, ib. Rag-dolls very

remarkable productions, ib.

Domeny, L. J., 331.

Domeny, Sr. Beautiful specimens of mahogany from, 121,

Dominick, G., 65, 163 Dommer, T., 322 Don Brothers and Co., 372

Don, W. and J., and Co., 322 Dennt, A., 355.

Donat and Co., 363

Donistherpe, G. E., 196, 199, 203.

Donistherpe, G. E., 196, 199, 203.

Donkey Exorest.—Small donkey engine, with its pumpand valve-boxes complete, for a steam-boat, from Belling and Valve-boxes complete, for a steam-boat, from Belling and Valve-boxes. gium; purpose to which applicable, 132. Bonkey engine, commended for arrangement and workmanship,

engine, commenced 123. 123. 123. Donkin, B., 427. Donkin, Bryan, and Co., 183, 198, 203, 427. Donkin, B. J. J., 23. 120. 2004 and Co., 628.

-, 40s Door HANDLES, PLACQUES, &c. - Made of china and earthenware, 541. And of glass, 535. Manufacture of door handles, &c., of protons stone, 630. Specimens evidhandles, &r., of protons stone, £31. Specimens exhibited, & Specimens of Pores and Zine door-plates, £22. Filled with composition not liable to crack, ±6. Dorey, J. F., 1-2, 244. Dorey, J. F., 1-4, 244. Dorey, J. F., 1-4, 244. Dorel, T. 1:27.

Dorrien, C., 152. Dorvell, Eliz., 641

Dorner Basers - Meritorious specimens of, exhibited, 331 Doucet and Duclere, 482

Douglas, J. S., and Sons, 613 Douglas River Coal Company (Van Diemen's Land), 15 See also Cord

See also Cool.

Doulton, H., and Co., 589, 586.

Doulton and Watts, 582, 586.

Donmere, E., 432, 452.

Donmortier, L., 322.

Dove, C. W., and Co., 425.

Dover, J., 238. Doveston, G., 550. Dow, A., 600

Dowbiggin and Co., 545, 550.

Dowell, E., 644. Dowlas - Excellence of the specimens exhibited, 371-373.

Dawling, H., 407, 452. Down,—See Forthern and Down,

Downs, A., 616.
Downson, J. E., 501.
Downson, J. G., 682.
Daaanets.—See Duck, Drabbets, &c.

DRAGON'S-BLOOD.—Samples of dragon's-blood from Sumatrn, 74

DRAINAGE PIPES.-Pipes of various dimensions from Ardennes, Namur, 23.
Draining Levels,—Beam draining-level, with adjusting parallel plates on tripod stand, 2.4. Simple and inex-pensive, ib. Useful in laying tiles, levelling, and in hullding operations, ib. Workman's draining-level

building operations, ib. Workman's drain with a hob, for the use of farm labourers, ib. DRAINING MACHINES.—See Agricultural Implements. DRAINING TILES,-Remarks on the unusual heauty and

purity of the material used for the draining pipes and tiles manufactured on the estate of the Earl of Enniskillen, 581, 582. Account uf the Florence Court Tile and Pottery Works, 582. Drake, Professor F., 685, 607.

Drake, R., 356

Draper, —, 276.

Draper, R. and H. 330.

Draper, R. and St warn Chorne.—Specimens of 317.

Draper of Ferr, on St warn Chorne.—Specimens of 317. DRAW SDIDGES - Models of, constructed upon the Dutch rail ways, 200 Peculiar mode of opening, ib. Usefulness

way, 222. Permar more of operang, an essenaires of the principles of construction, ib.

DaAwing Boaros Manufactured of the best hand-made drawing papers, 442. Nature of the process of manufacture, ib. Specimens exhibited, ib. Superiority of

the English productions, ib.

DRAWING INSTRUMENTS.-Remarks on the various drawing instruments exhibited, 305. Pine magazine case of drawing instruments, inclusive of all the recent improsements, 315. Double protractor, for measuring angles and determining heights and distances, ib. Tebay's universal planing rule, 396. See also Elliptographs. Graphic Telescopes.
Duawing Pencils.—See Black-lead Pencils.

DRAWINGS, INDIAN ING AND OTHER- Description of a new process for multiplying, 622.

Dreger, F., 688, 206.
Dresser China, See Ceranic Manufactures.

Darss Charlot, 153.
Darss Charlot, 153.
Darss Charlot, 153. to exhibitors, 433 Specimens of beautiful fittings for dressing cases in silver and silver-gilt, from France, 518-500 Dressing cases are exhibited almost exclusively by British and French mannfacturers, who appear to monopolize the supply of these articles, 652. The very modern date, but in their primitive character they very modern date, but in their primitive character they are of considerable antiquity: ancient Roman one dis-covered in 17%, ds. Remarks on the English dressing coars of the xisteenth and seventeenth centuries, 622, 623. The present style of Indies' dressing cases, ill adapted for travelling, 623. Gentlemen's dressing cases, on the constrary, made extremely portable, ib. Materialis of which dressing cases are usually amonfactured, with observations on the ornameutation thereof, is. Remarks on the contributions from Austria, France, Saxony, and on those in the British Department, 523, 534, List of awards and names of exhibitors, 525. Articles exhibited, if.

Dresler, J. II., sen., SL. Dressler, —, 410. Dreuze, Reiss de, 165.

Drewsen, J. C., 444. Drewsen and Sons, 423, 435, 459. Dreyse and Collenbusch, 2014.
DRIES HERBS AND ROOTS - Specimens of, 42

DRILLING MACRISES.—Drilling machines of various sizes and capabilities, 200. Specimens of two large radial drilling machines, ib. Excellent self-acting vertical

and expending machines, ib. Excellent self-acting vertices drilling and boriog machines, ib.

Danzas.—The sower with his seed-lip superseded by a complicated machine, the drill, depositing the seed in rows, pleased machine, the drill, depositing the seed in rows, and the several bornes, 225. Economy of seed, and drawn by several bornes, 222, novement, we would belower, and time, from the use of this implement, 252, 222. Improvements which have taken place in the dreft, 222. Deveragion of internally and Korn's drill, 223. Deveragion of the way and Korn's drill, 224. Deveragion of the Wabarra drill, 45. Simple, well-made drill, catabilities by M. Class, of Belgium, 40. Deveragion of the turnip drill, and liquid-manure distribution of the turnip drill, and liquid-manure distribution of the turnip drill, and liquid-manure distribution of the development of the bow-drill, 346.

The second wards, 224. Illiand-drills to superrede this use of the bow-drill, 346. and drawn by several horses, 228. Economy of seed, labour, and time, from the use of thix implement, 228,

Dulla (Linen, Cotton, &c.)—General good quality of the specimens exhibited, 371-373. See also Cotton Manu-

Drien, E., 504.
Drolenvaux, M.—Glass mannfactory established by, at
Lettenbach (France), in 1730, 525.

Drouin and Brossier, 45, 161 Days Thank (London), 72 Darggers and Felten Goods .- See Carpets.

Drummoud, -, 237. Drummond, J., 355. Darws-Improvements in this class of musical instruments, 332.

Day-nor. - See Timber Seasoning.

Dat-nor.—See Timber Seans...
Dubar, D., 348.
Dubarger, G., 16.
Dubbila, Royal Society of, 563.
Dubbila, Royal Society of, 563.
Dubois, C. A., 45.
Dubois, C. A., 45.
Dubois, E. W., 337, 342.
Dubois, G., and Co., 359.
Dubose, Soleil, —, 272.
Dubose, Soleil, —, 272.

Dubrunflaut, ..., 620. Dubsky, Count, 501, 504. Ducane, Lieut, xxv. Ducei, A., 152. Ducei, Nessus, 326, 333. Ducel, S. J., 507. Ducle and Co., 373.

Duchel and Son, 472 Duckans, J. J., 200, 202

Duck, Dawnstry, Kr., General excellence of the specimens exhibited, 371, 372, 373.

Duclaneau, Madane A., 657, 702. Ducroquet, P. A., 324, 325, 33 Ducroquet, P. A., 324, 325, 33 Ducrot sod Petit, 669, Dudgeon, Mesara, 46. Dudman, L., 418. Dufaville, 165.

Dufaville, 165.

Dufaville, 165.

Dufour, A. (Juror), xxviii.

Dufour, J. B. 27.

Dufour, L. 45. fed.

Dufourse, L., 45. fed.

Dufossee and Melnotte, 479. Dufossée and Nefmette, 472 Dufrency, A. (Juray), xxvi, Dugard, N. and H., 564, Dugaria, T. B., 56, 52, 103, 140, 664, 671, Duhajion, B., 732. Duhayon-Brunfaut and Co., 468, 471,

Duke and Son, 6

Duky, J., [62].
Duky, J., [62].
Dukyen Brothers, [68].
Dukyen Brothers, [68].
Dumalne, J., A., 152, [64].
Dumalne, X., 152, [63].
Dumalne, J. (Auror), xxv, xxvl, 622. Dumbleton, 11., 1401 Dumerey, Mesars., 201 Dumeril, Sons, and Co., 672, 673

Dumon, — ALE Dumortier and Co., <u>6128</u>, Dumortier, Lo., <u>522</u>, <u>6121</u>, Dumortier, Lo., <u>522</u>, <u>6121</u>, Courr Lavrat. The index bar being placed vertically Instead of horizontally, <u>721</u>, Clange in the mode of adjusting the bubble, <u>188</u>.

adjusting the bubble, ib.
Duncan, Flockbart, and Co., 45.
Duncan, Judge E. S. (Juvor), xxvl.
Duncan, L. C. (Juror), xxx.
Duncan, L. C. (Juror), xxx.
Duncan, L. S. S. (Juror), xxx.
Duncan, W. L. 45.
Duncan, W. J. 45.
Duncan, W. J. 45.
Dunch, Concol. 211, 312.
Duna, M. 462.
Duna, M. 462.
Duna, M. 462.
Duna, W. 462.
Dunaberg Salt Works (Prussia), 32.
Dunaberg Salt Works (Prussia), 32. Duplerry, , jun., 23. Dupler, Baron C. (Juror), xxv, xxvii.

Duret, ... 703. Duret, ... Too. Durstam. Documents on the geology of the coal districts of Durbam, 10. Sec also Lead.

Durbam, J. B. (Juror), xxix, xxxii. (Exhibitor), 486, 516.

Daselgoeur, , 161 Dassol, , 162 Dutsrire, A., 517 Daval, A., 161 Daval, Amory, 792 Duval and Paris, 20

Duvellaroy, P., 663, 657 Duverger, ..., 418 Duzoglan, ..., 472 Dyns, F. 415. Dyce, W. (Juror), xxix.

Dyer, -, 196, 315.

Dyer, and Colorus, Samples of dyeing materials, 47, 5

New black dyeing material for silk, 42. Expacts of dye-woods, ib. Considerable modification which the uyer-cous, so. constituents modification which the aits of dyclog and printing in colours have undergone during the last half century, \$\frac{1}{2}\$. No manufacturing processes have received more important assistant from the laboure of chemists, ib. Dyeing purely a

chemical operation, 85. Vast number of new colouring materials discovered and rendered available, ib. Immaterials discovered and rendered available, ib. Insproved modes of applying these already in use, ib. Increased use of many vegetable colours, ib. Demand springing mp for various dyeing study, ib. Greater part of the vegetable dye stoffs used in Great British ether derived from foreign countries, ib. Table showing the quantity no some of the chief dye stuffs imported in the years 1848, 1841, and 1810, ib. Statement of the pro-portion in which some of the principal dye stuffs are year 18th, 18th, and 18th, 4th, Substantial of the principal by different countries, 8. Service of dys stars largingly by different countries, 8. Service of dys stars largingly by different countries, 8. Service of dys stars largingly in the service of the service of the service stages of dystigs and printing, 8. The star of dystigs and stars as the service of dystigs, 6. Also of called the service of dystigs, 8. The star of the service of dystigs, 8. The service of dystigs, 8. Complete collection with the values channel agents employed by the stays 2. Framework of the service of the ser specimens of the states, including an interesting terrest of fac dye, ib. Sampla of chloroy wood, ib. Can be used as a blue dye in the place of real wood, ib. Price of chicory wood and of real wood, ib. Large and highly-valuable collection of dye staffs from India, 85-20. valuable collection of dye sainfi, from India, 8:20.4. Little or nothing known of many of these dyes, int. Little or nothing known of many of these dyes, int. the cashly had in large quantities, and at comparatively not prices, M. mangles of various dyes from Cyclas, of Good Hupe, 20. Specimens of the various diverging of Good Hupe, 20. Specimens of the various diverging the control of the control of the control of the control of party diverging the control of the control of party diverging the property of party diverging the property of party diverging the property of the Russis, 40, 22. Spain, 21. Tunis, 30. Turkey, d. Russis, 40, 22. Spain, 21. Tunis, 30. Turkey, d. Turkeyn, 36. See also Geometric Medici-

Wood, Sec.

Wood, See. Wool-alpeing. B'oven, Span, See, Paleries, DYKANGGRAPH.—A dynamograph from Austria, exhibited by the Chevalier de Barr, into:

DYKANGGRAPH.—A dynamograph from Austria, exhibited by the Chevalier de Barr, into:

DYKANGKAPH.—A dynamograph from Chevanghaper of the Chevanghaper of power, but the sufficient moderate plants. the economy or power, is one to General Fonceter, 123. Explanation generally of the application of these machines, ib. Dynamometers exhibited constructed under the direction of Colonal Morin, 120, 121. Specimen of a cultivator-dynamometer, exhibited by E. B. Batall, 222. Remarks on the various dynamousaters exhibited, 304.

Remarks 40 the various quintiments resources, many leafue and Son, [36].

**Local Son,

land too dirty and weevilled for market, 32. land too dirty and weevilled for mysler. 22. Samples with the children is Quality of the samples of rice from the children is Quality of the samples of rice from the lat he British East Indies mostly for the sake of the lat the Grown of the samples of coffee. 25. 22. Masterd seed, Quality of the samples of coffee. 25. 22. Masterd seed, Quality of the samples of control of the samples of control of the samples of gatte percha, countriewer, and India-rabber, 73. 24. Virgos List of the chird guas and remiss, 73. 25. Virgos List of the chird guas and remiss, 73. 25. Virgos List of the chird guas and remiss, 73. 25. Virgos List of the chird guas and remiss, 73. 25. Virgos List of the chird guas and remiss, 73. 25. Virgos List of the chird guas and remiss, 73. 25. Virgos List of the chird guas and remiss, 73. 25. Virgos List of the chird guas and remiss, 73. 25. Virgos List of the chird guas and remiss. descriptions of oils, 21.27 Large and highly-valuable collection of dye-stuffs and colouring matters, 83, 56 Little or nothing known of many of these dyes, Several evidently rich in colour, it. May be easily had in large quantities at comparatively low prices, it. Large quantity of tanning materials in the collection, List of the various substances, ib. Large and highly-interesting collection of raw cotton, 24, 25. Statistics relative to the cultivation, consumption, and expertation of cotton, ib. Chief varieties of cotton indigenous to India, 24. Good samples of hemp, is. Interesting collection of vegetable fibres: description of these various fibres, 101, 102. Tables showing the comparative strength of various of these East Indian fibres, 101. Principal vegetable fibres contributed from India, 101, 102. Cork wood and similar light and porous woods, 103. Collection of the various woods, the most extensive in the Exhibition, 122. Remark. able for the large number of specimens, and their excellence, ib. Vainable practical information to be gained by their examination, ib. Importance of Dr. Wallich's collection, ib. List of the woods contributed by the indisn Government, 123-13). Samples of raw silk exhibited in the indian Department, 162.

ine and illustrative specimens of horns and actiers, Varieties of specimeos of elephants tusks, 164. Finest quality of pearls produced by the bivalve of the Indian seas, ib. Specimeos exhibited, ib. Fine specimens of shells yielding mother-of-pearl, or nacre, ib. mens of succes yielding mother-or-pests, or flacre, Fine examples of cameo shells and coral in the Ind

collection, ib. Specimens of different kinds of isinglass in the raw state, from Iodia, 165.
Cotton yarus, 317. General remarks on the exhibition of manufactured silks from the East Indies, 363. Observations relative to the manufacture of sealingwax in India, 450. Specimens exhibited, 451. Remarks on the specimens of printed goals from Central India, on the specimens of printed goods from Central India, 485. Cloth of real estimens wood, 425. Various drawes exhibiting the indian costume in gold tissue and embodiered, & Prize Medal awarded for articles in carthenware, 545. Carved furniture, &c., 300, 501, 502. Mosice, 524. Indial work in pictra dera, 7a. Stone carvings, 528. Specimens of marble, partly manufactured, 520. Number of striking and beautiful manufactured, 520. Number of striking and beautiful manufactured. Sit. Specimen of marine soap, from Madras, 510.
Excellent stearie candles sent from Cossypere, 623. 630. Bleached wx candles manufactured at Patna, 636. Steels for striking light, 636. Contribution of pine-apples, &c., 632. Artificial flowers and fruits, 642. peclines of ethographical modes in elsy and wood, 49, 659. Miscellaneous collection of mineral, vege-able, and animal substances used by the natives of indis, in their various arts and manufactures, as well as lu medielne, 650, 651. Desk, and several specimens of boxes. In Ivory and sandal-wood, from Calcutta and In medicine, 500, 521. Desk, and several specimens of boxes, in You's and smalle-wood, from Catestin and boxes, in You's and smalle-wood, from Catestin and dabad and other paris of India, 525, interesting specimens of decorated sites, 64, Great variety and cently description of the Indian fans; specimens and cently description of properties of properties of properties of properties of properties of the Indian fans; specimens and could be added to the Indian fans; specimens and could be added to the Indian fans; specimens and could be added to the Indian fans; specimens and could be added to the Indian fans; specimens and could be added to the Indian fans; specimens and could be added to the Indian fans; specimens and could be added to the Indian fans; specimens and could be added to the Indian fans; specimens and could be added to the Indian fans; specimens and could be added to the Indian fans; specimens and could be added to the Indian fans; specimens and the Indian fans; specimens are specimens and the Indian fans; specimens are specimens and the Indian fans; specimens and the Indian fans; specimens are specimens are specimens and the Indian fans; specimens are specimens and the Indian fans; specimens are specimens. The Indian fans are specimens are specimens are specimens are specimens are specimens

East india Company, xxxv. 14, 53, 57, 58, 60, 62, 73, 77, 80, 88, 92, 24, 192, 130, 220, 332, 331, 334, 432, 481, 531, 534, 597, 600, 623, 678, 722, 765, 675, 675

Eastman, -, 201. Easton and Amos, 182, 234.

Eastwood, G., 489.
Eastwood, G., 489.
Eat-ps-Coloniz-Generally considered the perfection of

perfunery, 508. Excellent quality manufactured in Austria, 509. Four Farinas in the Exhibition, all claiming to be the original, 511. Various samples exhibited, 614, 615.

Ebart Brothers, 442, 452. Ebbw Vale Iron Company .- Use made by the Company of

the gases escaping from t ir smelting furnaces to supply a steam engine, 8, 9, 189. Ebelmeo, E. (Juror), xxx

Eberstaller and Schindler, 508 Enoxy. - Dve stuffs extracted from, 87. Dved sam-

ples, sb. Echinger Brothers, 375. Eck and Durand, 707, 7 Eckardstein, Baron, 168

Eckelmonn and Wüstish, 537, 634 Ectarse Indicaton.—Description of this machine, 307.
Feroyd, W., and Son, 358, 350.
Educators: Lauremorse—Particulars as to, 530.

Ede and Co., 614. Edelsten and Williams, 504. Edge, --, 315 Edge, J., So

Edgington, 11,, 223 Edward Rope and Sall-cloth Company, 372.

Edward Rope and Sall-cloth Company, 372.

Edkins and Son, 366.
Enggarioval, Monals.—No means better calculated to impress the mind of the student with the great unchang able laws of nature and with the construction of the mechanical contrivances by which man renders them available for his wants than working models, 648. These useful aids generally unattainable by the ma jority of students, on account of their expense, ib. Observations on the series of cheap models contrived by Mr. E. Cowper, Professor of Manufacturing Art and Machinery at King's College, London, to illustrate bis courses of lectures, ib. These models now attainable

by the working classes at a low cost, ib. Description of some of the models exhibited, ib. Prixe Medal awarded to Professor Cowper, ib. Edwards, D. O., 308

Edwards, E., 401, 202. Edwards, F., 501. Edwards, J., and Scos, 541. Edwards, J. B., 205. Edwards, M., 524. Edwards, M., 524. Edwards, T. J., 555.

Egen, J., 140. Egelis, F. A.,

gelis, F. A., 504 gger, Count F., Von, 20 .- See also Iron and Steel. gger, Count G., 21

Egger, J. B., 21, 104.
Eggers, F., 385.
Euryr.—Observations on the Minerals exhibited by the Egyptian Government, 24. Natron obtained from lakes in Lower Egypt, ib. Discovery of sulphur adhering to limestone; importance of the discovery, ib. Specimens of gypsum, ib. Fine slabs of Oriental alabaster, ib. More millets than corn grown in Egypt, Both copiously illustrated in the Exhibition, ib. 53. Both coplously illustrated in the Exhibition, is Sample of wheat of admirable quality, id. Barley good, ib. Rice abundant and of good quality, id. The best cultivaried in the Delta of the Nig, at Ro-setta, id. Fine samples of militely, id. Beans from Egypt worthy of especial notice, id. Samples of elever-seed, ib. Samples of oil-cake, id. Samples of dates, id. Specimes of the fruit of the down point, id. Mustard-specimes of the fruit of the down point, id. Mustard-specimen of the fruit of the down point, id. Mustard-specimen of the fruit of the down point, id. Mustard-specimen of the fruit of the down point, id. seed, 62. Large collection of aromatic seeds used as condiments, ib. Collection of raw produce containing condiments, ib. Collection of two pressures agod specimens of gum, 76. Series of oils, 83. Collection of colouring matters or dyeing stuffs, 20. Several good samples of cotton shown in the Egyptian of the graph of the collection of the graph demp. 22. Fine veral good samples of cotton shown in the Egyptian collection, 20, Specimens of fax and beem, 22. First specimens of the collection of Egypt, [25]. Collec-cionary of the collection of the Egypt, [25]. Collec-ticipatar's business of their contracts, 222. Fivestic emphasics of the contracts, 222. Fivestic produce of artisance of other contracts, 222. Fivestic specimens, 405, 402. Statistics of the paper macella-ture of the country, 412. Specimens of printing, 420. Curious contribetion of printed goods, 425. General facture of glass in saction Egypt, 202. Articles of remarks on the hardware manufactures, 426. Manufacture of glass in ancient Egypt, [52]. Articles of glass contributed from, 556. Specimens of alabaster, 561. Large collection of excellent perfumery, 510. Crade manufactures of the wax candles, 525. Interesting contribution of confessionary and produced the contribution of confessionary and produced the contribution of confessionary and produced the contribution of confessionary and confessionary and contribution of confessionary and confessiona ing contribution of confectionary and conserves, 638.

sitzler-wood writing-case, 644, Specimens of funs, 668. Description of some pipes and pipe-bowls, 672.
Egypt, H. H. the Vicerey of, xxxv, 452, 556.
Egyptian Government, Yue, 99, 561, 264.
Errenzeller, F. 470.

Ehrenzeller, F. 420. Eichelburg, H. D., and Ce., 508. Eichneb, G., 681

Eickholt, Anton, 371. Eiffe. —, 336. Einsiedel, Count G., 504, 697, 707.

Elpenschleid, L., 78. Elsenbrandt, C. H., 33

Ekaterinburg Imperial Pelishing Mannfactury (Russia),

Ed. S. S. S. S. Secliness of, for gloving, 202.

ELASTIC CLOTHS—Specimens of, from France, very well made, 452. Reference to the process of manufacturing from the control of india-rubbe of india-rubbe. covered in France, specimens exhibited, 591, 592, 286,

ELATERICH - Samples of, in. ELBA, ISLE BF. - See Tusceny. Electric Telegraph Company, 257. Eldon, Earl of, 655.

ELDON, EARL OF, AND LORD STOWELL, STATUES BY-Netice

ef, 685, 6:3. ELEPHANTS TUSKS.— See Ivery.

ELECTRIC CURRENT REGILATOR.—Principles and purposes of the apparatus, 289, 2 0. ELECTRIC MASSETS—Steel best suited for, is that employed

te form the balance springs of watches, 2.3.

ELECTRIC PRINTING TELEGRAPHS.—Observations thereon. 287. Instruments exhibited, 289. Description thereof, 283, 290.

ELECTRIC TRESCRAPHS AND APPARATUS. — Great variety

placed in the Exhibition, novelty of construction, and important improvements in some of them, 245. Large number of ingenious contrivances applicable te every number or ingenious contrivances appareable te every stage of electric telegraph communication, 253. Dis-gence of the Electric Telegraph Company in possessing themselves of numerous patents, ab. Fine collection exhibited by them, 253, 261. Firm standing ebtained by the needle telegraph, giving conventional signals, 254. Recent improvements in the galvanouster, ab. Perfection of the needle telegraph, is. Form of the needle most generally used, is. History of the electric rection of meeting most generally used, io. History of the electric telegraph from its discovery, detailing the improvements effected, io. Valuable inventions exhibited, io. Observations on the essential or fundamental points of an electric telegraph, firstly, the generation of the force, 281, 285. Secondly, the insulation of the ferce, 285, 286. Thirdly, the intilization of the electric force, 286, 287. Guita percha the most valuable massival. 286, 287. Gutta percha the most valuable maserial for the insulation of the wires, 285. Great protection required for submarine wires, ib. Specimens of tion required nor somewhat process of covering guita-perela wire, so. Construction of wrought-from chain pipes, with swired pints for protecting submarine wires, is. Distinctions in the application of this plan, 255. Plan worthy of commendation, which has recently appeared, combining the leading essentials of a submarine wire, is. Defined to the writched of construction, is. Electric signals by ignition, ib. Blumisation shocks, ib. Prinelple of Bain's printing telegraph, ib. The galvanoeipte et Bain's printing tolograps, a. Toe gavano-meter most saccessfully pressed inte telegraphic service, forms the essential part of the needle telegraphs, 285, 287. Varieties ef needle telegraph, 287. Printing, reading, and motive processes, ib. The French Governreading, and motive processes, it. The French Govern-ment required signals to resemble those of the nid semaphores: they have extensive codes, ib. tional signals preferred in England, id. In Prassin every letter is pointed out, ib. Printing telegraphs preferred in America, ib. Reading instruments pre-ferred in England, ib. Instruments that have obtained n standing are those whose action is direct, and not the result of any extraneous mechanism, ib. Descripthen of the several telegraphs exhibited, 257, et sep. Specimens of cables designed for the protection of submurine telegraphic wires, 2.0. Electro-chemical tele-graph hy Bain, ib. Copying electric telegraph by Bake-well, ib. Mode of insulation of telegraphic wires, 220, 201. Observations with regard to wires suspended in the open air, 241. Substitution of a large open-mouthed open air, 241. Substitution of a single open-monther cone, for the old form of cene, ib. Lines of rail where this system has been carried out, ib. Remarkable for their perfect insulation and good working order, ib.

Improvements made with regard to the insulation of

tunnel wires, 201. Mode adopted in tunnels. ib. Introduction of the compound needle by Mr. Wolker, ib. Principle thereof, ib. Construction of bell transferrers. ib. This application is not generally employed, ib. Advantages of the plan, which works well, ib. Varieties of turn plates constructed by Mr. Walker, ib. Description of the branch double turn plate, ib In daily scription of the branch double turn plate, so in onany use, and acid well, sh. Lightning conducter for thin protection of the telegra, h and wires, sh. Graphite battery, description thereof, 291, 292. Moreable studs uriginated by Mr. Walker, 2-2. Simplicity of the centricance; it works well, sh. Kinging handle for continuously the bell base additional trace to inself. 3 stations where the bell has a distinct wire to itself, a stations where the best has a distinct wire to itsert, a.o. Object thereof, satisfactory performance, ib. Allui's patent needles described, ib. Grent advantages gained by the combinations, ib. Description of, and observations on Dering's electric telegraph, 222, 223. Model of an electro-magnetic telegraph, 24, Networker, 253. Interesting as representing an early development of the idea of a needle telegraph, id. Specimens of electric-cenducting wires for solunqueous purposes, ib. All the submarine wires exhibited based upon McNair's wire, ib. Appearans in connexion with the telegraph, ib. Gutta-percha pipes for protecting submarine wires, ib. Ingenious Prussian electric telegraph. graph, &. Details of construction and working points graph, d. Details of construction and working points in which it differs from either telegraphs, 225, 224. Arrangements provided for facilitating the transmis-sion of cleerire force te long distance, 244. Sxon electro-magnetic telegraph, db. Applicable to the erdinary use of telegraph, db. Airan bell attached, readily put in and out of councion, db. Pair of elec-tric telegraph, adapted for domain personnel. reamy put in and out of connexion, io. Fair of ejec-tric telegraphs adapted for domestic purposes, ib. Electrical apparatus for ringing bells in large mansions.

ELECTRIC TELEGRAPH ALASEN BELL-Description of Brett's patent, 2.3 ELECTRIC TELEGRAPH (Comic) - Description of, Invented

by - Smith, 253 ELECTRICAL CLOCKS, See Turnet Clocks

ELECTRICAL INSTRUMENTS. - Very few in number, 281. Constant Aberts very — very few in number, 231. None adapted for determining the quantity of strong-spheric electricity for meteorological purposes, it forms used for sole in intersects, ib. Application of forms were few in the intersects, ib. Application of the property of the control of the contro Description and object of this apparatus, ib. Harris's thermo-electrometer, ib. Simple and effective electrical machine for medical purposes, ib. Hydro-electric chain batteries, ib. Arranged to be very portable, designed to be worn on the body for the cure of chronic diseases, ib.

LECTER-DENAMENTERS. - Weber's electro-dynamometer for measuring the intensity of galvanic currents, 313. General remarks thereon, sh.

ELECTRO-MAGNETIC MACHINES AND APPARATUS - Application of electro-magnetism to the movement of mucidnes, 282. Discovery of Professor Oersted, ib. No great power yet obtained, ib. Many important difficulties overcome, ib. Objects exhibited, 282, 283. Description thereof, and ebservations of the Jury thereon, ib.

ELECTROPLANTS.—Application of sulphuret of early not celetro-polarity, 28. Importunit position in industry gold-plating, 28. Importunit position in industry gold-plating, alter-plating, &c. 201. Introduction of the process inter-gradual position, 2018. Introduction of the process in England by Messrs. Elkington. Mason, and Un. 3. Bernsich on the collection relibilities of the process of the pr ELECTRO-PLATING. - Application of sulphuret of carbon to

Encreavires. — Application of cicertotyping to vego-fonoling, 41. This an improvement description pro-feron allering to the original plate, 62. Specimens from allering to the original plate, 63. Specimens from allering to the original plate, 63. Specimens from allering to the original plate, 63. Specimens from the control of the control of the control from the control of the control of the control fillings of the control of the control of the control fillings of the control of the control of the control of the fillings of the control of t

Eliam, Jenes, and Co., 42

Ellin, T., and Co., 490. ELLIPSOID -- Model of an, 313 ELLIPTORAPHS - Description thereof, 311. Elliott and Heys, 197. Elliott, J., 490. Elliott and Son, 501

Elliott and Sons, 218, 232, 234, 267, 273, 238, 301, 302, 305,

Eloffe, M., 28

Eloffe, M., 22. See also S. f Eloiza, Don F. (Juror), xxix. Elsecot Colliery, Barnsley, IL ELVAN STONE. See Purphyry. See also Sufety Lumps. See also Corl.

EMAIL ORBANT. The process of Baron du Tremblay for gluzing porcelain, stamped with designs so called, described, 542. EMBOSSER BOOKS FOR THE BLIND.-See Blind, Apparatus,

and Books for teaching the.

Emmostro Catron-See Bookbinding.

Emmostro (Reposse) Wong.—Remarks on the principal

contributions in this section, 633.

Emanoneur.—Remarks on the progress made in the manufacture of English, Irish, and Scotch sewed muslin embroidery, 454. National importance of this branch of industry evidenced by the number of exhiintors and the varied merits of their productions, ib. Retrospective view of the trade, ib. First decided impulse given to the manufacture by the social revolution wrought among the Seotch and Irish peramutry by the introduction of machinery for linen vary spinning, ib. Great heacht resulting to the manufacture by the substitution of lithography for the old, tedious, I expensive system of black printing, it. and expensive system of mack printing, in. So great increase in the amount of employment in Ayrabire and other places in Scotland; but in Ulster and the West of Ireland the embroidery trade almost universal, and the principal support of the female population, ib. Variation in the wages paid for working according to Variation in the wages paid for working according to the prosperity or otherwise of the trust, 454, 455. Eatimated amount anoually turned over in the manu-facture, 455. The market for these industrial produc-tions daily enlarging, both at home and in the colonies; indree quantity also takes by the United States, 46. Increasing sale in the continestal countries, now ith-matical the procedure of hostile artific 46. The standing the prevalence of hostile tariffs, ib. The home embroidery trada well but not more than ade-quately represented in the Exhibition; nature of the articles exhibited; foreign productions exhibited, ib Future prospects of the trade decidedly favourable, ib Government schools of design tending largely to deve-Government schools of design tending largely to deve-lop Its growth, ib. Embroidery work of every de-scription of very ancient date in France, ib. Number of females to whom it gives employment, ib. This branch may be placed under two heads, viz., embroidery in colours and fancy work and white embroidery, though these may be subdivided into several paris, ib. Lyons and Paris the chief scata of embroidery in colours and fancy work; great variety of tasteful articles manu-factured, ib. Great extent to which white embroidery is carried on; principal articles manufactured; de-partmonis in which chiefly carried on, 4%. Great extent to which embroidery is carried on in Switzerland; beautiful specimens produced; statistics relative to this branch of manufacture, \$67. Exhibition of embroidery from Saxony, Spain, and Hamburg limited, ib. Few articles of embroidery from Austria, and those not suited to the British markel, ib. List of exhibitors in whom awards were given, and nature of the exhibits, 469, 470, 471, 472. Embroidered buildress, 482. Specimens of embroidered dresses from Tunis,

482 Specimens of embroidered dresses from Tunis, Turkey, Gerece, India, and China, 283, 284, Designs for embroidery, 652. See also Designs for Swards and Yarus. Estraatus. – Flue emerskis in the veisations, from the Muso Minc, New Grenada, 12. Fine specimens of, from the Mego Mines, New Grenada, 33.
8.MENY.—Samples of, from Naxos (Greece), 32.
8.MENY.—Samples of, from Naxos (Greece), 32.

EMERY PAPER. -- Excellent specimens of emery paper and emery eloth, 682. Emmerich and Goerger, 322.

Embelding, Fort of, 201, 202.

Every T., 201, 302.

Every T., 202, 302. partment, Int. The like of works in the Austrian Department, Int. Remarks on miniatures on enamel sent from Saxony, 622.

EXCAUSTIC PAINTING AND FRESCO Notices of the principal

works in, 653.

Excaver: Tiles.—Many and important improvements in encustric tiles, introduced by Mr. Minton, 554. Variety, beauty, and excellence of the encustic and mosaic tiles manufactured, 577. Eufert, D', Brothers, 165. Enfer, E. 176.

ENGAGEMENT REGISTER.- Circular slate, with divisions for each day in the month, 315. Use thereof for registering engagements, &c., ib.

Engel, F., 313, Eagel, J., 686, 704, Engeler, H. M., and Son, 600. ngelmann, --, 703 Engelmann, S., 78.

Engerth, Professor W. (Juror), axvi. England, G., and Co., 184, 186.

English, E. F., 551, English's Patent Camphine Company, 72, 80, Engaving on Glass - Prize Medals, &c., awarded for, 536,

Enriquez, J., 57. Enriquez, J. N., 63. Enschede, J., and Sons, 406, 408, 410, 454.

Enerbeids, J., and Sonn. 465, 1995, 410, 524.
Enert, T., 462.

new system, 196.
Equatorials.—See Astronomical Instruments. Erard, P. 328, 322, 330, 333.

An extract of the Secale cornutam, 43.

Erich, C. A., 55 Erich, C. A., 3a. Ericsson, J., 219, 243, 252, 253, 301, 302. Ernst, P., 508. Ershoff, Lieut.-General, 53, 54. Erskine and Co., Messrs., 14.

Erici and Son, 246, 250.
Enyrman Acid Prepared from lichens, 50.
Escapiments of Watches.—See Watches.

Escherisch, —, 442. Eschweiler, Mining Company in (Stolberg), 31. Esdailes and Margrave, 219, 601. Essences. See Perfus

EBBENCES.- See Perfumery. EBBENCHAL OHLE.- See Off. EBBENC, W., 687, 624. EBBENCHAL OHLE.- SEE OFF. EBBENCHAL BROWNERY OF (Russia), 22. EBBENCHAL BROWNERY OF (Russia), 22. EBBENCHAL BROWNERY S. 26, 165, 201, 428. See also Brown

Manufactures.

Memojacteres.

Memoja

Mexican town and savage life, 649, 550. Remarks on the figures modelle in chy and platter, and carred in wood, exhibited in the Indian town, 542. Figures models contributed by Spain, illustrative of the dress and manners of that country, 3b. List of awards, 552. Etienes, 8t. (France)—Text of M. Chuard's gazoscope in the coal misse of, 256. Turkey, and Wartemburg, 668, 662. Number of exhibitors of fams; classification thereof according to the various countries, 662. List of awards, ib. Faraday, Michael (Juror), xxvi, 521 Faraday and Son, 501 Farey, J. (Juror), xxvl. FARSIA.-Samples of maize faring from the United States. Ettelb, Mchsen, 57. Eubara, Bishop of, 66. Euston and Milligan, 148 55, 55.
Farina, A., 410, 454.
Farina, J. M., 603, 611, 614.
Farjon, H., 162.
Farlow, C., 677, 678.
Farlow, J. K., 677, 678.
Farrango, Miss. 482.
Farrango, Count de, St. Euston and Millican, 148.

Evans and Co., 344, 346.

Evans, D., and Co., 524.

Evans, D., 525.

Evans, E., 425.

Evans, E., 425.

Evans, E., 425.

Evans, G., 45.

Evans, G., 45.

Evans, J., 80n, and Co., 499, 5

Evans, J., 80n, and Co., 499, 5

Evans, J., 80n, and Evans, Alley, Evans, J., 80n, and Evans, Evans, Alley, Evans, Alley, Evans, Alley Farrote, Cenat or, 3a Farrow, C., 508 Fastes, ..., jun., 375 Fastes, ..., 293, 301. Faucet, T., 120. Fauconier-Delire, 508 Evans, Mesers, 44, Evans, O. B., 277, Kvans, R., and Co., 462, Evans, S. A., exx. Evans and Son, 374, Evans, W., 192, 173, 346, Everacrt Sisters, 471, Faudel and Phillips, 472, 474. Faulding, J., 208. Fauler, J. P. (Juror), xxviil. Faulkner, R. and C., 26. Fauntlery and Sons, 104, 164. Fauntlery I. F., 689. Faure, J. M., 551. Fausemagne, —, 165. Everett, -, 631. Everitt and Son, 501 Fanvele-Delaborre, 600 Evershed, -, 3th.

Kvrot, -, 5th.

Kvrot, -, 5th.

Everst, 15, 5th.

Ewing, J. H., 153.

Ewing, J. H., 153.

Excise Durks. - Injurious results attending the operation Fanvele-Delahorre, Favre, Brandt, 342. Favre, H. A., 342. Favrel, --, 22. Fawcett, --, 474. Fawcett, B., 45. Faye, P. G., 108. of the Excise loss relating to the manufacture of glass, Expansion Gran.—Patent expansion gear, by which the variations of the expansion may be registered whilst the engine is working, 152. FEATURES AND DRWS .- Instructive and comprehensive collection thereof, 163. Different states of preparation for bed-stuffing, 38. Names of the exhibitors and EVE-PIECES FOR TELESCHEES. See Telescones. Eyrs, Armirciat-Observations on the collection of 345. awards, ib. General admiration attracted by the beauawards, it. Content summents outsieved by the citied colonizing and graceful form of these ornaments, 3sf. Kinds generally worn for dress, ib. Remarks on these variaties as regards their relativo value and uso, ib. Employment given to a great number of females Eymien, P., ami Son, 162, 307 Eyre, Ward, and Co., 10, 482. Eyres, Wm., and Sons, 322 Faber, A. W., 450, 450 Fabian, C. G., 84, 103 by the manufacture of feathers, ib. Articles exhibited: names of exhibitors to whom awards have been made. Fabrique-Noury, Son, Harouin, and Co., 162, 367. sh.—See also Leather, be.
FERTHER FLOWERS.—See Flowers, Artificial. Fabry, A., 17 Feau-Bechard, V. A., 459.
Fechner, -, 404, 418.
Fecular-Fine collection of fecules from Paris, 55 IMILES OF ANGIENT MSS .- Remarks on the fac-similes of illuminations and initial letters executed by Count
Auguste de Bastard, 688, 203.

FAC-SIMILE: OF PRINTING—Executed by the band, 686. ples of from the United States, ib.—See also Starch. Feetham, Miller, and Cn., 504. Facy, R., 307. Facy, K., 304.
Fady, Captain, 646.
Fadyailbe, V. B., 65.
Facsler, J., 456.
Facsler, J. A., 602.
Fairbairn, W., Juror), xxvl, xxxl.
Fairbairn, W., and Sona, 169, 203, 202, 205.
Falcial Brothers, 351. Febr and Eisenring, 423 Fehr, J. C., 318 Foiehmann, C., 6 Feigenspan, A., M Feischman, -, 10 Felix, A., 663 Felkin, W. (Juror), xxv, xxviil. Pulconer, Dr., 600 FELT HATS-Specimens of, from France, 481. Falisse and Trapmann, 221, 504. FELT CLOTES - Specimens of, 352, 353 FELTING WOOLS Falk, — (Jnror), xxix. Falkland Islands—Promising specimen of liehen and or--See Haw Produce, be. FENORES.-See Stores FALELAND ISLANDS—Promising specimen of lieben and chills weed from, 62.

FALKLAND, Lone—Statue of, remarks thereos, 665, 665.

Fallone, F., 27, 687, 765, 740.

Fallon-Piron, J. B., 23.

Fallon-Piron, J. B., 23. FENDERS.—See Stores.
Fenn, J., 509.
Fenney, F., 480.
Ferguson Brothers, 410.
Ferguson, Miller, and Co., 582 erguson and Sons, 345, 346 ergusson, C. A. and T., 22 Fergusson, C. Ferie, W., 372 Fancourt, C., exx.

Faxs.—Occur in paintings on Theban tombs, 652 es.—Cocar in paintings on Theban tombs, 666. The fin a mentioned by Euriphez; its use in Greece similar to that in Egypt, but in forms for more bea-tiful, it. Lutury of the fan estyped by the Hamma works of the middle ager, it. Fan, as brought to France by Catherine de Melleit, is, it. Gergenous fans in uan in the reigns of Louis XIV. and Louis XVI, high east thereof, it. Phinted data of aniversal use FERNENTED LIQUOUS.-See Beer, Vino di Arancio. Fernandez, --, St. FERNS, Darzo. -- Series of well-preserved and carefully-dried ferns from Madoirs, 157. dried ferus from Madoirs, 152.
Ferouelle and Rolland, 348.
Ferrare, F. and L. de, 22.
Ferrare, H., and Sisters, 653.
Ferreirs, M. B. 40.
Ferrier, H. B. 4. See also Oxide of Iron
Ferrier, Honourable J., 16. See also Oxide of Iron and moderate price is Italy in the early part of the 17th century, it. England a great huver of fams in the France — Reyal Manufactory of Isabella II. at (Spain), 371.
France Boar—Model of, for railways, 203. Fib century, ib. Enginesia great buyer of fass in the | Fazzaoc—Royal Manufactury of isobella Li, at (Syala), 32L last century, ib. Superierity of the Chinese fast, ib. | Fazza Rox.—Model, of pr milway, 22d.
Description of the fass of Fanner; statistics of the | Ferravallady, The (Tailors Association), of Janies, 524, truck at various periods, 577, 625. Namesus examples: Periy, A., 52.
of fass contributed by the colonial dependencies of | Feeder, A., (Jarex), 213.
of fast Contributed Systems of the Con

INDEX. slates from the Festinion Quarries, & Beautiful ane-

FITTH GOOSE-FOOT-Extract of, Fetter and Rahn, 404, 548, 718 Fetu, J., 500. Feucher, --, 701 Feuchtwanger, Dr., 18, 76. Feyeux, N. D. M., 55. Figgors Superances.—One of the most important section of the whole series of raw produce, 31. Division of this subject late three distinct heads, 5. The first, Including the different varieties of cotton, \$3.95. The second, flax and hemp, \$6.100. And the third, con-sisting of the various other vegetable fibres, 100 100. Interesting collection of vegetable fibres from India, litt. Specimens of also fibro from the Cape of

Good Hope, 101. Samples and speciment of various vegetable fibres from several of the West India Islands, 102, 103. Bale of "New Orienos moss, for horse-hair, from the United States, 103. " a substitute Specimens of fibrous wood from Austria, is. Specimeo of fine wool used for stuffing furniture, from Prussia, is. Speelmens of vegetable fibres from Spain, and also from

See also Cotton. Flax and Heup. Flealbo, Marquis de, 84, 103, 133.

cimens of slate flags from, 22

Fledler, A. G., 352.
Fledler, J. C. and J., 624, 628.
Fledd and Son, 267, 272.
Fig.p Gess. See Cannon, Sc. Fieldhouse and Cu., 202

Figure and Co., 300. Figure and Sons, 157

Figure 10, J. de, 33, 463 Filemonoff, K., 22

Fleenond, K., 22.
Flex. Specimens of various descriptions, 439, 431.
Flex. Specimens of various descriptions, 439, 431.
Flex. Flex. Specimens of, from India as perfect as that from Chins, 311.
Specimens of fligree work from Genon, 317.
Specimens of fligree work from Genon, 317.

FILTERS.—Observations on Ransome and Co.'s filters, 576. Finch, J., 541. Finch and Willey, 201

Fine Arts, Materials and Processes applicable: tire. -- Nutlees of the principal materials and process vii.ε. Nutlices of the principal materials and processes applicable to the Fine Arts generally, via.:—1. Encaustic painting and froce, 685.—2. Ornamental printing, chromo-typography, gold-illuminated typography, &c., ib.—3. Lithography (black), chromothypography, &c., ib.—3. Lithography (black), chromothypography, bc., ib.—1.

4. Zincugraphy or other modes of printing, ib. Other processes, ib. FINOIR PLATES.—Protean stone or imitation ivory plates, fills. Specimens axhibited, 620. See also Door Plates. Finlation, W., 25.
Finlayson, Bousefield, and Co., 370, 371.

Fininyson, F, and Co. 348

Fino, J., 620. Floiet, L., 23, 672, 673. Fine Assimilatons: Portable machine, by Phillips, for ex-Fig. A.S. Hiller, Toron. Portable machine, by Phillips, for extinguishing free by chemical application, 222, 222. Mixture used, 223. Detail of experiments tried, and results, 3. Frinciples of access, 3. London et al., and the property of the property

FIRE BRICKS. Samples of fire-bricks exhibited by Messra

Cowen and Co., Blaydon Burn, Newcastle-on-Tyne, 584. Great extent of their works, ib. Other samples of fire-bricks exhibited, 584, 585. Specimens of glazed e-clay brieks, 52

Fine-CLAY - Specimens of, 23. Articles from Baudoir, Belgium, made of refractory clay, ib. - Sec also Clay, Re-

FIRE-CLAY GOODS (glazed). Several exhibitors of glazed B.-C.L.V GOODS (ginzes).—Several exhibitors of guized fire-clay goods, some of them nearly approximating to the manufacture of porcelain, 285. Unjects exhibited and awards, ib. Specimens of from Prussia and from the United States, ib.—See also Fire-Bricks.

Fit.r-Excises.-Carriage fire-engine, from Canada, to be worked by forty men; ingeoious construction thereof; great power, &c. 172. Fire-engine without a carriage, great power, ac. LLL reresquire runs reserving and a marino fire-engine, and a marino fire-engine, worked by twenty-eight men, &. London Brigade carriage fire-eogine to be worked by thirty men, &. Table showing the relative power of these various ex-

gines, 179, 180 Firmin and None, Firth and Sons, 330

Fiscis Brothers, 471

Fischer, A. 23, 489, 504, 69 Fischer, B., 21, -80c also N Fischer, C., 512 Fischer, C. A., 221, Fischer, C. F. A., 442, 452, Fischer, C. H., 503, Fischer, C. U., 503, Fischer, C. U., 503,

Fischer, E., 22 Fischer, G. T., 83, 91 Fischer, J. C., 35, Fischer, J. C., 35, Fischer, K., 686, 608, Fischer, Morltz, 542,

Fig. Drien, -Dried mullets from New Zealand, 65. Sa

ples of dried fish from Switzerland, & From Russia, rb. Fron-House See Fishing-tackle.

Fisher, -, 140 Fisher, A., 63. Fisher and Bramhall, 433.

Fisher, F., 581. Fisher, J., 56, 541. Fisher, J., 56, 541. Fisher, J. H., 422. Fisher, J. N., 508. Fisher, T., 313, 314. Fisher, T. W., and Co., 613

Fiduces and Robinson, 463, Frantso Bears—Models of various descriptions of, 213, Frantso Tacket, &c.—Spreimens of deep sea-lines and books, 213. Articles under this head almost entirely

besits, <u>Ill.</u> Artiset's unser this result amost entirely of liketish manofacture, <u>Gil.</u> Angling vary little pur-sued in any other resultrice, <u>Gil.</u> Angling vary little pur-sued in any other resultrice, <u>Gil.</u> Number of Exhibitors, <u>Gil. Merits</u> of many articles could not be completely tested within the limits of the Exhibition, <u>Gil. Creditables</u> execution and high finish of the articles contributed, <u>Gil.</u> execution and urga mass or the structure Construction, or Improvements which combine practical utility with excellent workmanship, effected by Little and Co. 678. Multiplying reel of ingenius arrangement, ib. Im-moved construction of ferralter, ib. Fine lines for proved construction of ferrules, ib. Fine line float-fishing from France, ib. List of Awards, ib.

Fitels, F. C., 121. Fiter, J., 472

Fizeau, -, 23 Fitzmaurice, Hon. Capt., 220.

Fitzwilliam, Earl, 11. Flacheron-Hayard, 272 Figureron-Hayard, 223.
Flace-trows, Pariso-stows, &c. — Classification of the British paving-stones exhibited, 554, 555. Yorkshire flags of great importance in England, 555. Objects exhibited; particular remerks thereon, awards, &c.; musicle of paving stones from Belgium, it. Pavement exhibited by M. Desauges, of Paris, manufactured of a

stone called Pierre de Tonnerre, 16. Flassier Brothers, 473, 475.
FLASSERS, Samples of Flemish flax. meritorious on ac-

count of extreme finences, 370, 312.
FLANNEL (COTTON), -- See Cotton Manufactures FLANNELA - Wales the original place where this article was

made, 355. Welsh financis still held in high repute, ib. maker, and we seem into the seem of the control of Saxony flannels, ib. A few wints and dyed fiannels made in the West of England, ib. A few low flannels and contys, commonly called Gelways, made in Prodoction of a few common and low fian nels in Canada, ib. Considerable merit in the fine light finnels made in France, ib. Good as-ortment of fiannels from Belglum, ib. The few fiannels exhibited from Americe of good make and finish, ib. List of contributors, specimens exhibited, and prizes awarded 338, 359.

Finther, B. 420 FLATTING HOLLERS .- Highly-finished rolling-mill, adapted for a mint, from Prussin, 201. Fland, H. P., 152. Flavel, J., 429. Flavel, S., 501.

FLAX. Samples of flax from New Zealand, prepared from

the leaves of the Phornium tewar, 101.

FLAN-BLEWING MACHINEAU.—The first manufacture represented in the British Department with the same spirit

end completeness as the cotton, 126. Machines exhibited, ib. No machinery relating to the flax maunfacture in the Foreign Department, ib. Flax, Society for Cultivation of (ireland), 62.

Flax, Society for Cutivation of treinad), 62.

Flax and Harm-Timbul Interns in the quantity of flax imported into Great British for many years, 45...

Imported into Great British for many years, 45...

and improve the manufacture of flax is various parts of the British Empire, citedy in Irvinda, 45. Marked interns of the British Empire, citedy in Irvinda, 45. Marked interns of the British Empire, citedy in Irvinda, 45. Marked interns of the British Empire, citedy in Irvinda (1997), 45. Marked Interns of the British Empire, cited of Flax in Irvinda, 45. Considerable Improvement of Flax in Irvinda, 45. Considerable Improvement could be of Flax in Irvinda, 45. Considerable Improvement could collaborate the Considerable Improvement could be of the Considerable Improvement Considerable Impr Schenek's new process of steeping; detail of this pro-cess, 56, 97. Remarks on the different samples and specimens of flax and hemp from various countries; specianess of fins and hemp from various constrict, mannes of stabilities, and exhibits for which awards have been granted, 97-100. Valuable collection shown by the Royal Sciency for Improving and Promoding the Growth of Fax in twee looks, and the stability of the many constraints of the constraints of the constraints of the and been past with in the English market, 3. Nume-rous specimens contributed by P. Classeen, illustrating his patient process of making flax control, detail of the process, [27], 285. Stamples of various descriptions of Good sameters of hemp from Isolia, a. S. Smules of C. Good sameters of them process (a. S. Smules of Smules of Smules and Smules of Sm flax and being standard in the British Aspartment, 23.
Good samples of hemp from India, ib. Samples of Caundian flax, ib. Good specimen of flax from Yan Diemen's Land, ib. Few small samples of flax and hemp of
fair average quality from the United States, ib. Samples
of strong and well-prepared flax from Moravia, Austria, 22. Excellent samples of flax and hemp from tria, 22. Excellent issimples of flax and hemp from Belgium, th. Specimens of flax and hemp in the Expytian coliection of raw produce, th. Very superior flax and hemp contributed by French exhibitors, th. Samples of hemp and flax from the Zoliverein States, the Specimens of both flax and hemp from Portugal, the Specimens of both flax and hemp from Portugal, the Specimens of flax and hemp shown in the Russian examples of flax and hemp shown in the Russian states. of samples of flax and hemp shown in the Russian collection of raw produce; several of the specimens capital, ib. Good samples of flax and hemp exhibited in captual, ib. Gran samples of the annies of water-retted flax from Sweden, [69, 100. Samples of flax and two of bemp exhibited in the Turkish Collection, ib.

Flux and Hemp Mannfactures (Class XIV.) — Tabular classification of objects in the Exhibition into which this Class is divided, xv. List of Jurors appointed for this Class, xxviil. List of exhibitors in this Class to whom Prize Medals have been awarded, Ixxvii. The whom Prize Medals bave been awarded, Izxvii. The like of those in whose favour money awards have been granted, ib. And of those of whom Houseurable Men-tion is made, Ixxvii, Izxviii. Observations on the pra-gress and position of this important branch of manufac-ture, 322. Specimens of lines eleth from Egypt, id. gress and positions or an important memory.

Luce, \$22. Specimens of lines electh from Egypt, ib.
These ero much surpassed by the European manufacture, ib. Cloth mode from "Chinegrass," ib. This article a species of flax, ib. Handkerchiefs and fine line made from the material, ib. Northern continental nations of Europe long celebrated for the production. nations of Enrope long celebrates for the prosecu-of flax and its manufactures, ib. Superiority of those of Flanders, Russia, and Germany, b. Great Britain and Ireland not much noted for the manufacture of the "summer-lenny," ib. linens until the Invention of the "spinning-jenny," ib. Advantages now possessed by Great Britain in the production of many descriptions of mili-jun yarns and manufactured goods, ib. Use of steam power becoming more general on the Continent, ib. Ireland is producing both lawns and handkerchiefs very extensively, ib. both lawns and handkerchiefs very catesurively, it. Scotland pre-eminent in ion-priced goods of the qualities extensively used at home and abroud, it. Westving by power-loom coming into very general near in Scotland, and also on the Continent, it. Jacquard loom now much used in making damesha, it. Englished produces large quantities of mill-spun years from flax, it. Creater and durability of lineas contributed by English exhibitors deservedly eciebrated, ib. Division et exhibitors deservedly evidented, ib. Division of this Class into two sections:—ist. Places fibre; and 2nd. Woven fabrics, 369, 370. No specimens of prepared faxen fibre worthy of particular commencet, 370. No improvement in the management of flax for manufacturing purposes, ib. Samples of Flemh flax metionsons on account of extreme fleeness, ib. Very few rsous on account or extreme neeness, ii. Very few specimens of good flax from Ireland, ib. Flax rated on the hot and cold-water principles, ib. Specimens of English flax of sound quality, tough and good, ib. Excellent assortment of prepared flax from Russin, 370 Remarks on the preparation of flax by M. Clausson's process, ib. Specimens of Chisa-grass in different process, 10. "prevaneus of Camargrass of Camargrass stages of preparation, dressing, and manufacture, 16. Observations on the yarns exhibited, 16. Little competition in mill-spun yarns, 16. Ireland not adequately represented ib. Specimens from Scotland of fair quality, ib. Excellent display of yarns from Belgium and Prussis, ib. Samples of linen incing-threads of great Prussis, db. Samples of lines inclus-threads of great variety and general merit, db. Cubicettes of conlage, variety and general merit, db. Cubicettes of conlage, fabrics, db. Samples of canvas, sullcicht, acklug, car-peting, &c., of great excellence, 379, 321. General excellence of the worm fabrics, fewly and low-priced excellence of the worm fabrics, fewly and low-priced between the control of the control of the con-burgs, &c., 321. Extensive and varied exhibition of plain lines of all within, blessedd and unbireched, of excellent quality, &. Observations on the general ex-ceilence of the drills, demarks, and twilled linens exhibited, &. Speclauens of cambrics, lawns, and printed linens for dresses, &c., &. Management of fax and its products involves a great amount of skill and labour, ib. Satisfaction expressed at the excellence of the textile fabrics contributed, ib. No Council Medals recommended in this Class, ib. Awerds of Prize Medals, Honourabla Mestiens, and Moncy Premiums, 371-373.

FLAX AND HENP, SUBSTITUTES FOR. Large number of fibrous substances used as substitutes for flax and hemp, shown in the various collections of raw produce, ht shown in the various contections of raw produce, and. Nature of these substances, specimens and samples ex-hibited; awards and names of exhibitors, 100-103. Flaxman.—Influence of his works on English art; their

execution hardly equal to the conception, 652.

Flechey, J. B., 432, 454.

FLEECY HOSEGY Samples of, having special reference to

medical uses, 478. Fleischmann, J., 672. Fletcher, —, 328.

Fletcher, -, 2025.
Fletcher, H., Gell.
Fletcher, H., Gell.
Fletcher, J., 2021.
Fletcher, T., 2021.
Fletcher, T., 2021.
Fletchy, J., 7, 75.
Flikouse, Balann-Good samples of the Xanthorhora resins from, 90.

First Glass - I'se made of the block flint in the manufac-

Flave Class—I've made of the block finit in the manufac-ture of probably gear site to the same, Eds. Great treduced into England, 8. Newsitz of the parent granter to Sir Robert Mannell in 1623, adoption of a metallic max, 8. Works for its manufacture in France, 8. Works for its manufacture in France, 8. From Poblemia, &c., 8. See shot Optical Glass. Flooriso-Lournes—Revolving floating-lights, 2023. These lights are in sea and work well, 1921.

FLOCK-PAPER. -- See Paper-hangings.

Flockenhaus and Co., 138. Flöge, G., 673

Flood, J., 35

From J. J. S. List of awards of Prize Medals and Ho-nourable Mentions for floor-cloths, 475. Specimens exhibited, ib. Principles on which designs for flor-cloths should be regulated, 225. Remarks on the examples contained in the Exhibition, 225. FLOORING, INLAID. - See Infoid Floors. Mosaic Purewests.

Florange, -, jun., 5 loreffe, Societé de (Belginm), 45 Account of the Florence

Florence Court (ireland). — Accourt tile and pottery works, 582.
Flores Calderon and Co., 76, 77. Florimond, -, 614

FLOCE .- Observations relative to flours and the various

Process Observations relative to flows and the various preparations interfering \$\begin{align*}{0.5}\$ More properties of flow the produce of the United Kingdons, \$\beta\$. Few unspice expidence of the United Kingdons, \$\beta\$. Few analysis expidence of the United Kingdons, \$\beta\$. From the Various Australiant, \$\beta\$. Even the Various Australiant, \$\beta\$. From Revents, \$\beta\$. From Revents, \$\beta\$. From the Various Australiant, \$\beta\$. From Revents, \$\beta\$. From the Various Australiant, \$\beta\$. From Revents, \$\beta\$. From the Various Australiant, \$\beta\$. From Revents, \$\beta\$. From the Various of machines for cleaning grain and separating the fore; puricies from the course after grinding, \$\beta\$.

Flower, A , CXX.
FLOWER-POTS.—Collection of flower-pots of very admirable

manufacture, and remarkable both for colour, smoothness, and style, 201 FLOWEU-STANDS-Specimens of, in Iron and brass, 503, 500.

In silver, 520. FLOWERS, ARTIFICIAL - Wax flowers and artificial flowers made of other materials, considered under this head, Wax flowers, from their fragility, chiefly restricted in their application to purposes of decoration, ib. Less difficulty in making them than in those made of cambric, feathers, or similar materials, ib. Important points in the manufacture of the latter description of towers, viz , ilurability, the advantageous application of varied materials, and finally, cheapness of production, ib. Remarks on the contributions from various countries, namely, Austria, Brazil, the British colonies, and the Chunnel Islands, France, Portugal, Sweden, &c and also in the exhibits in the British Department of the Exhibition, 642 644. Classification of the exhi-bitors according to the various countries; list of awards, names of exhibitors, and articles exhibited,

FLI OR STAIL - Remarks on the Derbyshire manufacture of fluor spar; oidects exhibited, 266.

FLUTES - Improvements effected to the flute by Bochm of
Munich, 332. Also by Mr. J. Clinton, 36. Other

Modeh, 332. Also by Mr. J. Clluton, 36. Other flutes exhibited, 334.

FLY-WHEEL-Model of a compensating fly-wheel of ingenious construction, 173. Forura. - Observations on the samples of folder exhi-

Forura, 54.
Forse, G , 160, 600.
Fogarthy, J., 408. Fogarthy, J., 340. Fogelberg, -, 236. Fogelandl, T. B., 163 Foley, J. H., 633, 62 Folkard, J. W., 473 Follet, N., 574. Fons, J. P. de la, St

Fontaine, F., 363. Fontaine, P., 444. Fontaine-Baron, M., 172.

Fontain-Moreau, -, dc, 195-197.

Foxrs.—Font exhibited by Margetts and Eyles a fine apecimen of sculpture in Caen stone, 557. Various marble fours exhibited, 554.

ontrue and Porter, 2

route-liot, Viscount de, 52.
From, SumrAncest sens as (Class III.).—Tabular classifi-cation of objects in the Exhibitine into which the Class is divided, vi, vii. List of Jurots and Associates appointed for this Class, xvvi. List of exhibitors in this Class to whom Council Medala have been awarded onte-Bod, Viscount de, 5 positive for time class, xxvi. List of exmissions in his Class to whom Council Medals have been awarded, xli. The like of those to whom Prize Medals have been awarded, xli-xlill. And of those of whom Honnurable Mention is made, xilii-xiv. Course pursued by the Jury of this Class in conducting their inquiries, 51. Observations respecting the various items falling within the scope of these inquiries, viz.; Common European ecrolia, 31-33. Cerealia rarely cultivated in Europe 53. Millet and other small grains used as food, 53, 54

Fonct-Pumps. See Pumps. Ford, D , 536.

Fordism, -, 51. Fordism and Sons, 581. Francis Jinnes, See Juries.

Foxors. -- Forges from Plau, Bohemia, 21. Portable forges, See also Iron and Steel. Fonoiso Machines-Specimens of, 200

Formento, L., 367. Forrer, A., 388. Forrest, J., and Sons, 468, 743.

Forster, F , and Co., 33

Forster, S. A., 330, 33 Forster, T., 596, 507 Fortier, Beaulieu, 301 Fortuum, Mason, and Co.

Fossias Collection of, from America, 18. See also Mineratogical Specimens and Fouils. Foster, -, 558
Foster, J. (Juror), xxvill, xxxii,
Foster, J., and Son, 356, 360.
Foster, Porter, and Co., 481.

Foster, Son, and Duncan, 357, 644. Fothergill, B. (Juror), xxvi. Foucault, —, 511. Fouche-Leppelletier, Messrs., 35, 45.

Fourier, - , 1:8 Fouliscs, --

Remarks on the examples of fountains in aine and other Advantages that would attend the intro-

Hemarks on the rammy-metals, 212. Advantages that would attend duction of fountains into the Metropolit, ib. Foundinies, A. Q. 51, 43, 50, 701, 721, 728. Foundinier, E. N., 123, 199, 231. Foundinier, E. N., 123, 199, 231. Foundinier, L. 1, 130, 18, 271. Foundinier, J. 11, 130, 18, 272. Foundinier, Jun., 462.

Fournivel, Altmayer, and Co., 360, 361. Fowler, J., 240, 242 Fnwler, J. P., 43

Fowler, Messrs., 118 FOWLING-PIECES, - See Guns, &c.

Fownes Brothers, 481 Fuz, A., 217. Fox, R. W., 257, 258, 581. Fox, T. H., 568. Fox, W., 142.

Fox and Barrington, Fox. Henderson, and Co., 183, 206, 532, 696, 688.

Fraccaroli, L. 685, 203 Fraikin, C. A., 685, 20 Fraikin, C. A., 683, 20 Franc and Martelin, 3

Franca, A. de, 520. FRANCE.—Apparatus of M. Berard for separating foreign substances from coal. 5. Brass manufactures from the works of Mesers. Estivant, of Givet, Ardennes, ib Mineral Industry of France at the present time als entirely concentrated in the working of coal and the production of iron, 21. Evidences existing that, not-withstanding this, its territory is not less rich in metalliferous deposits than several other countries of Enrope celebrated for the prosperity of their mines, ib. Most celebrated for the prosperity of their mises, & Most of the mines in France were worked on an extensiva scale during the dominion of the Romans, and still later under the feedal invites, & Diminution of these workings when the power of these lords were reduced under a central authority, & Finishing stroke given in this source of industry by the revolution of 1793, is. Few metal mines now in activity, small and unimportant rew metal raises now in activity; small and unimportant produce thereof, sh. Happy contrast formed to the workings of metal-mines, by the working of coal and the production of iron, \$\tilde{\chi}\$. General remarks on the working of coal in France, \$\tilde{\chi}\$. General remarks on the production of iron, \$24\$, \$\tilde{\chi}\$. Specimens of coal and iron exhibited, names of exhibiture and awards,

Production of ultramarine in France, number of manu

factories of that article, 41, 42. Present condition of the white lend manufacture in France, 42. No hulk of earn exhibited hy France, 52. The samples exhibited chiefly intended as illustrations of manufacexhibited enterly intended as illustrations of manuscular buring processes, &. Fine samples of rice, 33. Exten-sive collection of flours and preparations therefrom contributed from France, 25. Reference to the magni-ficest Gramax wheat-flour of M. D'Arblay, jung peculiar process by which prepared, &. The contribution of

dried fruits from France small, except of fruits preserved with sugar, 26. Extensive collection of choro-lates, 52. Samples of coffee, 15. Mustards, 62. Samples of aromatized vinegar, 15. Samples of starch and starch-gum derived from different sources, 28 and stard-gam derived from different sources, 25. Samples of sits, 25. Colouring matters or dy-rigs utility, 25. Colouring matters or dy-rigs utility, 25. The sits of the sits of the sits of the sits of the incole patient mathieser, 25.6. Specimens of woods, 125. Interesting specimens of preserved soods, 45. Hillentrisson of Protecteric process, 45. Exhibit of coccoss, 151, 152. Gettlines and giese of superior quility, 155. Specimens of allourne, 152. Asimal chartest, home-black, and two-p-black, 45. Darks to turburs, and sphession chartest of the chartest position of the sits of the sits of the sits of the sits of the Darks to turburs, and sphession chartest of the sits of the Darks to turburs, as hybridalic machine of feet.

France but almost unknown in England, 174. Descrip-tion thereof, ib. Double pump with large cylinders and aix-inch valves mumbed on carriage to be used in exeavations, 122. Carriages, viz.: a buggy drag and a town berlin, 193.

Cotton splinning machinery, 125. "L'Epurateur" for opening and cleaning cotton, ib. Splinning-frame, ib. opening and creating corton, 10. Spinking times, to Woollen manufacturing machinery, 126. Fulling machine for cloth, 36. Shearing machine, 36. Jacquardioom, employing paper instead of card, 127. Stocking or hosiery-frames, & Circular hosiery-frames, & Heald machines, & Machine for manufacturing paper, Machine for numbering and printing tickets, ib. Heckles, ib. Rollers for spinating machinery, 127. Card elothing machine, ib. Forging machine, 20. Machine for making nailt, 201. Press for bending and catting hooks and eyes, ib. Machine for plasting and modding wood, ib. Brickmaking machine for bollow moulding wood, ib. Brickmaking machine for bollow bricks, 202. Dressing machine for milistones, ib. Chocolate-making machine, ib. Kneading machine, ib. Apparatus for grinding and preparing potatoes, ib. Vacuum sugar apparatus, 201. Wire cloth for paper-makers, 211. Machine for engraving cylinders, ib.

makers, 201. Machine for engraving cylinders, ib. Machine for misclag ment, ib. Agricultural implements, 226, 238, 242. Improvements introduced by France in naval architec-Number of steam vessels built at Creuzot for the Rhone in 12 years, 215. Improved caps an adapted to the use of chain cables, 217. Objects conadapted to the use of chain cables, 217. Objects con-nected with ship builting from France, ib. Apparatus for saving life, 212. General remarks on the manu-facture of small arms, 220. This constry more ad-vanced in the manufacture than any other nation, ib. Specimens of small arms, 221.

Specimens of small arms, 221, Naniteal instruments of various descriptions, 252, 253. Surveying instruments, 254. Dividing machines, 257. Balances of various construction, 258, 259. Coinweigning machine, 261, 262. Air-pamps, of different construction, 263. Telescopes, 264. Microscopes, 252. Aeromatic glasses for telescopes, 262. Optical Commercials, the selectory tags the recognition of the commercial of the commercial of the commercial of the desired of the commercial of the desired of the commercial of the desired of the commercial of the co machines and rules, 310, 311. Printing machine for

muchines and rules, 310, 311. Printing muchine for the blind from, 31r. Eurot, 320. Harps by Domeny, Harps calabited by Mr. Eurot, 320. Harps by Domeny, Mr. Eurot, 320. Harms of the State of the State muckal instruments, 321. Whole instruments, 322. Harmoniums à Percusion, 45. Melcolinna, Australia Collection of turret clocks and ornanceida bous clocks, 323, 323. Watebre and watch-making machinery, 340. Collection of turret clocks and ornanceidal bous clocks, 324, 323. Watebre and watch-making machinery, 340.

Contention to surgers. 345, 346.

Cotton yarns, 347. Various aperimens of cotion manufastures from France, 348. Woollen cloths; principal otton yaros, 34. Various sperlmens of cotton manu-factures from France, 348. Woollen cloths; principal seats of manufacture thereof, 351, 352. Worsted stuff, goods, 354-352. Considerable merit to the face light financia unite in France; sperlmens exhibited, 353. Large proportion of merino yarms exhibited, 353. The mulci in universal use on the Continent for spinning short-stapled wools, 350. This the chief cause why tis French have been able to take the lead in merioss and pusseline-de laine fabrics, ib. Samples of yaras, No. 361. Remarks on the silk manufacture of France, 2023. Specimens of fibbuss, 2021. Specimens of manufactured silks, 2023-2026. Flax and hemper manufactures, 372, 372. Large quantities of mixed fabrics produced in France, 2024. Peculiarly successful in the facer and in Specimens of shawls of various descriptions,

Feather ornaments, feather screens, and feather brooms, 337. Specimens of perukes and ladies fronts, 388. Horse hair and "vegetable silk" damosk, ib. Various kinds of leather, 330-3:3. Parchment and veltum, 334. Saddlery and harness, ib.

213. Sailery and horrows. A common son victims, the latency of princips IP Practice produces of Opportunity of Practice II II Practice II II Practice
ing war, all. Specimens of printing and dyeing fabrics, 427, 438. Specimens of printing and dyeing fabrics, 427, 438. Causes of the superiority in the finer closes of French and the control of the cont

other wearing apparel, 482, 483.
Cutlery and tools, 489-491. General hardware, 403.
Works in the precisus metals and articles of Jewelley,
513, et req., 520. Description of the Jewels manufactured by C. Lemonnier, of Paris, for the Queeu of Spain, 515. Works in gilt bronze, 515, 516, 512. Period of the introduction of the glass manufacture into France, 523. Important privileges granted by the Government with the view of inducing persons of capital and edu-cation to enter into the business, ib. Modifications of cation to enter late, the business, & Moliferations of these privileges from time to time; their injuries effect, & introduction of the cylindrical process of manufacture of plategians in France, 262. The like as to flisterjians, 263. Articles of glass contributed from Prance for whole Medials, &c., box been as sarched, 262. France, 262. The like as to flisterjians, 263. Articles of glass contributed from Prance for whole Medials, &c., box been as sarched, 262. Ceramic Department of the Exhibition; Medials, &c., anarded, 262. Considerable reputation sequired by create to Payarm out of the challenge of State o oration; ornaments and decorations in this material,

marine, 352. Action in massive memors, 524. Specimen of asphalte adopted for pavement, 556. Specimen of "mataliic sponge," a curious and ingenious con-

trivance for a pavement, \$22. Machine for manufac-turing tubular bricks, \$20. Specimens of a new kind of tile, \$31. Porcelam chimney pieces, \$87. India-rabber manufactures; specimena of leather-soled India-rubber stores, 505, 506. Application of gutta-per-cha to the manufacture of surgical instruments and apparetus, [18]. Specimens of turning and carving in ivery, [22]. Tortoiseabell and horn combs, [23]. Hrushes, ib. Manufactures in cosk, [20]. Soups and Brushes, ib. Manufectures in cosk, figh. Soaps and pertunency, fills, fills, Stallstell account of the pertunency, fills, fills, Stallstell account of the mess of stearle and other canalies, fift. Blacking and various, fill. Stillag-houses and Impersations for heater and consistence of the perturbation for heater and consistence of the perturbation for heater and perturbation from France, fill. Stillag houses the French chibert from France, fill. Scientific so the French chibert from France, fill. Scientific so the French chibert wars, fill, fills, Account of the manufacture of partfrom France, tax.

ware, 614, fail. Acrount of the monomore as a solution of the property of t hibited, (2d.). The like as to walking sticks, 665, 626. Account of fan-making in France, 667, 668. Specimens exhibited, 662. Extensive manufacture of cuspipes, 672. Specimens exhibited, 673. Collection of pipes, 1922. Specimens exhibited, 5:3. Unfection of smitf-loxes, 636. Statistical account of the toy trade of Paris, &c., 579. Specimens exhibited, 600, 681. Great encouragement bestowed by the French, as a na-

tion, on the fine arts, 200. Protection affected by the Government, ib. Beneficial results arising therefrom, Notices of the principal works of art contributed 25. Notices of the principal works of act contributed by Francer—vik, wellprine on a large scale, 208, 201. September of the principal scale of the principal scale to the principal scale of the principal scale of the corp, and the principal scale of the principal scale of the principal scale of the principal scale of the corp, and the principal scale of the principal scale of the principal scale of the principal scale of the metal, d. Designs for revers and printed fabrics, do, Designs for pounted windows, d. The Carcemand Municipal scale of Goldelins and Benurias trapsetry, d. Municipal scale of Goldelins and Benurias trapsetry, d.

Lithography, 203. Lithocromy, ib. Printing in co-lours from wood blocks, ib. Designs generally and works in oronment, ib. t'astings in bronze, 705, 707.

National Printing-office, 453. Franceschinl, G., 162 Franche, C., 333

Francillon, -, 479, Francis and Son, 574, 575, Francis, W., 148, Frank, F., 163, Frank, J. G., 666, FRANKTORFOR

Frank, J. U., tim.
Frankron-row-rue-Marse — Specimens of playing-cards from, 442. Iron and zine ware, 197. Articles of glass, 242. Specimen of receiffed cognate-oil, 613. Remarks on the contribution of toys, 622.

Franklin, P. S., 13, 555, 561 FRANKLINITE, See Zinc. Franks, Mr., 685, Franks, Mr., 685, Franz, J., 504, 698, Fraser, D., 572, Fraser, W. J., 64, Fratin, —, 685, 704, Frauenhoffer, M., 52, Fracche C., 686, 704

Freerla, P., Frederiksen, J.

Freeman, Rov. E., 148.
Freeman, W. and J., 8, 546.
Faieze Clottis—Specimens of, 353.

Faitzr Clorus—opecimens or, and Premy, E., 520. French, B., 173. French Minister of War, xxxv, 69, 81, 104.

Frere, J. II., 421. Farico Paivring. See Enquetic and Freeo Painting. Sterroschron

Page-rove.—Warks in freestone, 552. Chimney-piece constructed of a stone obtained from Curnwall, and known as the polyphant freestone, 558.

Frosnel, A., Refracting apparatus introduced by, for lighthouses, 530. FRENEL'S UNDELATING PLAIN-Model of, 313.

Freund, E. A., 404, 448, 454. Frewer, -, 557. Frey, -, jun., 311, 204. Freyvogel and Heussler, 365. Friebel, L., 504, 707. Friedl, L., 450.

Friedlander, J. R., 417. Friedrich, J., 673.

Fries and Zeppeanuer, 367.

Frinault, 184.
Farwitz.—Power-loom for weaving fringe remarkable for mechanical contrivance, 127. Specimens of fringes,

202. Frinnely, F. A., 620. Frisch, J. (Jures), xxv. xxxll (Exhlbitor), 526, 533, Frich, Colonel, 123, 124, 136, 138. Fredelman, C., 536, 340, 342.

Froely, A., 489 Fromage, i., 125

Fromers, -, 25, 253 Froment-Meurice, 514, 701, 757, 239 Frommann, Messen, 41 Fromont, Chitus, 450 Fromsont and Non, 172

Fromout and Join, 122.
Front, J., 16, 202.
Fruer, A., 16, 202.
Fruer, Arries hat. Specimens of, exhibited, 614, 645.
Fruer, Barne.—The series of dried fruits very extensive;
absence of novelty in product, import, or preservation,
def. Remarks on the principal contributions, 56, 57.
Farrey, Parstance.—See Conferinsory.

Farmy, Parsantan, Sec. 18, Fry, Dr., 418, Fry, J., 418, Fry, J. 8, and Sons, 58, Fry, W., and Co., 526, Fuchs, J. N. Von, 688, 622, 211, 101

Fight Ford, 11., 160.

Ford. See Cod. Cole. Warlick's Potent Fuel.

Fordam Machines. Fulling machine of a new construc-

tion, from France, 126,

Funct, Co. Tence, LEE.

Funke, R., 323.

Function, Fightermander, and Netrate of Fearcrine, 42.

February, Fightermander, and Netrate of Fearcrine, 42.

February, —I'se made by the Ehbw Vale Iron Company of

as Acrs.—1 se minde by the findw Vale from Company of the gases recopying from the smallby furnaces to supply a steem engine, S. Model of two furnaces, showing the operation, M. Power of this gas in working as 6th-torre engine without other fuel, E. Greater durability of the boilers under this avetem, M. Samples of the pig and other iron produced at this establishment; good quality thereof, de.

Furness, W., 201, 201, Frantial and Producting (Class XXVI.).

TENTIAL AND TIPOLETRY (Class XXVI.).
Tabular elassification of objects in the Exhibition into which this Class is divided, xxi. List of Jurers and Associates appointed for this Class, xxx. List of Exhibition in this Class to whom Conneil Medish bave been awarded, evil. The like of those to whom Prize Medish takes teen awarded, evil, evil. And of those of whom Honomable Mention is made, eviil, cix

of whom Honounshie Mention is made, evili, ex. Impertance of the principles of sound construction being well-carried aut, ddd. If carving or other ornament be introduced, it should be by decorating the construction, and not overfaying it, \$\tilde{x}\$. Articles of furniture too often crowded with unnecessary embellishment, \$\tilde{x}\$. Great beauty of many of the ornamental works ex-hibited, ib. Regret that there are not more specimens of ordinary furniture for general use, ib. Cabiaet furof originary furniture for general use, is. Collect fur-niture first became an article of general luxury about the beginning of the 16th century, ib. Inlaid and richly curved furniture manufactured in Italy at this period, ib. Great excellence of the works exhibited from Italy, particularly in the carved examples, ib. Elaborately carved work from Tuscany, ib. Elegant inlaid table from Sardinla, ib. Ornamental cabinet work acquired considerable reputation in France, in the time of Louis XIV., ib. its manufactures have since then continued to produce works of great beauty, The art of inlaying woods greatly advanced in the 76. The art or manying woods greatly account of the last century by Reisner, 20. In bull work the French have greatly excelled, 46. Germany long established for cablust work of a high class, 30. Excellent example for cabinet work of a high class, st. Excellent example prescuted in the chony cabinet of M. Gröger, of Vienna, preveniety in the cooling causest to 20. Grager, of 1 scans, 30. Chibact work of a useful description carried to a high state of perfection in Green Britain, 245. Promi-neut excellence, substantial quality and finished work-manship, th. Maloogany first employed for cabinet characteristics in Ingland board 1750, 48. Circumstances for the control of the control of the control of the con-trol of the control of the control of the control of the con-trol of the con-trol of the control of the con-trol of the con-of the con-of the con-trol of the con-of the con-of the con-of the con-of the co attending the introduction of mahogany for furniture making, sb. Impossibility of giving a description of the varians details of the manufacture of cabinet work, id. Marqueterle inlay one of the most beautiful and luteresting, ib. Account of the process employed, ib. interesting, st. Account of the process employed, st. Tarvia work, or the art of inlaying woods, practised from a very early date in Italy, st. Extensively em-ployed in the decoration of wall panelling, st. Admir-

able specimens of marqueteric exhibited 545 employed in the manufacture of build inlay, ib. contiful specimens of this work in the Exhibition, if Mosale inlay applied to furniture, ib. Description of the process, ib. Good specimes of this work in Ivory and metal, ib. Extraordicary table of Senor Perez of Spain, executed entirely in minute portious of wood, ib. Same principle carried out in a tuble by Mys of Ton-bridge Wells, ib. Principles of manufacture of parbridge Wells, ib. Principles of manufacture of par-queterie for floors, ib. Specimens showing the perfection to which this art has been brought, ib. Novelty of the Introduction of porcelain Iulaid in furniture like marqueterle, ib. Beautiful examples exhibited, ib. Many pieces of furniture owe much of their attraction to the metal organization with which they are mounted, Many magnificent examples of carved fur-exhibited, ib. Grand huffet of M. Fourdinois, of of the bighest merit, ib. Great excellence of various specimens from France, ib. Grand collection of Austriau furniture, ib. Considerable finey and excellent trau rurnture, ib. Considerable finey and excellent workmanship displayed, ib. Various examples of carved furniture in the British Department, 545, 285. Ingenious specimens of cabinet work in which mechanical action is introduced, 545. Secret mechanism skilfully carried out, &. Curi-usly lulaid chairs and furniture in the Austrian Collection, ib, billiard-tables, ib. Those of British manufacture of simpler construction than the foreign, but solid and of excellent workmauship, so. List of awards, 500-500 Remarks on the examples of Domestic and other fur-

marks in the examples of Domestic and other fun-niture contained in the Exhibition, especially as regards "design," 220. Alterations observable in English furniture; contrast with its former high repute, ib. rinciples which should serve as general rules for the Principles which should serve as general rules for the designer and ornameotist of furniture; considerations to be attended to in construction, 25, 241. Calibert and purposed decoration cluervastle. In many ex-amples in the Eshibition condensed, 221. In France and construction of the Remainsoner pineripally used, & Popularity of the ornamental style of Loois XV., & Certalo of the articles in the Eshibition in this depart. ment criticised, 721. Ornamentation of the cases of musical instruments; false taste observable in some Instances, 223. Inlays of metal, mother-of-pearl, or tortoiseshell, in furniture; specimens exhibited, ib. Furniture io papier maché, ib. Unsuitableness to uses and fulse construction of some of the furniture in the Exhibition; special reference made to the Austrian state bed, &c., 724. Objections to the use of the arch in wooden furniture, ib. Sham construction, such as where portions which are intended for support are made to move from under the parts intended to be sopported when opening the doors of the furniture, ib. Question of the education of the net-workman with reference to furniture considered, 724, 225. Superiority of the French workmen in art-knowledge, 221. Remarks on furniture as connected with ornamental

merks on furniture as connected with ornamental design enationed; as to hardware, viz., grates, fenders, fire-irons, stoves, gas-fittings, &c., 725-727. Carpets, 727-729. Curtains and hangings, 729, 230. Damask table-lines, 720, 231. Concluding remarks as to the subordination of details to general effect, 231. Franture Nilas.—See Sills, Manifestand. Francis Nilas.—Articles made from the far of the

common hare, 332. Table of the imports and exports of skins adapted for furs, 321. Description of the pro-cess of preparing the akins from the raw state and rendering them fit for ornamental dress. 383, 381. Successful process adopted in Paris and London of dyeing the inferior skius to imitate the more perfect specimens, 244. Permanence of colour lu the dyed sable frequently found of equal durability to that of skins of the natural colour, d. Complete collection of all the skins known to be used for ornament or dress, an use same known to be used for ornament or dress, formed by the contributions to the Exhibition, ib. Choice collection exhibited by the Hadson's Bay Com-pany, and also by the Central Committee of Noz-Scotta, ib. Beautiful and extensive collection of skins and specimens of taxifermy, furnished to the Exhi-bition by several members of the nobility and other gentlemen, under the superintendence of Mess Nicholay and Son, of Oxford Street, ib. Minute of Jury on the valuable articles exhibited by this firm, of Messes. Minute of the account of the animals that are captured for their for, the skins of which are exhibited in various parts of the building, 381 386. Injury done to furs by

various species of moths, 386. Moisture also a cause of the decay of furs, ib. Precautions which should be adopted to preserve them uninjured, ib. List of exhi-bitors, unture of the exhibits for which prizes were awarded, 386, 387. See also Leather, &c.

Forstenkoff, Emms, 643, 644 Forstenburg, Prince, 24, 204 See also Boiler-Plate. Iron, Furth, B., 635. Freez. See Nef-ty Furs.

Fostic-Contributions of, 87, 10. Dyes extracted, 87, Dyed samples, il

Gahain, G , 365, 730 Gademann, II., 45 Gaertner, Ap, 48 Gaetzschmann, W., 22

Gagnean Brothers, 504. Gailey, D., 370, 373. Gaillard, Son, Jun., 508. Gaillard, Son, sen., 28, 202 Galeani, M. (Juror), xxvi.

Galenai, M. (Jurori, xvvi.)
Galenai, M. (Jurori, xvvi.)
GALENA.—First especimens of galena worked at the Mainland Mines at Port Nr. Ely (Cape of Good Hope),
E. Specimens of from Turcany, 32.
Gallmard, N. A., 689, 202.
Gall, J. 311, 414, 322.
Galleno, J., 333, 333.
Galleno, J., 333, 333.

Galli, A., 685, 203 Gelli and Cotti, [53] Gattate Acid-Samples of, 45, 46, 47, Gallicher and Co., Messra, 26

Gallou, T., and Co., 431. Galloons Specimens of, 470

GALLONS-Specimens of, 445.
GALVANE MACHINES-For medical and other purposes, noverly of construction, 226. Machine with graduated reculator, ib. Purposes for which adapted, ib. Compactness of the instrument, ib. Buttery from France, 226. From Beauria, ib.

GALVANIEU Inox, &c., Specimens of sheet iron coated with tiu, zine with lead, &c., illustrating the process peruliarly employed in their manufacture, 9, 10, Samples of galvanired iron and copper-wire ropes, iii. GALVANGGLYPHY .- Invention of this process of printing, Description thereof, ib.

ALTANGEAPHY.—Description of this process, for multi-plying drawings, 407, 629. Specimens exhibited, 407, GALVANORETERS-Specimens of, 282. See also Electric

Telegraphs TANOPLASTIC DEPOSIT.-A process by which sculpture may be reproduced with accuracy and at a reasonable cost, 601, 707. See also Chereston, Mr. Collus, Mr. GALVAVOLASTIC PRINTING.—Description of this process,

Specimens exhibited, ab. Galy, Caraint, 501. Gamba, P. (Heira of) 197, 204

Gamble, 1, 527 Gamble, 1, 527 Gamble, 1, 527 Gamble, W. 327 Gamble, W. 327 Gamble, W. 327

Gambs, --, 545, 550.

GAMMAN-Specimen of a dve stuff named, 91. Gancourt, Mdlies., 612. Gandilot and Co. 27

Gannery, V., 537, 312 Gantillon, T. E., 367, Garsmond, —, 401.

Garaserve—Is a preparation of mad-ier, 42, 43. Forms an important branch of manufacture in the South of France, 42. Process of Mr. II. Steiner of Accrington Frames, \$2. Process of Mr. II. Steiner of Accrington for converting spent modeler into granactine, \$6. Co-lours for which used in dyeling, \$6. Affords a highly interesting example of the practical application of science to the improvement of a natural product, \$2. Samples of garanactine, \$20, \$20.

Garrasini, P.,

Garniano, A., 402
Ganner Ports (Farthenware), 541.
Ganner Stars (Marble).—Nemarks on the handsome white marble garden seats neat from India, understood to be a present from the Rajah of Natione to lifer Majorty, 564. GARDEN SEATS AND CHAIRS (Mctal) - Remarks on, in cast

metal, 72). Gardener, M., 50 Gnrdner and Bazley, 195, 317, 349. 793 Gardner, Dr., 58. Gardner, J., 647. Gardner, M. A., exs. Close resemblance of tint found in stones of very different kinds, IL. Gems obtained from Van Diemen a Land, IL. Notices of the principal works of art, 685. Land, 15. Notices of the principal works of See also Comess. Jewellery. Precious Stores. Garfit and Son. 420 Gemunder, G., 330, 233 Gensupe Yarus. See Yaras Garforth, W. J. and J., 200, 201, Garland, T., 13. See also Access Garmaun, C. II., 35. Genuppe Yarus. Nee Yarus. General Connect Megals—List thereof, awarded, xxxv. Genoux, F., 351, 718. Gentina, extract of, 50. GARMENT FABRICS, DESIGNS ros. -- See Designs for Garment Fabrics. Garnaud, -, jun., 583 Gentile, J. P., 54.
Groundern A. Modellavo - Specimeos of, 208.
Groundern - Mechanical indicator for teaching, 207. Garner, D., 480. Garner, D., 480. Ganstrs.—Fine collection of pyrope garnets, rough and cut, 94 GEOLOGICAL MAPS. - Geological maps published in different Garnett, H. T., 28. German States, 32. GENERALL A. STRUMESS.—Examples of the geological forma-tion offered by the Bristol basin, 13. Arrangement of the specimens according to the formation, ib. Geo-logical collections of M. Hoffe of Paris, 23. Geological Garnkirk Company, 583. Garrard, J., (Juror), xxix. Garrard, R. and S., and Co., 512, 732. collection from the province of Constantioe (Algiers), GEOLOGICAL SCREET OF THE UNITED KINODOM, 223.
GEORANAS AND UNABORAMAS—From France, 318. To be used as lamp shades, ib. George, C., 372. George, J., 372. 550 Grosse, Kine or Bonrata-Statue of, 600. Gerada, A., and Daughters, 642. Gerard, A., 247, 315. Gerente, A., 685, 702, 715. Gerish, F. W., 601 Gerente, A., 605, 702, 712.
Gerish, F. W., 202.
Gerish, G. W., 202 Gates - Pair of cates from Tunis, 552. Simultaneous acting level crossing gates for railways, 181. See also zwan Tinnez.—Good series of specimens of prepared anadou or Germao tlader in the Austriao and Zoll-Gates, L. C., cxx. Gatta and Bells, 200 verein Departments, 101. verein Departments, [iii.

Creaxer. Excellent specimenous of types from Gernary,
Gernary.

Created by the Committee of the Section of the Section of glass into, [23]. The fabrication of shows plass not supersocied by set plats in Germany, [26]. High class of the Committee of th Gatti, A. and G , 614 Gaudet-du-Fresne, Gaudin, -, 216. Gaussen, —, 222, Gaussen, —, (Juror), xxviii, Gaussen, and Co., 372, Gaussen, Fargeton, and Co., 372. Gauthier, —, jun., 410, 454 Gauthier, Bonchard, 45, Gautler, J., 312 Gauter, J., 312 Gautrot and Co., 331, 331. Gauvain, ..., 221.
Garar, S. Lx. - Samples of, exhibited in the Freech and in the Zollvereio Departments, 3:5-367. Gerresheim and Neeff, 470 Gervnis, - , Gessner, A., 367. Gevers and Schmidt, 332. Gavard, A., 316.
Gavit, -, 277.
Gay-Lussac, 41.
Gaymard and Gerault, 426, 452. Geyer, J., 336. Ghent Linen Company, 99, 373. Ghislain, Dubois, 321. Gaymard and Geranit, 225, 452.

Gazic a Burten, Specimen of gazo à blater (used by millers) of extraordinary perfection from France, 251.

GAROCOUT — Description and object of the apparatus, 255.

Experiments mado to test lite efficiency, 10. Favourable report upon its officiency in preventing explosions. Gholab-Singh, 473 Glibbons, Grinling, 721 Gibbon, trimmer, gg, Gibon, J., Jun., 204. Gibbon, B. T. B. (Juror), xxvil, xxxi. Gibbs, B. and W., 414. Gibbs, Messrs, 24. Gibbs, Messrs, 24. mines, ib.
Gebnuhr, C. J., 333.
Gebhart, C., 449.
Gech, G., 983, 205.
Gech, G., 983, 205.
Gech, G., 983, 205.
Gech, G., 983, 205.
Gectra, C., 66, 705, 724.
Geitmart, J. H., (Jurov), xxt.
Geitmart, L. H., (Jurov), xxt.
Geitmart, L. and Co., 205, 222.
Getaler, C. E., 332, 397, 302.
GELATING—Sumples of, 43. R.
extraction and preparation mines, ib Gibelin and Son, 161 Gibson, C., 52. Gibson, Dr., 132. Gibson, J. (Juror), xxxl, xxxli; (Exhibitor), 694, 692, 704. Gibson, M., 227, 231, 242. Gide, -, 405. Gidney, J. W., 50 Gienanth Brothers, 31. See also Steel. Remarkable progress to the Glessler, N extraction and preparation of gentines and glues, 163.

Prepared from the waste remnants of hides, skins, &c., Gigolo, 8, 126 Gilart, R., 42 Prepared from the waste remnants of hides, skins, &e., ib. Beautiful and varied assortment from France, &c. Awards to exhibitors of these substances, 165, 166. Greater part of the gelalicous products exhibited by British manufacturers prepared from binglass, 165. Chiefly applied to articles of food, ib. Specimens contained to the British Department, ib. Good examples Gilbert, Gilbert, -, 308, Gilbert and Co. (Old Bond Street), 472.
Gilbert and Co. (France), 450, 452.
Gilbert and Co. (United States), 334. Good examples Gilbert and Stevens, 25 of giue from Canada, ib. Speciaseus from the varein States, i55, 166. Samples from Belgium, tugal, and Sartlinia, 166. See also Rose Produce. Gelder, Van, and Sons, 455. Gill, —, 403. Gill, W. L., 469, 744 Gille, J. M., 542, 58. Gillespie and Co., 6 Gillet, A., 55. Samples from Belgium, Por-Gollé and Co., 614

Giliot, F

Gémioy, — De. 53.

Gras.—Collection of gems by H. F. Thistlethwayte, 11.

Variety of colours presented by each kind of gem. sb.

Gillow and Co., 121, 546, 550. Gilson and Bossut

Gilta, J. L., 92. GIMBAL COMPASSES. See Compasses, Mariners'. Gindre, L., and Co., W.

GINGER, samples of, 62.
GINGEAMS. —See Cotton Manufactures.

Ginsel, R. C., 353. Giovannini, L., 558 Girard and Co., 353

Girardet, -, 425, Girardi Brothers, 56, 84, Girard Brothers, 322,

Glro, J., 34, 614. Gired (De L'Ain), General, 159.

Gisbert, J., 91. Glusti, P., 550. Glasial Aceric Acid—Samples of, 43.

GLATAL Phosphone Acto—Specimens of, 46. Glasser, J. S., jun., 478. Glaisher, J. (Juror). xxvli, 209. GLAMOOR MINES (Cork)— Magnesia found in, 46

Glasgow, J., 200

GLASS (Class XXIV.)—Tabolar elassification of abjects in the Exhibition into which this Class is divided, xxi. List of Jurors and Associates appointed for this Class, xxix. List of Exhibitors in this Class to whum Counell Medals have been awarded, ev. The like of those to whom Prize Medals have been awarded, & And of the season of whom Homourable Mention is made, ev, evi. Matarials from the Rostellan Pits, Middleton, Cork, need in the manufacture of plass, 1d. Specific gravi-ties of flint and crown glass manufactured by Measra. Chance and Co., of Birmingham, 262

Chance and Co., of Birmingham, 26). Input: plot be origin and progress of the glass manufacture, 222. Process of manufacture described by Piny, the Among the Egyptians, as detailed by Sir Gardiner Wikhuson, the Glass suppored to have been used by Archibendes, ab. Speciment of glass in the British Musseum from Nioevels, the Tabebrill or Fortland Vas referred to, the Introduction of plass into Italy; works for its manufacture established in the neighbourhood of Rome, 522. Early period of Venice becoming a seat of the manufacture; great attention bestowed upon it, ib. Causes of the declino of the Venetian monopoly, ib. Introduction of the art the Venetian monopoly, ib. Introduction of the art into Bohemin, ib. And into France; injurious effect of the exclusive privileges granted to manufacturers, 522, 523. Particulars as to excise and customs duties imposed on glass in England; modifications thereof at imposed on gases in England; monitorations increes at different periods; effect of the duties un manufacture, consumption, and price, 523, 524, 526. Brief details of the method of manufacture, 523, et seq

Use made of borax or borate of socia as an egent; in expense a bar to its general adoption, 524. Discovery of borate of lime on the western coast of America; its suitability as a flux, ib. The first chemists have di-rected their attention to the fabrication of glass; the production of a good composition dependent, however, on the observance of certain principles, ib. Character of the silex used in England; sources of amply, ib. Use made of borax or borate of soda as an egent; its

The like as to the alkali, sb. Means used of imparting

The like as to the shikil, & Menos used of ling-time [Consideration of pine smanfeture, 25] and Dentils Consideration of pine smanfeture, 25 [26]. Dentils execution of given in Jugustus and Jervine Country, "William [Consideration of July 10]. The consideration of the ling state of the consideration of the line of the consideration of the cons

Principle on which the award of medals has been made, 531, 532. Names of individuals from whom the Re-

orter has received assistance in drawing up the Report, 532. tive Committee in regard to the award of the Medals, ib. Individuals to whom Medals have been awarded:

66. Individuals to works attend cave been awarded; Grounds of these awards start, 532, 531. Principles on which the manufacture of plass pointings should proceed stated, 533. The works of the first half of the 16th century to be taken as the true standards, 531. Remarks on the character of the specimens of glass paintings exhibited, 531, 535. And with spe-cial reference to particular ecompositions, 535. List of Awards, 536,

Awards, 506, 501.

Critical remarks on the examples of glass manufactures contained in the Exhibition, 734, 735. Principles which should govern the draings and decoration of objects in glass, 735. False taste displayed in glass-cut-stage, extreme to which it is earned, 3b. Drinking glasses should be sparingly adorsed, 4b. Faults committee of the control of the con mitted in the manufacture of glass for ornament, particularly in regard to colouring and gilding; special returning to the state of the

LASS FOR CHEMICAL AND PHILOSOPHICAL PURPOSES .- PRcullar qualities required for glass of this kind, 528.

LASS-CUTTING MACHINES.—Neat contrivances for cutting and trimming glass shades, 201.

Glass, G. M., 165.
Glass-makers.—Close combination existing emongst the workmen employed in glass-making in France, and also in Fagland; evils resulting from this system, 525. GLASS, Painted or Stained. - See Painted Glass. GLASS-PAPER. - Excellent specimens of glass-paper and

glass-cloth 682.

GLass Piprs, Tuning, &c. Prize Medals, &c awarded for, 536, 537. New kind of patent joint for connecting glass pipes conveying gases or fluids, and

GLASS SHADES (for promounts, &c.) - Formerly the mannfacture thereof almost entirely restricted to the Coutlnent; owing to Mesers. Clance they are now made in England nearly to the exclusion of those of fereign make, 526. Awerds made for glass shades, 536, 537. LAZIESS DIAMONDS—Use of, dates from the 15th cen-

GLATIANS PLANSAGE TO THE STATE OF THE STATE

Glen and Milndoe, 350 Glonisson and Vangenechten, 434

Glenton and Chapman, 508.

GLOBER.—Remarks on the terrestrial and celestial globes exhibited, 508. Slate globes, ib. Process of globe-making, as exhibited by Fletcher, very interesting, ib. Model and glibes of the moon, ib. Angular terrestrial globe for the solution of geographical problems. restriat gross for the sociation of geographical problems, ib. Lanarian, with a contribute for aboving the phases of the moon, ib. New method of illustrating the effect of the earth's diffurnal motion upon the plane of a pendulum's oscillation, ib. Trisuse-paper and India-rubber globes, ib. Terrestrial and celestial, from Prussia, France, United States, and Austria, ib

Prussia, rusard, and Glover, T., 544.
Glover, A. Specimens of coloured ention gloves, 478. Large amount of the population of the United Kingdom emanded to the propulation of the United Kingdom eman. pluyed in the ma duyed in the manufacture, 430. Valuable and high mportant contributions to the Exhibition, ib. Spec mens contributed by France, many cities of the Zoll-verein, Denmark, and Switzerland, ib. Great talent of the French dyers of kid-skios, ib. Highly interest-Highly interestof the French dyers of kid-skios, th. Highly interest-ing contribution forwarded by the Associated Glovers at Prague, 481, Skill and energy of the English ma-nufacturer greatly called forth since the alteration of the tariff, th. Places in England et which gloves are chiefly made; estimated value of the yearty produce;

GLUTEN PREPARATIONS. - Fine collection of gluten prepara-

794 INDEX. tions, chiefly of scientific interest, 34. Samples of

gluten and other products from France, 35 CERINE Namples of, 45 Gay G. M., Senora, 472

Goodman, G., 201 Goodman, G., 202. Goodwin, C., 202. Goodwar, C., 308, 592, 594, 595. Goodsens, G., 201. Gordon, C., 647, 648. Gordon, E., 483. Gordon, J., 315, 316.

Gmelin, Professor, 41.
Garantee of gueins from the isle of Elba, covered Gorton, G., 328 Gosset, H., 426 with noble crystals of felspar, 35. Gossleth, G. (Joror), xxvl. GOATS' WOOL - See Wood. Gob, J., 503. GOTHIC ARCHITECTURE.—General remarks on the rise and fall thereof, 202, 202. Gott and Sons, 322. GORAIN, ST., 18 PICAROT-Glass works at, 327. Göbel, --, 98 GORELIN AND BEAUVAIS TAPEURAY-GOVERNMENT MAND-Gottl, -, 522 Goudeau, Mossra, 197 factory of, 474, 687, 728. See also Topestry. Godard and Boutemps, 373. Gonla, -, 278. Gould, —, See Gourdin, J., 339-349 Goutchkoff, E. and J., 336 Goddard, —, 269. Goddard, II., 2011. Goddard, L., 160. 417 GOVERNORS OF STEAM ENGINES.—Description of a pure Godefroy, L., 381, 429.
"Goorrier or Boullion" (Equestrian Statue of)—Notice bolle governor for a steam engine from Austria, 17 Working model of a patent chronometric governor, it. thereof, 685, 705. Godfrey, C., sen. 333. Godfrey and Cooke, 45 werking model of a Gowans, J., 252. Gowing, T. W., 315, 316. Gowind, J., 335, 312. Grahner, P., 538. Grade, L., 551. Graf, II., 426, 454. Graf, and Nevisudt, 325. Heartery and cooke, 45.
Golffrey, Mesers, 20.
Golffrey, 21.
Golffr Graff, H., 126. Graff, P., 31. See also Cobolt. Graff, W., LW. Graham, -, 305, 309, 337. Graham and Hallett, Messra, 15. See also Copper Orc. Graham, J., 378, 381. Graham, P. (Juror), xxix, xxxli, 476. Golny, L. A., 517. GOLD. - Re-opening of the mines of Reichenstein, In Silesia, a.—necespening of the mines of inceleraments, in Surviva, in consequence of the application by M. Guettler of a method inventor by Professor Plattner, for separating only from the waste arsentani ores, 2. Quantity of gold contained in the ore at Reichenstein, 5. Nature of the process for the separation of gold from the ores, 3. Gralum and Sons, 365 Graham, T. (Juror), xxvi. Graham, West, and Co., 200 Grainger, G., and Co., 541 Grainger, W., 221 Grainger, W., 22L Grainger, W., 22L Grainses or Flatting. Specimens of, produced by paint Process equally applicable to the vast quantity of retuse accumulated near meny other old works. 4b. Pyrites of free from noxious effluyis, 45. gold from Labuan (Borneo), 15 Existence of spangles Grandjean, H., 341, 342. Grandjean, P. H., 517. Grange, F., 34. Grangemouth Coal Company, 582. and pyrites of gold in several rivers of the Last of Canada, E. Specimens collected by the Chaolier Canada, E. Specimens collected by the Chaolier Mining Company, & Series illustrating the process of separating gold from arsenical pyrites, 22. Profitable re-opening of the auriferous mines of Reicheastein, in Grangoir, J. M., 454, 528.
Grangoir, J. Collection of granitee and marbles exhibited ANTES.—Collection of granites and marbles exhibited by Messen. W. J. Ferenan, remarkable for their variety of coloor and beauty of polits, h. Extension of the revenue of the result of the property of colors and beauty of polits, h. Extension of the resulting from the recommy in the use of the nach chinese qualque from the evenuely in the use of the nach chinese qualque of the property of the pro Silesia, admitted by this process, &. Immense revenue yields animitted by this process, 6. Immense revenue yielded annually by the gold mines of Russis, 31.

Gold-Lear- Specimens of, from France, 22. Collection of gold-leaf of all colours, 516. GOLD AND SILVER ENGAGINERS - Preparation for restoring, Goan-Works of art in, notice of the principal, 684. GOLDBEATERS'-SKIN .- Peritoneal or serous membrane, separateJ from the intestinal tube of the ox. 165. Atten ated by being beaten with a hammer, and subsequently prepared to resist putrefaction, so. Instructive series prepared to resist putrefaction, sb. of this noterial in various conditions, ib. Goldenberg, G. (Juror), xxix, xxxii. Goldenberg, G., and Co., 482. Golding, R., 36. men of Swedish granite, ib. GRANITE, Words IN .- Heport on the large monumental works chiefly constructed of granite; objects exhibited, remerks thereon; awards, &c., &.6. Remarks on the smaller miscellaneous works in granite, porphyry, &c., exhibited; names of exhibitors, exhibits and awards, Goldschmidt and Son, Goldschmidt and Son, 520.
Goldschmidt and Son, 520.
Goldschmidt and Son, in the British Department, and exhibited; names of exhibitors, exhibits and awards, 555-558. Headstons of Aberdeen granite, a beautiful specimen of material, admirably worked, 556. Bust and pedestal of blue Peterined granite, ib. Slab of granite from Craignair, ib. Pedestals, slab and elimney-piece of granite exhibited; remarks thereon, 552. Works in Scotch granite exhibited, ib. from France, Prussia, and Russia, 479, 430. Gomes, J. L., M Gomes, Aleade, 166.
Gompetts, B., 472.
Gonella, Professor T., 203.
Good-Large and fine gongs exhibited by the East India Company, 312.
Gonioweres. - Improved Wollaston's goniometer, 215. Grant, Captain, 76. Grant, D., 508. Great, J., 125. Great, J., 125. Great, J., 125. Great, J. 11, 25. Greatham, J., 250, 255. Grantham, J. Gonsalves, G., 15 Gooch, -, 237 Good, -, 308 Goodbebere, G. T., 501 Good Hore, CAPE or .- See Cape of Good Hope. Spain, 36.
GRAPHIC TELESCOPE.—Graphic telescope and table, de-

Gorigoretzk Farm (Russia), 99, 159.

Gosoniagonia (Russia), — Importance of the celebrated Gaarsurg Barreay. See Electric Telegraphs. deposits of the magnetic iroo ores of Gorobiagodatsk, 33. Grar, N., and Co., 63.

GOBORLAGORATSE, INFERRAL FORCES OF, 33. Gorssa and Perier, 522 Gorssa Battsiva Machinez.—High degree of perfection reached in these implements, 238. Machines exhibited;

remarks thereon, at. Prizes awarded, 233, 242.

scription thereof, 205.

Granutz.—I'se thereof, in the manufacture of black-lead pencils, 3. Method of consolidating the powder of pure graphite described, 3.4. Graphite from Cape Town, Cape of Good Hope, 15. Specimens of graphite

Griffiths and Le Beau, 277. Griffiths, T. and F., 501.

Grassot and Co., 372	Griffiths, T. and F., 504.
GRATES.—Superiority of the English in the design and werkmanship of fire-grates, 225. The true form fer grates considered, ib. Objection to excess of burnished	Grignen, -, 2014. Grillet sed Co., 379.
werkmanship of fire-grates, 22. The true form fer	Grillet ned Co., 379.
grates considered, ib. Objection to excess of burnished	
metal, 727. See also Stores.	Grimoidi, —, 321. Grimsley, —, 583.
	Grittsley, —, 383
Gratz Silkworm Breeding Association, 162.	GRINDING MACHINES Observations on the machines exhi-
Graux, J. L., 70, 159.	bited fer grinding and eleming flour and ether vege- table products, 202. Mills for grinding: specimens of millstones and models of mills, ib. Coffee mills, ib.
Grave, de, Shert and Fanner, 253.	table products, 222. Mills for grinding; specimens
Gray, -, 78. Gray, B. C. T., and Son, 62.	ef milistones and models of mills, ib. Coffee mills, ib.
Gray, B. C. T., and Son, 62	
Gray and Davidson, 325, 332, 333.	
Gray, Bad Davison, dan dag dag Gray, D., Gillon, axis, xxxii, Gray, J., axis, xxxii, Gray, J. E. (Juro), xxx. Gray, Samed, dal.	GarxperoxusLarge collection of grindstones exhibited
Gray, J. (Juror), xxix, xxxii,	by Mr. Meleig; ventety of purposes to which adapted, Excellent quality of the grindstones from the Arduley Olax Quarry, near Barnsley; purposes for which chiefly used, II. Great number of rocks in Belgiam adapted to the manufacture of grindstones
Gray, J., and Son, 501.	5. Excellent quality of the grindstones from the
Gray, J. E. (Juror), xxx.	Ardsley Oaks Quarry, near Barnsley; purposes for
Gray, Samuel, 352.	which chiefly used, II. Great number of rocks in
	Belginm adapted to the manufacture of grindstones
	and hones, 23. Good quality of milistones from Bel-
Grav. T. W., 501.	giem, at. This source of industry only introduced
Gray, T. W., 501. Gray, W. (Juror), xxvlii. Greasiey and Hepcroft, 458.	and hones, 25. Good quality of milistones from Rel- giem, 35. This source of industry only introduced inte Bedgium since 1846, 35. Its importance, 35. Qua- lities of milistones from Namur comparable with
Greasley and Hencroft, 468.	lities of millstones from Namur comparable with
GREAT BARRIER ISLAND MINES (New Zenland), 15 Sec.	
also Conner Ore.	
	Grissel, T., 257. Groenkloof Missionary Station (Cape of Good Hope), 653,
used to assist in getting this ship off, 208.	Groenkloof Missionary Statlen (Cane of Good Hone) 653
Greaterer D 184	Groetners, J. R. 254
Greaves F 333 334	Griloer, F., 544, 550, 560.
Greatorex, D., 184. Greaves, E., 333, 334. Greaves, J. W., 3.	Grotners, J. B., 224, Griger, F., 544, 550, 569, Grobmann, H., 520, Groom, J. J., 217,
Garner-Series of specimens of minerals and rocks from,	Green J J 917
grouped occording to the provinces, 33. Chiefly in-	Groult —, jun, 55. Greuit and Co., 27.
elude marbles and materials for construction, obtained	Granit and Co. 17
From Cratacoous innestones, io. 1 azzarianas ironi	Granina P 540 550
from eratareous innestones, so. Fuzzassinass from Sarteria, ib. Emery from Nazos, ib. Mecrebaums from the envirous of The-bes, ib. Lithographie stones from Messina, ib. Samples of steasile, ib. Samples of dried fruits, 52. Contributions of modeler-roof from Athens, 20. Varieties of common fiesible sponge, §51.	Gropins, P., 549, 550. Gropinsky, C. H., 341, 342. Grop-p-Narrats-Specimens of, the manufacture of va-
from the environs of theory, in. Litingraphic stones	Ches on Names Sensioners of the manufacture of on
from Stessina, to, Samples et steatue, to, compues of	rieus countries, 363-368,
dried fruits, 24. Contributions of manner-root from	Court II Co
Amens, 21. Varieties of common nextone spunge, 121.	Contract Contract
	Greekopt, G., 412
Samples of marble from the ancient tireck quarries,	Gross, Olier, Reman, and Co., 459. Gross, Odier, Reman, and Co., 459. Gross, Odier, Reman, and Co., 459.
 Specimen of cement of the nature of puzzuolan, See also Greek Government, The. 	Grossmann, C. G., 352.
574. See also Greek Government, The.	Grossmann, C. G., SZ.
Greef,, jun., 505.	Grosemann and Wagner, 505
Greef, F. W., 257. Greef, F. W., 257. Garks Gevennery, Tur, 33, 561, 524. Garks Gevennery, Tur, 33, 561, 524. Garks Kayer (senjeture) - Notice of the, 685, 706. Greef, J. G., 255, 725. Green, J. L. (Juror), zav, zavill.	Grossmith and Desjardins, 346.
Gazek Gevennment, The, 33, 361, 574.	Grossmith, J., 614. Grosvenor, W., and Co., 365. Grosvenor, Copestake, Moore, and Co., 468, 748.
"GREEK SLAVE" (sculpture)-Notice of the, 683, 784.	Grosvenor, W., and Co., 302
Greeley, Hon. II. (Juror), xxv, xxix.	Groucock, Copestake, Moore, and Co., 465, 218.
Green, J. G., 526, 736.	
Green, J. H. (Juror), xxv, xxviii.	Guera Wheat-Florn.—Particular reference of the Jury
	Gueara Whear-Flors Particular reference of the Jury
Green, R. F., and Sons, 358.	to the magnificent Gruaux wheat-flour of M. D'Arblay,
Green, R. F., and Sons, age. Green, S., 294, 281, 316. Green, S., and Co., 541, 585. Green, T., 304.	jun., 55. Peculiar process of grinding, by which pre-
Green, S., and Co., 541, 586.	pared, il.
Green, T., 504.	Gruel, Madame, 425, 454.
	Gruenthal, M., 683,
to China for colouring green tens, 32. GREEN ULTRAMARINE Preparation thereof, for printing	Gruhi, F., 504, 510.
Garry Ultramaring Preparation thereof, for printing	Grune, W., jun., 45
en cotton and paper; its advantages over arsenical	Tornorman, 455, 454, Grovental, N., 655, 454, Grovental, N., 655, 454, Grank, F., 504, 516, Grank, F., 504, 516, Grane, W., 700, 45, Griner, F. W., 356, Griner, F. W., 356, Stephen, S
greens, 42.	Grüner, L. (Juror and Associate), xxix, xxx, 559, 568, 576.
Greenbury, -, 359,	Grünhet, J., jun., 673.
Greener, W., 219, 221,	Grunthal,, 472
Greener, W. 219. Greener, W.	Grünhet, J., jun., <u>678.</u> Grünthal, —, <u>477.</u> Gruts, B., <u>68.</u>
constructions in class, 387. Vulcanized India-rubber	GUALPARA (EAST INDIES)-Collection of the woods of,
used Instead of putty, ib.	contributed by the indian Government, 126,
used Instead of putty, ib.	Grano-Specimens of from the Cape of Good Hepe and
used Instead of party, ib. Greening and Sons, 504. Greenish T. 45.	contributed by the indian Government, 125, Geano-Specimens ef, from the Cape of Good Hepe and Van Diemen's Land, 166
used Instead of putty, ib. Greening and Sone, 504. Greenish, T., 45. Greenish, 706	COLITABA (EAST ISBIES)—Collection of the woods of, contributed by the indian Government, 126, Geaso—Specimens of, from the Cape of Good Hope and Van Diemen's Land, 166 Guathendal Morayina Mission (Cape of Good Hope), 140.
Greening and Sons, 504. Greenish, T., 45. Greenough,, 706. Greenwood, W. 15.	contributed by the Indian Government, 125, Grano-Specimens ef, from the Cape of Good Hope and Van Diemen's Land, 126 Guathendal Moravian Mission (Cape of Good Hope), 140, Genrus's, Sr., Chicacu, Bayesta-Painted windows in,
Greening and Sons, 504. Greenish, T., 45. Greenough,, 706. Greenwood, W. 15.	contributed by the indian Government, 125, Grans—Specimens ef, from the Cape of Good Hepe and Van Diemen's Land, 165 Gustherdal Moravian Mission (Cape of Good Hope), 140, Gentle's, Sr., Chiacu, Barssels—Painted windows in, referred to 524.
Greening and Sons, 504. Greenish, T., 45. Greenough,, 706. Greenwood, W. 15.	General Moraria Mission (Cape of Cook Hope), Inc.
Greening and Sons, Soi. Greening, T., 45. Greenough, T., 45. Greenough, W., 15. Gregory, Cublit. and Co., 483. Gregory, Challt. and Grobers, 328.	General, Ser. Chiacu, Barsens.—Painted windows in, referred to, 524. General.—Arrowroot from, 62. Stand of wax fruit frem, 642.
Greening and Sons, Soi. Greening, T., 45. Greenough, T., 45. Greenough, W., 15. Gregory, Cublit. and Co., 483. Gregory, Challt. and Grobers, 328.	General, Ser. Chiacu, Barsens.—Painted windows in, referred to, 524. General.—Arrowroot from, 62. Stand of wax fruit frem, 642.
Greening and Sons, Soi. Greening, T., 45. Greenough, T., 45. Greenough, W., 15. Gregory, Cublit. and Co., 483. Gregory, Challt. and Grobers, 328.	Guntario S. Fr., Chi acri, Baronta Painted windows in, referred to, 224. Gunnario, Arrow root from, 62. Stand of wax fruit from, 642. Guirta. Méséville, and Ce., 161.
Greening and Num, 501. Greeningh, T., 43. Greeningh, — 7505. Greeningh, — 100. Green	Gustneson Moserum Australia (Saper a Good orbys, 1821. Gernack, Sr., Chicaca, Baresta Plainted windows in, referred to, 222. Gustnest Arthrowroot from, 62. Stand of wax fruit from, 62. Gustnest Arthrowroot from, 62. Stand of wax fruit from, 632. Gustnest Moseriile, and Ce., 161. Giderre, —, sen., 422.
Greening and Num, 501. Greeningh, T., 43. Greeningh, — 7505. Greeningh, — 100. Green	Gustneson Moserum Australia (Saper a Good orbys, 1821. Gernack, Sr., Chicaca, Baresta Plainted windows in, referred to, 222. Gustnest Arthrowroot from, 62. Stand of wax fruit from, 62. Gustnest Arthrowroot from, 62. Stand of wax fruit from, 632. Gustnest Moseriile, and Ce., 161. Giderre, —, sen., 422.
Greening and Num, 501. Greeningh, T., 43. Greeningh, — 7505. Greeningh, — 100. Green	Gustneson Moserum Australia (Saper a Good orbys, 1821. Gernack, Sr., Chicaca, Baresta Plainted windows in, referred to, 222. Gustnest Arthrowroot from, 62. Stand of wax fruit from, 62. Gustnest Arthrowroot from, 62. Stand of wax fruit from, 632. Gustnest Moseriile, and Ce., 161. Giderre, —, sen., 422.
Greening and Num, 501. Greeningh, T., 43. Greeningh, — 7505. Greeningh, — 100. Green	Gustneson Moserum Australia (Saper a Good orbys, 1821. Gernack, Sr., Chicaca, Baresta Plainted windows in, referred to, 222. Gustnest Arthrowroot from, 62. Stand of wax fruit from, 62. Gustnest Arthrowroot from, 62. Stand of wax fruit from, 632. Gustnest Moseriile, and Ce., 161. Giderre, —, sen., 422.
Greening and Non, Sal. Greening, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Grand, T., & M. Greening, T., & M.	Gustneson Moserum Australia (Saper a Good orbys, 1821. Gernack, Sr., Chicaca, Baresta Plainted windows in, referred to, 222. Gustnest Arthrowroot from, 62. Stand of wax fruit from, 62. Gustnest Arthrowroot from, 62. Stand of wax fruit from, 632. Gustnest Moseriile, and Ce., 161. Giderre, —, sen., 422.
Greening and Non, Sal. Greening, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Grand, T., & M. Greening, T., & M.	Gustneson Moserum Australia (Saper a Good orbys, 1821. Gernack, Sr., Chicaca, Baresta Plainted windows in, referred to, 222. Gustnest Arthrowroot from, 62. Stand of wax fruit from, 62. Gustnest Arthrowroot from, 62. Stand of wax fruit from, 632. Gustnest Moseriile, and Ce., 161. Giderre, —, sen., 422.
Greening and Non, Sal. Greening, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Grand, T., & M. Greening, T., & M.	Gustneson Moserum Australia (Saper a Good orbys, 1821. Gernack, Sr., Chicaca, Baresta Plainted windows in, referred to, 222. Gustnest Arthrowroot from, 62. Stand of wax fruit from, 62. Gustnest Arthrowroot from, 62. Stand of wax fruit from, 632. Gustnest Moseriile, and Ce., 161. Giderre, —, sen., 422.
Greening and Non, Sal. Greening, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Greening, T., & M. Grand, T., & M. Grand, T., & M. Greening, T., & M.	Control Secretary Services (1997) When the Control Services of the Control Ser
Genesing and Som, Siz. Genesing 1, 200. Genesi	Control and Contro
Genesing and Som, Siz. Genesing 1, 200. Genesi	Commission, Str., Chusen, Barenhar-Painted Widows In, Feffrered to, 25, Gensors-Artowned from, Ed. Stand of was fruit from, Gurini, Merchile, and Co., 183. Gentini, Merchile, and Co., 183. Gentini, Merchile, and Co., 183. Gentini, Albertini, 183. Gentini, Albertini, 183. Gentini, 1
Genesing and Som, Siz. Genesing 1, 200. Genesi	Control, S. C., Charter, Barantin-Patient withinton in, referred in, 24, 50 and of was fruit from, 25, 50 and of was fruit from, 25, 50 and of was fruit from, 25, 50 and
Greening and Sons, 504. Greenish, T., 45. Greenough,, 706. Greenwood, W. 15.	Commission, Str., Chusen, Barenhar-Painted Widows In, Feffrered to, 25, Gensors-Artowned from, Ed. Stand of was fruit from, Gurini, Merchile, and Co., 183. Gentini, Merchile, and Co., 183. Gentini, Merchile, and Co., 183. Gentini, Albertini, 183. Gentini, Albertini, 183. Gentini, 1
Genesing and Som, Siz. Genesing 1, 200. Genesi	Control, S. C., Charter, Barantin-Patient withinton in, referred in, 24, 50 and of was fruit from, 25, 50 and of was fruit from, 25, 50 and of was fruit from, 25, 50 and

GRASSES.—Observations on the specimens of grasses repre- Griffith and Strong, 574

sented in the Exhibition, 24.

Imman Grayle

```
796
Guillemot Brothers, 470
Guillot and Co., 360.
Guillot, J. A., 3:1.

Guimet, J. B., 31, 45.

Guinnet, M., discovery by, of a process for making discs
       of flint glass; par
                                        neulars relating thereto, 523.
Gnimert, J., 103, 60
Gnimer, J., 165, 601,
Guinter, T., 168,
Guintea, A. P., 452,
Guistain, C., 163,
Guista, P., 163,
Guista, P., 244,
Guittana Harpa,—See Harpa.
```

GLEDSMEISHYTTAN MINES (Sweden.) Specimens of silver and lead ones from, 31 GUM ARABIC Samples of, 1

Gens and Reseas. Practical inconvenience and confusion "aused by the indiscriminate manner in which the term
"gum" is used in commerce and the arts, 71, 72. Gum,
properly so called, used in large quantities for a number of purposes in the arts, ZL. Gum generally distin-guished into two sorts, gum arabic or soluble gum, and gurster rate of we serve, gain armore or source gain, and cherry-tree or gain tragacanth, & Large quantity of British gain artificially prepared by reasting starch, &. Uses to which applied, &. Resias, for the most part, used in the formation of varmelles and lacquers, and for various purposes in dyeing, &c., ib. Total quantit of "gum" imported late England in 1818 and 184 71, 72. Quantities of retins and oleo-region accordant imported late England in 1818 and 1849, of "gum" imported lato England in 1818 and 1849, 71, 72. Quantities of resins and ofco-resins, principally turpentine and lac, imported in 1849, 72. Collections of gums and resuss exhibited, general remarks thereos, names of exhibitors and awards, 72-77. List of the chief Indian gens and revins, 72-78. Specimens of guns and resins from Egypt, Mexico. &c.; list of the guns and revins exhibited in the Turkish Collection, 72.

Gen-BARRELS See Iron.

Gen-carmages - See Carron, Sec. Gen-causings - See Landon, or. Gen-tacks - Specimens of, of excellent manufacture, 230. Gras, Pierors, &c. Number of natious exhibiting, cs, Pivoto, Ac. - Number of methods exhibiting, Largo number of specimens for war purposes, Larger proportion for sporting purposes, B. I had, France, and Belgium most prominent for construction, B. Birmingham the principal seat of Birmingtam the principal seat of manutacture is Eagland, ib. Large quantity sold by Belthe meanfacture than any other action, & Objects

exhibited and awards, 220-222. Guaeberg. —, 43. Gennico Pent, on a new principle, for fowling purposes, 217. Gunter, R., 640. Grus. FOUNDAY OF THE CHAPTER OF, 21.

Gutbiel and Co., 45. Gutierrez de Leon, R., 650

GUTTA PERCHA AND MANUFACTURES TREASUR. - Samples of Fra Pizecità And MANIFACTERIS TRESTS.—Samples of guita perchi fum Singapore, lauerceilag and limportant, 2.1. Sicreodype plates of guita perchia, with sperimes to wires, 2.6. Sperimens of the pincess of covering guita parcias wires, ib. Elementary properties of guita percha, 2.7. Opinion that the important area to which it has been latterly applied are only the forcessances of those to which it will be subjected bereafter, 3.6. Some of Its uses known to the Malays; It is attained principally from the Mulayan Archipelago, ib. Statistics relative to its importation into England, ib. Process of purifying it, ib. New applications constantly found for it; na-merous and important uses to which it is adapted, ib. merons and important new to water it is auspect, so. Especially adapted for the manufacture of articles for maritime use, ib. Statement of its uses in decorative art, 507, 508. Its application in surgical mechanism, 508. Also to the manufacture of elemical utensils for the preservation and conveyance of acids, ib. Articles exhibited; notices thereon and awards, ib. Great number of the novel applications of this substance in-vented by the Gutta Percha Company, ib. Gutta Percha Company, 73, 128, 507, 528, 214.

Guy, S., 508. Guynet and Becouct, 373.

Gwynne, -, 182 Gwynne, G., 620 Gyc and Balne, 485

Gye and mane, 2003. Gyrst M.—Blocks of blueish gypsum, of even fracture, fr

Nova Scotia, I.Z. Numerous quarries at work, &. Es-istence of gypsum to a great extent in Canada; purity of its quality, I.G. Specimens of gypsum exhibited by the Egyptian Government, 24.

```
Gysl, --, 316
```

Ilang, --, 58 llans, A. de, 81. llanshaus, J. C., and Sons, 382.

Haarhaus, J. C., and Sons, 382. Haas and Co., 442, 454. Haas, F. P., 622. Haas, F. P., 372. Haas, P., and Sons, 336, 367, 375. Haas and Son, 474. Ilaase, G., and Sons, 372, #

Haberickt, A., 423, 433, 423, 493, 414 Haberickt, A., 423, 433, 432, 599 Haberiand, G. A., 352, Hackblock, W., 355, Haddan, J. C., 117, 580, Hadden, A., and Sons, 479, Hadden, W. C., 118,

Happen Hall .- Remarks on the stained glass windows at, 716.

Hadea, S. (Associate Juror), xxix. Hadji, M. D., 673. Hadrot, L., 501. Hadwen and Sons, 354

Hacek, J. T., 47L HEMATITE - Speci ens of red hematite from Turkey, 35,

Hanaritz. - Specimens of red han Haenel, E., 325, 403, 404, 410, 424, Haese, B., 23. Hages, A., Von, 546, 550, Hages, Filancel, 666, 622, Hages, Without, 300, 548, 548, Hages, Without, 666, 622,

Haggard, -, 303. Hagur, N, 459. Hagues, Cook, and Wormald, 352, 359.

Hahaell and Ellis, 15 Haidinger Brothers, 512. Bulght, Mrs., 482 Hamdl, A., 481

HAIR, ASTIFICIAL -- Occupation given to a large number of 38. Astrictal.— Occupation given to a large number of manufacturers and workness by the trade is artificial bair, 327. Materials principally procured from the North of Frace, Belgium, and Germany, th. Price thereof, ab. Artifels exhibited, exhibitors of whom Ilconourable Mention is made, 328. See also Leather, ac.

HAM AND BRITTLES.—The best developed and most valuable examples of these productions exhibited in the Kussian Department, 160. Samples selected for awards, ib. Examples of hair and bristles trauminted from Belgium, ib. Specimeus of drawn horse hair from the Netherlands, ib. Specimens of hurse hair for upholstery purposes from the Zollverein States, st. Interesting

examples of the hair of the rabbit and hare, shaved off the skin by a mechanical process from Spain, ib. a Dursaras' Figures. - Collection of wax figures from

France, 679, 680. HAIR-STRINGS. - See Watches

HAIL UTENSIAS MADE OF .- Collection of utensils made from the lair of the rabbit, hare, he, felted and varnished, resembling papier-mache, from Russia, 600. a, Woven.—Hair used for weaving consists principally of the long hair from borses tails, 388. Procured print eipally from South America and from Russia, it

Process of manufacture of hair eloth, ib. Articles exhibited; Prize Medals awarded, ib. Hairs, G. (Associate Juror), xxviil, xxxii.

Hairs, G. (Associate Surton), Halbeard and Wellings, 549, Halbig, Professor J., 502, 62 Haldane and Rac, 508. Haie, J., 104. Haic and Spear, 22

Hale, T., and Co., 50 Hale, W. S., 624, 628 Hales, -, 123 Haley, J., and Son, 380.

Hail, —, 372, Hail, G. F., 300 Hall, Joseph, & Hall, Josiah, 45

Hall, Josiah, 55.
Hall, J. and Y., 562, 564, 566, 568.
Hall, J. and Y., 562, 564, 566, 568.
Hall, Col., I., A. (Associate Juror), xxvii.
Hall, W., 522.
Halle, F., Tan, 421.
Haller, J. C., 75.
Haller, J. C., 75.
Haller, S. Widow and Son-in-Law, 681.

```
Hallett, R., and Sons, 52, 81.
Halliday, A. P., 233.
Hallmarke, Aidebert, and Hallmarke, 183.
Haloscope, Bravais'. - Description of an instrument exid-
                                      bited in the French Department, called Bravais halo-
scope, for the exhibition of all the phenomena connected
with halos, partielions, &c., 272.
Halvans,—See Copper Ore.
Haman, -, 732.
Hamann, A., 200, 204.
Hamblock, J., 31.
Hamburger, Rogers, and Co., 452
Hamburger, Rogers, and Co., 462.

LAMBURG.—Sumples of rage-seed cake from Hamburg.

56. Daguerreetpyer, 22h. Statistics of the paper
printed goods, 425. Specimens of embridgery with
bair display much batte, 451. Speciman of embrid-
dery, 422. Edge tools, 432. Bress manufactures, 521.
Inbits table and cabinet, 551, 552. Tollet and other
seaps, 513. Artificial flower, 625. Important display
seaps, 613. Artificial flower, 625. Important display
                                      of walking sticks from Hamburg, 665
tion of porcelain pipes, 671, 674. ]
papier-mache and wax, 672.
                                                                                                                                                                                                                                                                                                                                                                                Dolls' heads of
    llamen, S., exx.
    Hamer, A., 431
Hamer, A., 431.
Hamilton, —, L.
Hamilton, H. N. 50.
Hamilton, H. N. 50.
Hamilton, H. S. 50.
Hamilton, H. Therror, and Sons, 564.
Hamilton, H. Therror, and Sons, 564.
Hamilton, H. Therror, and Sons, 564.
Hamilton, H. S. 50.

2.55, 668.
2.55, 668.
2.55, 668.
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2.55, 668.
2.55, 668.
2.55, 
415, 828. 1, 202. Hampler, J., and Co., 202. Hampler, W. M., Tark or Remarks thereon, 522. Hampler, Sophie, 522. Hampler, Sophie, 523. Hampler, Sophie, 524. Hampler, Sophie, 525. Hampler, Sophie, 526. Hampler, Sophie, 527. Hamp
    of very superior quality, ib.
Hanbury, -, 163, 664.
Hancock, C., 426, 598.
Hancock, C. F., 513.
    Bancock and Co.
Hancock and Co., 635,
Hancock, J. A., 547, 548,
Hancock, J. A., 547, 548,
Hancock, J. L., 525,
Hancock, Rixon, and Dunt, 526,
Hancock, T., 570, 263,
HANGAGERITES (Cambrio)—Specimens of embroidered,
                                           469, 471, 472,
    HANDEACRIEFS (Silk).—Specimens of imitation Madras
bandkerchiefs, 348. Observations on the printed silk
handkerchiefs, 457. Specimons exhibited, 458, 458, 458.
                                                                            also Sills, Manufactured.
                                                                                                                                                                                                                                                                                                                                                   Woren, Span, &c.,
                                           Fabrica.
    Handley, -, 22
    Hands, J., 503.
Handysida, A., 504.
Handisen and Son, 482.
Hanfitchingel, F., 693.
Hanfitchingel, J., 683.
Hanbart, M. and N., 58
Hanied, P. J., 405, 452.
Hannel, F., 32.
Hannah, A., 483.
Hannah, Maker, 74, 80.
    Hannay, Major, 74, 82, 101, 133.
Hanoven Specimens of yarns from, 373.
    Hanson, J., 504.
Hanson, S., and Sons, 551.
Hansotte Dalioye, H. G., 166.
intensive Bulley, H. G. 1926.

Herbild, T. 2007, 1928. 2018.
Herbild, L. 2017, 1928.
Herbild, L. 2018.
```

general hardware co-extensive with the employment of the baser metals in manufacture, 4.02. This Class forms a nucleus round which various other Classes to the number of seven or eight are distributed, ib. Range of the Class limited rather with respect to the number of objects subsaced by it than to their nature, il. Difficulty experienced in arriving at an exact definition of the limits of this Class, ib. Sculptures in definition of the limits of this Class, ib. Sculptures in modal reviewed by this Jury, ib. Objects included in this Class considered with reference to material: 1st, brass menufactures, 2, 2, 4.3, 20, copper, zinc, tin, peeter, ic., 4.35, 3rd, Iron work, ib. 4th, steel manufactures, ib. Various other articles fabricated manufactures, ib. Various other articles fabricated of mised materials coming under the usual denomination of hardware, ib. Large proportion of the articles of mere utility and convenience, ib. Advantages might have resulted from the addition of a comparison of prices, it. Rule adopted by the Jury for determining the merits of inventions and improvements on existing contrivances, ib. Practical reasons against making experiments to ascertain the merits of lamps for oil or campbine, ib. Contrivances for preventing smoke, ib. Kitchen ranges and gas-stoves, ib. improvements in improvements in the manufacture of steel pens, ib. Large proportion of articles in this Class in which use is combined with ornamental, ib. Number of articles solely or chiefly orna-mental, ib. Number of Exhibitors in this Class, 4/3. 421. Proportions in which foreign countries have con-tributed, 421. British hardware manufacture chiefly pra-eminent for excellence of workmanship and me chanical skill, ib. inferiority of British hardware in point of taste, 494, 495. Causes to which attributable, element in the perfection of manufactures, mechanical execution must be subservient to its due execution and development, & Effects which the substitution of machinery for hand inbour must produce in hardware manufactures, 415. Artistic ignorance of workmen not an evil peculiar to this country, ib. Necessity for the artificers and designers of ornamental hardware having more unrestrained intercourse, 16. Position of the ornamental hardware manufactures of the linited Kingdom not discouraging, ib. Vast commercial advantages reaped by this country from unornamented machine-made wares, ib. Due admitment of the machine-made wares, ib. Due adjustment of the mechanical and the artistle elements of perfection in manufacture a problem yet to be solved, ib. The resulting of los cases and control of the control of private enterprise, ib. Manufactures of France patronised and supported by Government influence and resources, ib. Pre-eminent excellence of the national orasmental manufactures of France, ib. Hardware manufactures of France and the United Kingdom representatives of opposite systems, ib. Actual merit of works, independently of the circum-Actual meril of works, independently of the circumstances under which produced, be grounds on which the assards are made, ab. Metallurys and a knowledge Turkey, Turks, and Islaid, be Production of the Oriental nations of the radest description, though excellent in material, aff. Constraints from the oriental nations of the radest description, though excellent in material, aff. Constraints from Summittee and Constraints of the C of industry, ib. Ample proofs of activity from Austria, States of the Zoiiverein, and Belgium, ib. Flourishing condition of iron manufactures in Austria, ib. Manu facture of jews'-harps represented solely by Austria, ib.
Various descriptions of wire from Austria deserving
of notice, ib. Character of the articles from the States of the Zollverein, ib. Active state of con enterprise in these States, d. Description of the con-tributions from Beiglum, is, Ores of Beigium and Silesia abundantly and easily worked, ib. Very few articles in the Bepartment of tha United States, ib. Those exhibited display energy, ingenuity, and perfect adaptation, ib. General remarks on the brass, copper, adaptation, & General remarks on the brass, copper, xinc, and tim manufactures, 497, 498. Observations on the Iron and steel manufactures, Ironmongery, &e., 499-501. Ligit of Awards in this Class, 501-509. Extract from the Minutes of the Jury of Class XXIX., 200. With respect to making experiments to ascertain the merits of the various image (xhibited, 510. General remarks on the articles of hardware, such as grates, fire-from, gas-fittings, &c., in the Exhibition, as connected with ornamental design, 725-727. Candle-

stick by Messes, Hardman, after a design by Mr. W. Pugin, 22b. English and French designs in hardware equally faulty, si. Engeperations of ornamest in candeshee, so. Superior design and workmanship of the English in grates, 22b. Barnished figures objectionable in metal works, 22b. of hats one of the oldest of the staple manufactures of England 481. Remarks on the complete and interesting illustration of the manufacture, exhibited by Christy and Co., ib. Specimens exhibited, names of exhibitors, awards, &c., ib. awards, &c., &.
Hattersley, Parkinson, and Co., 373,
Hattersley, W., 42,
Hautel, J., 613,
Hautel, J., 613,
Hautlek, G. F., 517,
Haupfner, ..., 58,
Hauser, J. &d J., 791,
Hausses-Hop, B., 160, 388, Hardy, A., 25, 166.
Hardy, T., 489.
Hargreave and Nusseys, 332.
Hargreaves, J. (Juror). xxix, xxall; (Exhibitor), 15.
Hartor Beans—Samples of, from Canada, 54. Hautin, P., 408. Harley, G., 5th HAVANNAH CIGARS. - See Cipers. HARMONINE.—Description of a novel kind of musical in Haward, -, 315. Hawcroft and Sons, 480 strument called the Harmonine, exhibited by the hyentor, M. do Villorol, 322. Harmonium, 322. Harmoniums a percussion from Hawkins, J., 504. liawthorn and Co., 173, liawthorn, R. and W., 186, liawthorne, James, 45, llawworth and Carnley, 373, France, 332 Hagworth and Carnie Bay, A., 414. Hayball, A., 550. Hayday, J., 422. Hayday, H. J., 424. Hayden, W., 196, 204. Hayder, S., 350. Hayder, N., aton Hayen, ..., Sen., 452. Hayes, E. J., exx. Hayes, P., and Co., 45. BAYESSYL.—Boeste of line so called from its discoverer Hayes, 22.1 is found in abundance on the Western Coast of America, is. Its satisfully for gases meaning, or.

Haywa, - 165.

Haywa, - 165. Harris and Galabrin, 245.

Harris, J. and, 1885, 606.

Harris, Lord, 17, 27, 52, 53, 147, 164, 665, 665.

Harris, Lord, 17, 27, 52, 53, 147, 164, 665, 665.

Harris, A. Thomas, 25, 25, 25, 25, 27, 265.

Harris and Tonokins, 252.

Harris, A. Thomas, 252.

Harris, S. W. S., 210, 217, 207.

Harrison, C. C., 275, 277.

Harrison, C. C., 275, 277.

Harrison, C. C., 275, 277.

Harrison, J. L., 268. Haywood and Son, 503. Heal and Sons, 163. Heal and Sons, 163. Heald, B., 465, 569, 593. Heald, H., 457, 248. Heald, H., 457, 248. Harrison, C. W., and J. A., 22 Harrison, J., 12L Harrison R. and J., 12L Harrison and Son, 440. Harrison, T., 470. Harrison, W., 52S. Harrold, -, 344. Harrop, Taylor, and Co., 356. Hearler, —, 280, 236, Hearler, —, 280, 296, Heath and Burrow, 52 Harrow, Taylor, and Co., 226.
Harrows, —Observations on the improvements which have been made in the harrow of isto years, 227. Description of Coleman's capanding harrow, ib. Description of the Norwegian barrow, 227. List of Awards, 227. Heathcote, J., M.P., 461. Hebert, —, 631. Hebert, F., and Son, 379. Hebrit, F., and Son, 379. Herhinger, H., 536. Heckel and Co., 326. Heckel, J. A., 333. Hecker and Brother, 55. of the Norwegian harrow, 22L.

Hart, J., 586, 705.

Hart and Sons, 544.

Hart the Sons, 544.

Hartley, J., and Co., 567, 536, 584.

Hartmann and Co., 560.

Hartmann, J. J., 581.

Hartmann, J. J., 581.

Hartmann, L., 560, 673.

Hartmann and Co., 583, 450.

Hartmann and Co., 583, 450.

Hartmann, J. 580, 673, 583, 586. Hecker and Brother, 32. Hedinger, C., 566. Hedlund, J., 508. Hecley and Sons, 516. Heepen Spinning School (Prussia), 370, 373. Heeps, J. H., 303, 333. Hefford and Energ. 422. e Agricultural Implements. Harvey, A. (Jaror), xxiz. Harvey, Ann. 370, 373. Harvey, D., 218. Harvey, J. K., 689, 685, 728 Hegenbarth, A., \$37. Heilbronn, L., 536. Heiligenthal, —, 574 Heine, —, 344. Harvay, J. K., 589, 665, 7 Hase, —, 401. Haslam, W., 561. Haslam, J., 687, 594. Hastings and Mellor, 431. Heinge, ..., 344. Heinke, C. E., 208. Heiniein, C. V., 221. Heints and Frendenberg, 322. Heinzen Brothers, 45. Hatcher, -, 287. Hatcher, W. II. (Associate Juror), zzvi, 162. Helbronor, B., 472. Helbronor, Van. 748. Holeo, —, Van. 748. Halena, St., Agricultural Socioty, 20. Halena, St., Agricultural Socioty, 20. Hatfield, J. A., 498, 504, 107. Hars.—Importance of this branch of industry from the Heija, J., 202.

HELOUTAY, SILEEMAN'R.—Description of the principle of an optical instrument from France called Silberman's Heisten, 222.

Heijerman's, C. V., 202.

Heijerman's, C. V., 202. ra.—Importance of this branch of isolautry from the large number of persons canjoyed in its various cemi-fications, 421. Large number of contributors; parts of England and the Confluent from which illustrations have been forwarded, &. Division of the specimens into four classes, &. Noreity of style introduced in the British contributions; difficulty of inducing the public to adopt these noveleties, &. The manafacture

Helmich, F. A., 537.	Hetsch, Professor (Juror), xxvli.
Hellmich, F. A., St.	Hert, A., 267.
Helme, W., 352. Helwert, J., 333.	Hettou Coal Company-Model of the mine worked by, at Newcastle, 12
Hemingway, A. and W., 45,	
	Heurlin, , 447.
Hemming, H., Sui.	Heusschen, Van Eeckhoudt and Co., 471.
HEMP.—See Flux and Hemp. Indian Hemp. HEMP-DRESSING MACHINERY.—Notice of a large machine	Hewitson J. 509 301
	Hews, G., 334.
rope, 126. Hemphill, W. D., 602. Hemsworth and Linley, 321.	Henreus, C. IV, feel, Henrill,,,,,,,,
Hemphill, W. D., 602.	Heyl, C., 312.
	Heyl, J. F., and Co., 46, 454
Hendenlang, —, 360. Henderson, —, 673.	Heyler, Mario, 470.
Henderson, -, 673.	Heymann and Alexander, 468, 748.
Henderson and Co., 475.	Heymann, C., and Co., 375. Heyn, Emma, exx.
Henderson, R., 150.	Heywood, , 262.
Henderson and Widnell, 473, 475, 728.	Heywood, Higginbotham, Smith, and Co., 547, 551.
Hendrichs, F., 252 Hendric, R., 614.	Hibbert, Platt, and Sons, 195, 196, 964
	Heywood, - 2022 with sand Co., 247, 251. Heywood, - 2022 with sand Co., 247, 251. Heywood, Biggrowtham, Smith, and Co., 247, 251. Hicks, D., and Son, 193, 195, 200, 203. Hick, D., and Son, 193, 195, 200, 203. Hick, J. (4070), xxv.
Hence, —, 45. Henfry, A. (Juror), xxx, 664. Henkelt, J. A., 422. Henkelt, J. A., 223.	Hickey and Tull, 201, Hickeys and Tull, 201, Hickman and Clive, 508,
Henfry, A. (Juror), xxx, 604.	Hickman and Clive, 103.
Henkels, J. A., 482	Hickman and Co., <u>581</u> Hicks, G., <u>103</u> .
Henn and Bradley 500	Hickson and Sons, 479.
Henn and Bradley, 202. Hennault, J. B. de, 224, 302. Henneberg, F. E., and Co., 687, 629. Hennecart, J. F., 202.	Hider, E., 448, 454. Hipps. See Leuther,
Henneberg, F. E., and Co., 687, 629,	Hipps. See Leuther,
	Hietel, J. A., 471.
Henring, 197.	Hiscinbotham, L. C., 187.
Henning, —, 192. Henning, J., 372, 373. Henning, J., 372, 373. Henot. —, 387. Henot. —, 273.	Higginbotham, G. and W. 482. Higginbotham, L. C., 187. Higgins, P., 330, 534. Higgins and Sore, 195, 196, 204.
Henoc, -, 387	Higgins and Sons, 195, 196, 204.
Henri, -, 273.	Blabler S. inn. II
Henry, A. and S. and Co., 352. Henry, E., and Sons, 381. Henry, T. H. (Associate Juror), sxix, xxx, 246, 488, 540,	Highton, —, 288, Hilgers and Sons, 480, 546, Hill and Adamson, 278,
Henry, T. H. (Associate Juror), xxix, xxx, 246, 488, 540,	Hilgers and Sons, 487, 505.
565.	Hill and Adamson, 278, Hill and Bundy, 97, 100.
Henrys and Co., Mar.	Hill and Co. cvv
Henrys and Co., (20). Heusman, —, 162. Heusman and Son, 230, 234, 236, 242. Heusman, H. H., 182. Heusman, H. J., 183.	Hill and Co., exv. Hill, E., and Co., 508, Hill, Evens, and Co., 203.
Henson, H. 11., 187.	Hill, Evens, and Co., 203.
Hensteh, J., 153.	HHI, J., 200. HHII, J., and Co., 266. HHII, J. V., 450. HIII, M. D., 228.
Hentle - 94	1100. J. V., 489.
Hepburn, J. and T., 350.	Hill, M. D., 208.
Haras, P. de Las, 99, 113.	Hilland Son, 324, 333, Hillas, F., 80.
Hentig, — 21. Hepburg, J. and T., 35a. Herby, P. de Las, 95, 103. Herbert, Baron I. Von, 42, 45. Herbert, Baron I. Von, 46.	Hilliard and Chayman, 469.
Herbert, S., 682 Herbert, T., and Co., 462 Heredia, Don M. (Juror), xxix.	Billman, J., 549. Bills, F. C., 43, 46.
Herbert, T., and Co., 453.	Bills, F. C., 43, 46,
Heredia, Don M. (Juror), xxix. Herarrone Cartieman.—Model of a Spandril in, 696, 713. Herlot, E. T., 53. Hermann, G., 202, 203, 658. Herman, A., 162, 661. Hermander, J., 152.	Hills and Underwood, 62. Hinar Bass-Used in New Zealand for dyeing black, 50.
Heriot, E. T., 53.	Specimens exhibited, ib.
Hermann, G., 202, 203, 658.	Hinchliff and Co., 545, 551. Hincks, Wells, and Co., 545.
Herma, A., 162, 364.	Hineks, Wells, and Co., Mr. Hinde, J. G., 600.
Herrenschmidt G.F. 301	
Herrenschmidt, G. F., 321. Herrick, J. K., 495, 452 Herring, S. C., 305. Herrman, Dr. Von (Juror), xxv, xxviii.	of, 120. See also East India. Hinks, H., 218. Hirrane Acto.—Samples of, 44, 47, 43.
Herring, 8. C., 505.	Hindet, J., 173.
Herrman, Dr. von (Juror), XXV, XXVIII.	Hanks, 11., 218. Hannage Acap., Samples of, 44, 47, 48.
Herrmann, W., 353.	
Herrmann, Jr., von Gurer), Av., Avin. Herrmann, C., &c. Herrmann, W., axis. Herschell, Sir J. (Jurer), xxvil, 249. Horthum, H., 31. Herre Brothers, 163.	Hirsch and Brother, 45. Hirschfeld, J. B., 319, 403, 454.
Horthum, H., 31.	Hirschfeld, J. B., 379, 403, 454.
Herve Brothers, Hol.	Hirschmann, —, 45. Hirschmann, Hirsbendorf, and Ravitch, 63.
Hers, G., 376.	
contributed by the Electorate, 200. Series of embossed	
and printed envelopes from, 448. HESSE DARMSTADT, GRAND DUCHY OF, - Samples of pearl	Headley and Pridie, The
barley, greats, flour, &c., Mayntz and Strasbourg	Honeley and Pridie, 556 Hohan, M., 569,
hops, M. Samples of oak-bark in the state used by	Hobart and Robins, 411.
playing cards 447 Speciment of enumelled cards	Harbert, R. E., 574, 206.
boards, 442. Numerons portfolios, ib. Artificial flowers	
	Horiges, T., 505, 510.
and fruit in wax, bil. Collection of walking sticks,	Heriges, T., 585, 510. Herigkinson, E. (Associate Jurer), axia.
665, 666. Papler-mache snuff-boxes, 676. Notices of	Hochberger, J., 11, 45, Hodges, R. R., 594, 565, Hodges, T., 505, 505, Hodges, T., 505, 505, Hodges, T., 505, 505, Hodges, J., 505, 505, Hodges, J. S., & Wan (Jurop), xxx, xxviii.
and printed correlayer from Adis. — Samples of provided the printed pr	Hodges, T., 200, 6111. Hodges, T., 200, 6111. Hodson, J. S., 203. Hodson, J. S., 203. Hodges, T., 200, 1011. Hodges, T., 200, 1011. Hodges, T., 200, 1011. Hodges, T., 200, 201.

```
Hoesch and Son, 431, 412
                                                                                                                                                                                                                                                                                                                                                                                                                                                               name, and objects rewarded, viz., xxxvii, zl., zliii, zlix,
                                                                                                                                                                                                                                                                                                                                                                                                                          Hoey, S. P., Van, Z.
Hoter, L. Von, 6.9.
Hoffmann, C. 1-8.
Hoffmann, C. and G., 635.
Hoffmann, C. and G., 635.
Hoffmann, C. W., 673.
Hoffmann and Eberiarytt, 259, 282.
Hodimann, G. L. 520, 673.
Hodiman, J., 527.
Hodimerster, T., and Co., 551.
Hodimerster, Professor A. W. (Juror and Associate), xxix,
                                                                                                                                                                                                                                                                                                                                                                                                                              Samples of, 512.
Hoose, Rolson, and Co., 499, 502.
                             (Jurur), xxx.
   Hofmann, W., 537,
Hofmather, C., 676,
Hogarty Brothers, 391,
                                                                                                                                                                                                                                                                                                                                                                                                                          Hoole, Robson, and Co., 499, 5692.
Hooper and Co., 522.
Hooper, C., and Co., 525.
Hooper, G., and Co., 355.
Hooper, G., and Co., 355.
Hooper, G., N., 123.
Hope, H. (Juror), xxix.
Hopk, in AW Williams, 46.
   Hogg, -, 277.
Holbrehe, M. M., 72
   Halbrook and Stanley, 163
Holden, B. T. and D., 359.
Holden, H. A., 543.
Holden, J., 462.
                                                                                                                                                                                                                                                                                                                                                                                                                              Hopkinson and Cope, 15
                                                                                                                                                                                                                                                                                                                                                                                                                              Hopkinson and Cope, 1285.
Hopkinson, J. and J., 3234.
Hors.— Bla riets in England in which hops are chiefly cul-
tivated, 266. Extensively cultivated on the Continent,
but never to perfection, 36. The plant has been intro-
duced into Canada, &c., 45. Samplet of hope cabibited,
Hadderly and See, 284. Hadderly and See. 284. Hadderly and See. 284. Hadderly and Jan. 285. Hadderly and Jan. 286.    Holdforth and Son, 361
                                                                                                                                                                                                                                                                                                                                                                                                                              referred to, ib.

Hopmod, Henry, 46.

Horan, H., 160, 16th.

Hosa, Arricus is.—Horn is employed for all the purposes
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ns, Autriciais is.—Horn is employed for all the purpose of totoloschell; its more extended application on account of its elseapoes, 600. Purposes to which applicable, db. Animals of which the horns are used in monufactures; Imports into Liverpool of the different descriptions in 1850; db. Mode of preparation for manufacture, db. Objects exhibited, notices thereon, and Awards, db.—See also Horsa and Aultra.
                                                                                                                                                                                                                                                                                                                                                                                                                              Morry, 16.—See and Horna and Amery.
Horn, Mrs., cax.
Hornboatel, C. G., and Co., 367.
Hornby and Kenworthy, 281.
Horne, C. 255.
Horne, C. 255.
Horne, C. 255.
Horne, C. 255.
   HILLAND (LINES) .- Samples of, 371, 372, 373
Halland (Lavis).—Samples of,
Holler, A. H., 221.
Hollitay, R., 338.
Holliday, T., 54.
Hollingworth, Messrs, 428, 447.
Holloway, T. J., 373.
Hollweg, B. (Juror), xxvil.
Holmbiad, L. P., 447, 623, 628.
Holmes, Captain, 339.
                                                                                                                                                                                                                                                                                                                                                                                                                              Hornig, C. E., 92
                                                                                                                                                                                                                                                                                                                                                                                                                              Hornig, C. E., 22.
Horas and Astleas.—Great variety of flocand illustrative specimens sublidited, 153. Collection in the Indian Department merits the first notice from the number and variety of the examples, ic. Pair of fine moose horns from Canada, ic. Buffalo and reinocerui horas from the Cape of Good Hope, ic. Horas of various.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           animals tran
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mitted from Egypt, ib. See also Horn,
   Holmes, G. L., 25.
Holmes, H. and A., 125.
Holmes, J., and Co., 482.
Holmes, T., and Co., 482.
Holmes, T., and Co., 321.
Holmes, T., and Co., 321.
Holmes, W. H., 582.
Holms, W., and Brothers, 382.
                                                                                                                                                                                                                                                                                                                                                                                                                              Hornsby and Sons, 223, 230, 234, 236, 237, 238, 241.
                                                                                                                                                                                                                                                                                                                                                                                                                              Horning, C. C., 31h.
Hosnotov (Class X.n.)—Tabular classification of objects in the Exhibition into which this Class is divided, xl.
List of Jurors appointed for this Class, xxvii. List of
                                                                                                                                                                                                                                                                                                                                                                                                                                                        List of Jurora appointed for this Class, xavil. List of
Exhibitors in this Class by whom Council Medials have
been awarded, lavili. The like of those to whom
Prize Medials have been awarded, i.e. And of those of
whom Homourable Mention is made, bvili, laiz. List
of the council of the council of the council of the
whom Homourable Mention is made, bvili, laiz. List
when the council of the council of the council of the
warded takes. Report on the horselogical instruments ex-
libited, 356 et al., 285 et al., 
   HOLOPHOTAL SYSTEM OF LIGHTS (for Lighthouses) .- Descrip-
   tion thereof, 531
Holstein, J. P., 583.
Holatela, J. P., 283.
Holt, E., 132.
Höltrung and Höffken, 526.
Höltrung and Höffken, 526.
Hömmel-Esser, 3.6.
Hömmel-Esser, 3.6.
Hömmel-Esser, 3.6.
                                                                                                                                                                                                                                                                                                                                                                                                                              Horrockses, Miller, and Co., 348.
Horse-HAIR.—See Hair and Bristles.
                             Nat.—Establishment of Mr. C. Meinig, in England, for
the preparation of bones, grindstones, and spolishing-
ations, 3. Remarkable analogies between the house
(Gil-stones) of Turkey, Peris, Spain, Peru, Ireland,
Wales, &c., &c., &c. Character of these stones, &.
Large number of grindstones establisted by Mr. Meinig;
Variety of purposes to which adapted, &c. Beigium
possesses a number of tocks adapted in the analogical
                                                                                                                                                                                                                                                                                                                                                                                                                              Horse-nam.—See Hair and Briefles. Hair, Wores.
Horse-snors—Specimens of improved, 507, 508, 500.
                                                                                                                                                                                                                                                                                                                                                                                                                              HORE-SHOES—Specimens of improved, 507, 508, 502, Horsey, J., 505, Horsey, J., 505, Horsell, H., 505, Horsell, J.G., and Co., 336, Horsely, W. B., 75, 82, Horsely, W. B., 75, 82, Horseley, W. B., 76, 82, Horseley, W. B., 7
                                 of bones,
                                                                                                    23. Samples of hones from different rocks
   and for different purposes, ib.

Hoxxy.—Large number of specimens, but no novelty of
                                                                                                                                                                                                                                                                                                                                                                                                                                                        cultural Implements.
Heaves—Large number of specimens, but no newleys (1) Bloch and Suni, Said.

In the Birlish Dispartment, i.b. Stapped from the Birlish Contents, ab. From France, b. From Spain (1) Bloch (
                                                                                                                                                                                                                                                                                                                                                                                                                              Heach and Sons, 402
                                                                                                                                                                                                                                                                                                                                                                                                                              Hosking, R., 9, 184.—See also Rotation of Machinery.
```

I Same Same

	_
Honldsworth, T., and Co., 347, 348, Houllier, B., 520.	1
House Clocks. See Clocks, Time Pieces, &c.	
House Cincen. See Clock, Time Pieces, &c. Houset, A., 202. Howard, E. S. (Jarer), xxix. Howard, J. and F., 223, 226, 242. Howard, T., 13.	H
Howard, J. and F., 225, 226, 242.	H
	į į
Howards, J., 429. Howe, J., and Co., 529. Howe, J., and Co., 529. Howe, D., and Co., 523. Howe, D., T. S., G., 123. Howe, D., S. G., 124. Howel, James, and Co., 285. Howland, C., 287. Safe, Howland, C., 287. Safe, Howless, J., 388. Holler,	H
Howe, Dr. S. G., 416, 422, 423, 452.	1
Howell, James, and Co., 363, 468.	10
Howland, C., 275, 505. Hoyle, T., and Sons, 452.	1
Hoyles, H., 550.	١,
Huber-Rordorf, 367.	I.
Hubert, E. de St., 23.	ı
Hubert, Josephine, 470. Huck, —, 202, 2014.	ŀ
HICKABACKS General excellence of the specimens exhi-	ì
HuddersfieldThis town second in importance for the	1
quantity and variety of woollen cloths produced, 331. Hudson and Bottom, 197.	P
Hudson, F. T., 267.	l
Hudson, S., 395.	1
Hudson, W. S., 82, Hudson's Bay Company, 384, 386,	1
Hue, J. B., 201, 20st.	В
Huelva, Province of (Spain), 152.	1
Huet, Mme. A., 482, 526.	ь
Holter, Ausplans, ED. HOLTER, Ausplans, ED. HOLTER, Ausplans, ED. Holter, C. C. Control and Control and Holter Bernell, Manager B. Haddenfold, —This term record in importance for the guaranty and warry of woulden florida produced, 30.1. Hadden, F. T., 2022. Hadden, F. T., 2022. Hadden, F. T., 2022. Holter, R. S., L. C.	
Huffnaglo, Dr. C., 23.	į
Hughes, F. R., details by, of a series of experiments con-	ı
dueted at Newcastle, for the manufacture of prussiates	1
Hoffer, J., 405. Hoffsage, Dr. C., 73. Hoffsage, Dr. C., 73. Hoffsage, Dr. C., 74. Hoffsage, W. J., 74. Hoffsage, W. J	ji
Hughes and Kimber, MD. Hughes, P., 95.	h
Hughes and Sons 202	1
Hughes and Sons, 2017. Hughes, W., 211, 256. Hugues, juo, 55. H	H
Hull.—Samples of dye-stuffs included in the series of Hull	ŀi
Imports, 85. Series of samples of tanning materials shown in the same collection, 92. Quantity of these	H
Imports, \$\pi_{\pi_{\pi_{\pi_{\pi_{\pi_{\pi_{\pi_	H
the Hull collection of imports of raw materials and	li
manufactures, 650. Hull, H., 13, 148.	H
Hall, H., 13, 148. Hull Local Committee, 73, 652. Hullmandel and Walton, 648, 666.	I
Hulls, J., 200.	П
Hulls, J., 263. Hults, J., 263. Hults, A., 407, 447, 454. Hülsse, Professor (Juror), xxviii, xxix.	ľ
Humbert and Co., 165.	١,
Humfrey, C., 46.	
Humbert and Co., Ho. Humble, —, 562. Humfrey, C., 48. Humphries, J., and Sons, 474. Humphries, T., 475. Hund, F., and Sons, 333. Huni and Habert, 334.	1
Hund, F., and Son, 333.	1
Hunt, C., 559.	I
Hunt, J., 202.	ľ
Huot and Roskell, 513, 684, 685, 693, 736, 739.	1
Hunter, Dr., 102, 122	
Hunter, J., 201.	h
Hunter, W. J. R. and E., 552, 563. Hurlet and Campsio Alum Company (Glasgow), 39, 40, 49	ŀ
Honi and Habert, 254. Hont, C., 256. Hont, E., 125. Hont, E., 125. Hont, E., 125. Hont, E., 125. Hont, W., 205. Honter, D.P., 255. Honter, J., 261. Honter, W., P. & and E., 259, 363. Horlet and Compain Alam Company (Glasgow), 25, 45, 42. Horlet, W., 25. Hortel, Y., 265.	1
Turst and covery - 255, 21.1. [Intrell 255, 25.2, 268, 255, 242.] [Insband, T. J., 36. [Iusband, T. J., 36. [Iusband, T. J., 36. [Iusey, - 252. [Iusey, - 252.	۱ì
Huskisson, J. W. and H., 46.	i
Hussey, -, 232.	i

Hutchioson, Dr., 344, 346. Hutelinson, Messrs, 25.

Buth, Fried, and Co., 31, 598.

Buth, Fried, and Co., 31, 598.

Button, J., 338, 342.

Button, J., and Sons, 192.

Hutton and Newton, 482.

Hutton and Newton, 482.

Button, T. (Juror), xxvix, xxi.

Huxhams and Brown, 598.

Huxhams and Brown, 598. luxard, -, Huard, — 425. [1] June, — (0. 221. 22. Hyracatte Curve. Samples of method of preparation, 42. See also Consult, House, 3v. Hyracatter Machurys. — Georgia neglect of those cle-Hyracatter Machurys. — Georgia neglect of those cle-the perfection code to usefulness, in an economical point of view, of much machines always depend, 126. The nuccess with which the principles of mechanical seience, in their application to practical questions, are beginning to be cultivated in France, shown in tho superiority of the French hydraulic machines, &. See Germany, 42.
Hynao-kler-tuc Chain Battenies—Designed to be wore Herso-eller'inic Chais Bayremes—Designed to be wore on the body for the cure of chronic disenses, 232.

Hydrocherius—Capable of secretaining the specific gravities of all flaids, 225. Accuracy and efficiency obtained, 86. Silver hydrometer from Wirethnung, 227.

Hydrocherius—Specimes of Danieli's and of Regnaut's hygrometers, 201. lakovleff, C., <u>489.</u> lbarra, J., 397<u>, 406.</u> libetson, Capt. L. L. Bescawen, xxv, <u>208, 295, 309, 505.</u> 516. Inbotson Brothers, 482. hbotson, R., 489 botson, -, 428 brahim Aga. CE APPARATUS - Speciment of, 505, 508. darof, Mustapha, 11 ldarof, Mustapha, dl. hm, F., 475. jlorsk Imperial Works (Russla), 252, 255, 206, lles, C., and Co., 525. llham Pasite, 11, 11, 44, llift, W. T., 528. imperatori Brothers, 162. ince, W. 11, 646. ince Hall Coal Company, 520. lodgir-Keny, Imperial Glasshouse of (Turkey), 537.

States, 678. NIMAN ABCHIPELAGO-Extensive collection of woods contributed from, 138, 139.

NDIAN BALL A new drug; the fruit of the Bengal quince, 48.
NDIAN HEMP—Extract and tineture of, 43.
ndian Iron and Steel Company, 14. See also Iron and

Seed.

Seed.

Process of dyelag with this article, is. Senon-Specimens of, 87, 89, 90. Plant from which obtained, is. Process of dyelag with this article, is. Samples of Indigo dyes shown, is. Model of an indigo factory, showing all the different processes, 62. India, A., 333, 33, 41. Indiastrial Museum.—Proposition for the foundation of a permanent industrial museum in the metropolis, 623, 623. Steel

NETSTONS OF MEDICINAL SUBSTANCES (undescribed), 43. nglis and Brown, 31d. nglis and Wakefield, 459.

Ingram, H., 128, 204 lagram, J. W., 552 ngram, T. W., 505.

INC .- Specimens of lok for the blind, 422. Specimens of

18x.—Specimens of tok for the hilled, \$22. Specimens of tok writing ink, \$455. See also Printing lak, \$155. See also Paryseteie. Stanto Works in Printing law, \$155. See also Paryseteie. Stanto Works in Printing law, \$155. See also Paryseteie out present with the printing law of the printing law

pearl, or turtoisehall in furoiture, 22d. Remarks on specimens in the Exhibition.

Janano Wonsas rs Merax. Notice of the principal works in the French Experimens, Eng. is the Belgian Depart-remarks on specimens of inlaid work in the precious metals, Eds. See also Massach and the prefection to which this kind of art has been carried in Tanason, 28s. No

first-rate specimen contributed to the Exhibition, ib. Remarks on the table-tops of G. Bianchini, ib. Renarks on the table-top of G. Branchini, ib. Intata Wongs in Wood.—Notice of works of this class in

the Spanish Department, 705.

Institution for Trades, Prussis.—The foundation thereof has greatly promuted manufactures on which the fine arts exercise influence, 272. Instructions from the Council of Chairmen to the Juries, xxiii.

NTAGLIOS. See Die-rinking, Works in, &c.

Synanics—See Bu-inding, Works in, §c.
Isvalin Coccurs, §22.
lorangs.—See Iron, Indike of, Petersium, Indike of,
lorangs.—See Iron, Indike of, Petersium, Indike of,
lorangs.—See Iron, Indike of, Petersium, Indike of,
lorangs.—See Iron, Indike of,
Patention of the manufacture thereof by Messrs, Courocie, of Chechourg, ib. The whole Indine produced, excepting that used in photometric of the produced o

whose mouther produces, excepting than used in photography, is still consumed in medicine, \$\delta\$. Increase in the home production about 1840, \$\delta\$. Price of the pure dry article, \$\delta\$. Samples of iodine, 44, \$\delta\$2. Incorons.—Specimens of, 45.

onian Islands.- Dried currents from, 56

ionian islandi.— Dried current from , id.

rich(x), Zi.,

rarrive centplere, for Terland, I., Iriba issues for decorent from the control of the control of the control

by the loopal society for the improvement and Promoby the loopal society for the improvement and Promowoodlen cloths and friezes from Iritand, Zili. A few low

frameds and control, colled feel says, made in Iricanda,

namely, Zili. (Teres and powerful depression of the glass

manufacture of Terland cannot by the extension of the

duties on glass thereton, Zili. Asstopers of a lightly

evaluate in the control of the control of the glass

respective for the courtry (Ed. Specime exhibited, do

sculptor in this country, 264. Specimen exhibited, ib. treland, Edwin. ireland, Latwin, 829.
Ireland, Royal Flax Improvement Society, 96, 97, 371, 323.
Improvervy Films. Various applications of to purposes of decoration, 314. Process adapted to ronder the film and its roflected colours permaoent, ib.

Irish Fenerded colours permanent, so.

Irish Work Nociety, 3602.

Iaos Carrixos.—Imperamee of this branch of industry,

260. England distinguished above other nations for
the exuberance and cheapness of supply of iron, 55.
Contributions from France, Belgium, Prussia, and
Austria, 55. Excellence thereof, 55. Cast-iron bedstead exhibited in the state in which it comes from the mould, ib. Castings from France light and graceful, ib. High order of the specimens from the Royal Prussian Iron Foundry, ib. Busts from Spain and Belgium, ib. Castings in the United Kingdom might be more largely employed for purposes of use and ornament, ib. Exist-ing obstacles to its more extensive use, ib. Iron susceptible, in casting, of the most perfect and sharp impres-sions, ib. Cost of public monuments might be reduced by substituting iron for bronse, ib. Causes of the supe-

by ministrating from for houses, the Cause of the super-rivery of the contribution of the contribution and incom-rating of the contribution of the contribution and in-lates, "Caramana or "speciment of § 3."

Love, "Caramana or "speciment of § 4."

Love, "Love or "speciment of § 4."

Love or "love or "speciment o

tallie iron from Reading (Pennsylvania), 18. Iron ores from Troy (New York), 4b. Specimens of spathic iron ore from New York, 3b. Specimens of iron ores from Algiere, 22. Iron ores from the Boyal iron Foundry at Maiapate (Hyper Silesia), 31. Ores of iron from the mines of Miace, near Negen, 3b. Specimens of Iron ores from various nines in the neighbourhood of from over 1700 various mines in the neighbourhood of Hamm (I pper Silesia), ib. Spathic from over from the mines of St. Georges de Hurtleres (Sardinia), 34. Spe-cimens of specular from over from Tuscany, 35.—See also Misraela, &c.

isos, Oxtor or — An important mineral amongst the Iron ores of Canada, if. Worked in large masses, ib. Pro-ducts from the works of the Ilun, J. Ferrier, at St. Manrice, &.

Manrice, 6.

Inon Parza.—A particular kind of sheet-iron so called, manufactured by the Baron Yun Kleist; purposes to manufactured by the Baron Yun Kleist; purposes to manufactured by the Baron Yun Kleist; purposes to manufactured by the Baron Yun Kleist, and the Baron Yun Charles and the Baron Yun Charles and the Baron Yun Charles and the Baron Saury or "Specimens of, fab."

Ison, Nature or—Specimens of £5.

Ison and Strata, and Mary Fact reast remaintening.

Ison and Strata, and Mary Fact reast remaintening from the discovery by M. Cost of the process of publing with cost, T. Perese an amount produced in England, §6. Manner in which distributed throughout the iron trains proved by the collection of 8. Blackwall, §6. Over from the coal measures furthis the larger part of those used in the Iron works, §6. Counties in which the carboniferous or mountain limestone con which the earboniterous or mountain immestone con-tains important veins of hermatitic irro, sh. Thick beds of argillaceous carbonate of iron contained in the lins and solite, now the object of extensive operations, ib. Specimens of iron illustrating the makes of dif-ferent localities in Great Britain, 2. Specimens of these decarbonized into refined metal, and manufacferred localities in Great Britains, 25, Specimum of the critical and the different descriptions of basicion, it. Current and interredive enemptions for the critical translation of the critical control of the critical cont pencil, ib. Singular illustration of the pliability of

sheet iron, ib.

Colonies. - Method adopted at Salem (Madrus) by the Colonies.—Method adopted at Saleim (Madras) by the Indian Iron and State Contypus for working iron and steel, i.d. Ores and products obtained in the various stages of manufacture, exhibited, it. Description of the forges used by the Company, ib. Fig and bar iron from the works of the Marmora from Company (Ca-nada); good quality of the products, if. Resources of New Brusswicks, with regard to the manufacture of Iron and steel, ib

iron and steet, 50.

A watria. "Specimens illustrating the irau manufactures of the Baron Von Klols, at Neudeck (Bohemia), 5.

Specimens of iron orse and pgl ron from the Taserhurg Works in Carnins, 20. Manufactured iron and mains, 50. Most of the products exported to Italy, ib. naifs, åb. Most of the products exported to Italy, å. Increase of the quantity of iron manufectured, åb. Excellence of the products of these works, åb. Products of the works of the Count Von Egger in Carin-thia, åb. Objects exhibited, åb. Puddling and heating furnaces heated with wood Itel, åb. Regularity and economy observed, åb. The works of Count Von Egger the first works in Austria which adopted the English methods, ib. Iron and steel works in Styria possessed by the Austrian Government, ib. Objects exhibited by the Imperial Depôt of Iron Mines and Iron-works at Vienna, 20, 21. Excellent quality of the hollow iron

manufactured at the foundry of A. Töpper, of Scheibles (Lower Austria), 21. High reputation coloyed by M. Topper for the able direction of his establishment onthe excellence of its produce, &. Economy observed, &. Use of the gases of the furnaces in some of the operations, &. Objects exhibited, &. Assortment of different qualities of iron end steel from the Murau Foundry (Upper Styria), ib. Excellent quality of the Foundry (Lipper Styria), & Excellent quality of the pig from, bar tron, steel, and from wire, from St. Aegide (Lower Austria), & Collection of ores, pig from, siape, from and steel, from the community of Rad-micister, at Vordeslerg (Styria), & Excellent quality of the predicts of the foundrise of Prince Firstenberg, in Bohemia, especially in bolier-plates, & Use of turf freel at the works of Count Vos Bouquot, of Kallich hemia), ib. Fine quality of the bar and sheet iron, Method of pudding and reheating iron carried (Bohemia), ib. on by reverberatory furi sees et the Dernö Foundry of Coost G. Andrassy, in Hungary, ib. Great economy in the manufacture of Iron by this method, ib. Collec-tion of products from the foundry, ib.

tion or pressures from the foundry, so.

**Relgium...Pig iran end specimens of iron from Ardennes (Nemnr), bearing the mark [M B R], made with charcoal, 22. Part of the iron intended fer gunbarrels, sb. Not a single gun manufactured of this 4. Belgium barrels, M., Not a single gas manufactured of this mass are breast at the promps howes. Superior mass are breast at the promps howes. Superior properties of the promps of

the new produce subhilded, ab.

5. Framer—Iron from the Bigusy foundries, Cher (France),
5. Framer—Iron from the Bigusy foundries, Cher (France),
5. Framer—Iron from the Works at Brendand, department of Tare
and Garacone (France), th. Meudled cast from from
the works of Mener, Dietrich, at Niederbrons, th.
22. Clicke for Hubergraphy, 28. Hollow Brena
tabels meanthemed by Mesers, Gasdillet and Co.,
the Company of the Company of the Company of the Company
to Mesers, Gasdillet and Co.,
the Company of the Company of the Company
to Mesers, Gasdillet and Co.,
the Company of the Company of the Company
to Mesers, Gasdillet and Co.,
the Company of the Company of the Company
to Mesers of the Company of the Company
to Mesers of the Company of the Company
to Mesers of the taille sponges, from France, 23. Nature of the pro-cess, ib. Iron is obtained directly from the ore, ib.

cess, ib. Iron is obtained directly from the cre, ib.
Remarkable properties of the metallic spaner, ib.
Russia, Spain, and Sweden.—The working of iron and
its manifacture, joined to this working of copper, the
principal part of the miseral industry of Russia, 33.
Cast and wronght iron from Sweden, 33.
Zotternie.—Samples of cast and wrought iron, and cast and wrought iron, from Sweden, 33.
Zollerenie.—Samples of cast and wrought iron, and co

Zollervin.—Samples of east and wrought iron, and of sheet iroe of different thicknesses and length, from the works of the Royal Iron Foundry et Malapane, ill. Iron of various descriptions and qualities from Hoch-lein, in Bbenish Baveria, ib. Spathic iron and ismeliar white pig iron, from the Royal Forges at Lobo and Stabiberg, near Sieges, ib.—See also Farances, Lron over,

I een Stone-Wase .- See Ceramic Manufactures Inon, Sulverage or. Preparation thereof by the combi-nation of sulphuric acid with the residuery oxide of iron of hurst pyrites, 42, 41. Samples of sulphate of iron, 21, 43, 44, 46, 49, 50.

Inos, Sernariosethare or Samples of, 45.

Inos.mee Ropes.—See Wire Ropes.

inon, Where or Art in, 684, See also Custings in Iron. Inomororov (Incurring Garris, Figures, Louis, &c.).—
Pre-eminence may be justly claimed for the iron and
steel manufactures of the United Kingdom, 420. Adventage efforded by a material so cheap and abundant indicated by the wast extent and variety of its uses, it. No branch of industry employing Iron need ever lenguish on account of scarcity, dearness, or uncertainty of supply, it. Highly satisfactory state of these

branches of industry in the United Kingdom, 400 Promising condition in respect to taste of these manufactures, ib. Ornamental grates and fenders by Messrs. Hoole and Co., and Messrs. Stuert and Smith, ib. Re Hoole and Co., and Messrs, Stuert end Smith, & Re-merkable progress of this menofacture, & Ormanental grates and feeders chiefly menufactured in London, Edinburgh, and Sheffield, & Commoner description of grates made in various parts of the kingdom, & Observations commendatory of the School of Design in Sheffield, services it has rendered to ornamental art, & Sheffield, percices it has rendered to oronamental art, di-very few writces contributed by Continents immenfac-turers, di. Numerous examples of the collonery litchen-tary and the continent of the collonery litchen-day to equalified to form an opinion on the esteal working merits of the various contrivances, di. Inco-rucianco of many of the ranger from their mustiveness end wide space assigned for fuel, di. Attention of this manufacturers might be advantageously directed to produce a compact and economical range, it produce a compact and conomical range, & No cooking store or sparatus of first-rate manufacture from the Continent, & Contrivence recently invested for cooking and besting by easy, & Economy the child at large and the cooking the cooking and besting by a superior of the contribution of the cooking of the cooking of the cooking the cooking the cooking of the cooking the cookin Healthy and growing appearance of this branch of industry in this country, ib. Enameiled ware of Paris and the coating of tin by the new process, deserving of and the coaling of tin by the new process, deserving or notice, ib. Process of commelling extensively used, ib. Great activity of the trade of Germany and the States of the Zoliverein, ib. Contributions from Westphalis, ib. Westphalis long celebrated for irozmongery and tin goods, ib. Common waves exported to this country, ib. Objects exhibited and ewents, 201, 263, of seq-See also Hardware.

ellenhütte Smelting Works (Dilienburg) .- Preparation of niked and manufacture of German silver at these works, 33. Arsenic obtained, and verious elloys manufactured, ib. issieff, P., 353,

isle, Rouget De l', 275. ISLE OF WIGHT.—See Wight, Isle of.

"Isler and Otto, 602.
"Islance" (Scalpture). — Remarks on this work by G. Strazza, 703.

en alimentary substance, 57. Pevourable report of the East indian isinglass, made from the sir bladder of a silaroid fish, ib. Sample of finely-prepared Russien isinglass, ib. Raw material owes the greater part of its commercial value to its special organization. Care necessary to be taken in order to obtain the best nality, ib. Products of Russie bold the first rank, ib. India of different kinds of isingless in the raw state, 166, isodore and Brandt, 383.

issmover, J. M., 67 istche (The Giri), 484

ITALY .- Observations tr.—Observations on the silk productions of this country, 361. Remarks upon the typographic pro-ductions, 392. Statistics of the paper manufacture, country, Sail. Remarks upon the typographic pro-ductions, 292. Satisfites of the paper manufacture, 444. Specimens of general hardware and from manu-factures, 492. Insiad and ricbly carred furniture, meetifactured in itsly at the beginning of the sixteenth century, 544. Great excellence of the works contri-buted, ib. Art of islaying woods practised from a very buted, ib. Art of Islaying woods practised from a very early date, kill. Extensively employed is the decoration of wall panelling, ib. Mosaics, ibit. interesting collection of italian merides, forwarded by the Royal Techno-iogical institute of Tucsony, ibi. Specimens of marble and alabaster meanifactors. ibid. Works in serpentine, and alabaster meanfactores. 564. Works in serpentine, 565. The Italias neighbor of the present day does not possess any one general choracter, 105. See size Kome, Sardinia, Theoray, 17aAst, Ascieve—Introduction of the gless magnification of the gless magnification of the present that the present of the second
ivenoff, P., 150. Ivonv.—Fine ivory, distinguished by the decassating curved ty.—Fine 1907, unturgueen by the well-state of the tusk, lines on the surfaces of transverse fractures of the tusk, peculiar to the African and Asiatic clephant, 164. Best is obtained from the wild sulmats, ib. Deteriers-Best is obtained from the wild enimals, ib. D

tion of the leagth and quality of the tasks by the domestication of the elephant, 164. Numerous and instructive collection of tasks exhibited, ib. Awards to the exhibitors, ib.

Ivon, Astricus ix.—General remarks on, 222. Various specimens of turning and carring in Ivory, exhibited in the British Department, and also from Austria, France, and the United States, 25. Notices on some of these artieles, exhibitors, awards, &c., ib. See also Icery

Ivour, Astrificial.—See Protein Stone.
Ivour Barea.—See Charcad (Aninal).
Ivour, Barrisca,—See Charcad (Aninal).
Ivour, Barrisca,—See Canada (Aninal).
Mr. H. Brown; an important and valuable discovery, in
many cases calentated to superseda real lovry; Prince

11 of all awarded to the inventor, 1922.

12 of all awarded to the inventor, 1922.

Medal awarded to the inventor, 202.

I/ONY CASIVA,—Collection of Ivary small wares, 632.

Carvings by R. C. Laneas, 686, 684. Notice of a cup by Hagen of Munich (Bawarias, 685, 562). The like of a poblet by Heyl of Darmstadt (Hesse Darmstadt), 686, 203. The same of a cup by Lanets of Paris (Francis, 203. The same of a cup by Lanets of Paris (Francis, 67, 203. Ornameats by Higott (Tuetany), 885, 703.

I/OUN, Vinitanata. — Nature of this substance; considerable quantities imported into this country; objects made therefrom exhibited, 601.

Jacas.—Traversing screw-jack useful for railway purposes.
184. Hydraulie lifting-jack, constructed on the principle of the hydraulie press, ib.

Jackson, J. (Juror), xxx, xxxii. Jackson and Matthewman, 373

Jackson and Matthewman, 523, Jackson, P. R., 183, 187, Jackson and Son, 214, Jackson and Sons, 549, Jackson, W., 548, Jackson, W. H. and S., 341, 342, Jackson's Escays," Quotation

Jacobs and Beriog, 367 Jacobs and Dupuis, 48

Jacoba and Impalis, 50.

Jacours.—Specimeas af printed, 420.

Jacours.—Specimeas af printed, 420.

Jacours.—Document of Mr. Barlow's doubleJacours.—Document Joseph Mr. Barlow's doublegraphed loom, 195, 132. Jacquard loom of the most
beautiful workmannipand mechanism, for weaving silk
flowered damank of the richest quality, 122. Other

jacquard looms exhibited, st. acqmain.

Jacquain. —, 495.
Jacquet, H., and Co., 162.
Jacquet, J. (1997)
Ja in Jade, exhibited from India and China, 500

Jacger, C., 46, 20, Jacger, C., 46, 20, Jacger, W., and Co., 162 Jahn and Bolin, 517.

Jaillon, Moisier, and Co., 623. Jaley, -, 700. Jamaica - Contribution of artificial flowers from, 642.

Jame, Bianchi, and Duseigneur, 161, 364. James and Aubrey, 13.

James and Co., 181.

James, Capt II. (Associate Juror), xxvii.

James, J., 208, 505. James, Jahra, 688, 631

Jameson and Banks, Jameson and Co., 28.

Jameson, R., 668 Jameson, G., 556, 565.

Derives its name from the lacquered ware manufac tured in Japan, Agis, Introduced into Europe towards the end of the seventwesh restury, & Supperior descrip-tion of the wax of that country, & Extrastive mana-tical control of the sevent of the country, in the country of the fine less of the country of the country of the fine less of Sen-tohou and of Nana-king; the price is very high, & interesting specimen of wave from its very high, & interesting specimen of wave from its very high, & interesting specimen of wave from its very high, and interesting the country of the celebrity obtained by Eugland for her Japan wave ex-cellently obtained by Eugland for her Japan wave ex-cellently obtained by Eugland for her Japan wave ex-cellent in papier manifesters; by Clap, in 1760, Louison, the Interest manifesters; in the country of the Louison, the Interest manifesters; in the country of the country of the price of the country of the tured in Japan, 548. Introduced into Europe towards the ondon, the largest manufacturers in England, ib. Inside, the largest manufectures in Paylond, & Inside, and inside the property of the paylone of the late of part of pages were, a. Natureous exception time of part of pages were, a. Natureous exception to the part of the paylone of the paylone of the state of paylone of the paylone of the paylone of state of paylone of the paylone of the late of the paylone of the paylone of the late of the paylone of the paylone of late of the paylone of the paylone of paylone paylone of paylone Many improvements introduced by them, ib. Applica-

Forks of Stoeria, Jaster, ib. Jasterschiki, F., 334. Jaudin, A., 598. Jaulin, I., 332, 334. Jauning Cans, 193

JAVA — Tamarinds from, 56. The coffee of Java only prized for its delicacy of flavour, 52. Samples thereof, ib. Cim-namon, 62. Samples of arrow-root, ib.—See also Tea. namon, 62. Somples of arrow-root, ib.—See also Tee.
Javel Chemical Works acar Paris.—Process of making sul

phuric acid pursued at these works described, 39.
Annual production of scid, ib. The introduction of this process into England urged, so, Jawsr, A., 454 Jeakes, W., 50 Jeannet, F., 22 Jeanti, Prevost, Perrand, and Co., 63.

Jeanti, Prevost, Perrand, an Jeanseline, A., jun., 552, Jeanseline, J. P. F., 551, Jeffeoat, T. (Juror), xxviii. Jefferies, J., 577, Jeffery, W. H., 479, Jeffery, Walsh, and Co., 217,

Jeffries, G., 5d. Jeffries, G., 5d. Jenotte, C., 588, 705. Jenry Moulon.—See Confectioners' Moulds.

JELLY MOULDS.—See Confectioner's Moulds.
Jennese and Betridge, 945, 551.
JENTE.—Crystals of jenite from the lale of Elba, 35.
Jenken, W., 235, 232.
Jenkins, H., C., 46.
Jenkins, M., Markon, M., 45.
Jenkins, M., and Som, 334.

Jankins, W., and Sons, 324. Jennings, P., 388. Jennings, B., 583. Jennings, C. K., 163. Jennings, G., 565. Jennings, H. C., 27. Jennins, H. (Associate Juror), xxviii. Jenson, P., 329. Jenson, N., 468.

Jerson, N., 200.
Jepon, — 566.
Jequier, J. J., 428.
Jequier, J. J., 428.
Jerichau, J. A., 593, 706.
Jerningham, Capit, 213.
Jersey, Earl of (Juror), xxv, xxvl.
Jersey and Gnerney.—Collection of specimen cars of 104.
Jersey and Gnerney.—Collection on specimen cars of 104.

varieties of wheats from, accompanied by remarks on the seasons, nature of the crops, &c., 52. Specimens of hardware, iron manufactures, and ironmongery from,

Jesselmere, Rajah of, 636.

Jobson and Co., 255.

Jobst, F., 46.

Johlpore, The Rajah of, 649, 668.

Johlpore, The Rajah of, 649, 668.

Johnson, B., 1538, 243, 252, 253.

Johnson, B., F. (Jurer), xxvil, 226.

Johnson, Cammell, and Co., 10, 469.

Johnson, L. 183, 248.

Johnson, J. 183, 248.

Johnson and Matthey, Mesers., 10, 226.

Johnson and Matthey, Mesers., 10, 226. Johnson and Matthey, Messre., 10, 225, Johnson, P., 20, 28 sociata Juroy), xx1x, Johnson, R. (Associate Juroy), xx1x, Johnson, R. (Associate Juroy), xx1ii, xxxi, Johnson, R., ann Brothern, 201, 204, Johnson, W., 411, Johnson, W., 411, Johnson, W., 411, Johnson, W., 411, Johnson, W., 208, Johnson, G., 256, Johnson, G. Jolly, F., 84, Jelly, Leclerc, 551, Jely, Mesdames, 483, Jonas, E., and Brothers, 60, Jones, A. J., 552. Jones, B., 331. Jones, B., and Co

Jarr.— Whith yies from spart of a thirds bed of riligative found in the toppin smarks. In Different to that server in the server of the state of the forwarded from Spain, alformation from the Market Carlo (Market Carlo some series of chalices and eups of various kinds in precious metals, \$\tilde{\chi}\$. Collection of articles in precious metals and levellery withhirds by Garracti and Co, the metals and levellery withhirds by Garracti and Co, the articles of rare magnificence calbilited by Hunt and Roskell, \$\tilde{\chi}\$. Peculiar qualities, in an artistic point of view, of the articles shown by C. F. Hancock, ib. Remarks of the Jury on some of the objects exhi-bited, \$\theta\$. Description of various works in the preblied, 46. Description of various works in the pre-cises metals and articles of javeliery manufactured and exhibited by J. F. Rudejshi; hy A. Gueyton; Fromeot-Meurice; hy G. T. Vitton; hy V. Falliard, and other silversmiths and jewelters of Paris, 513, 514, Descriptions of the jewelt smanufactured by G. Lemon-buck and the property of the property of the property Magnificent specimens of jeweltery from Rumin A. Observations on the different articles of jeweltery and Magnificent specimens of jewellery from Russia, so. Observations on the different articles of jewellery and trinkets from various countries cabibited, names of Exhibitors, awards &co., 216. Specimens of jewellery from thanan (Prussia), 212. Beantiful exhibition of jewellery from St. Potersbarg, rich, and perfectly set, ab. General criticisms on the objects of jowellery used. for personal aderoment in the Exhibition, 732. Jones, B., and Co., 69. Jones Brothers, 1935. Jones, D., 254. Jones, D., 254. Jones, D., 254. Jones, G., 268. Jones, J., 677, 678. Jones, J. R., 255. Jones, J. R., 255. Jones, J. V., 25. Jones, J. V., 25. Jones, J. V., 25. Jones, Oscardo, and Co., 54, 77. Jones, Oscardo, and Co., 54, 77. Jones and So. 505., 537. Jones and So. 505., 537. Jones, W., 565.

Jordan, C., 13. See also Alleys. Jordan and Co., 550. Jordan, T. B., 551. Joseph, S. G., Establishment of, Verviers (Belgium), 471. Josephus, quoted, 521. Josselin, J. J., 483. Joubert-Bonnaire and Co., 93, 373. Joubert, C., 516.
Joubert, J. G., 66.
Joudhpoor, Rajah of, 564.
Joudhpoor, Rajah of, 564.
Jouhannesud and Dubois, MM., 542. Jouhanness.
Joule, ..., 282
Jourdain, X., 348 Journet, -, 428. Jeuvin and Doyon,

Jeuvin and Doyon, 481.
Jouvine, Widow, 481.
Jouvine, L. H., F., 197.
Jowett and Co., 356.
Jowitt and Battie, 490.
Joynson, W., 492. 431, 452.
Jubbalpore belood of Industry (India), 668. Judkins, C. T., 197, 198, 204.

Juhei-Desmares, J., 323.

Juscaus—From Turkey, remarkable for size and variety, 37. Julien, S., 524 Julin, N., 600

dulin, V. sell.

dulin, V. sell.

duling, and S. sell.

duling, an

Closs, axvi xxxi. List of Jurces and Associate Jurces, also exhibitees, xxxi, xxxi. List of Jury Awards, distinguishing Concell Medais, Prize Medais, Honourand Money, and Money, A. C. XXX., i. et e.g. Jurce, W. S. W. X., i. et e.g. Jurce, W. S. Marier, Classes L. to XXX., i. et e.g. Jurce, W. S. M. Jurce, Large quantities of juic, so Indian vegetable fibre, imported annually into Liverpool, 100, 101.

Jurgle Rios Scientis, 11.1. the Maharajola, 32.

Kaemmerer and Zeftigen, 515. Kaibel, J., 367. Kain, J. F., 52

Kalsuoscopes. - Seif-acting, 315. Only one exhibited, ib. Kallide, T., 505, 685, 697, 707.
Kalsuces. - Improved manufacture of cotton kalmucks

and beavers, 318. Kamensk, Imperial Forges of (Russia), 33. Kamensky, G. (Juror and Associate), xxvi, xxx.

Kane, G., 394. Kano, W. J., 45. KAOLINI.—See Parcelai Kapeller and Son, 32, 217 Kareher and Westermann, 505

Karmerser and westermann, 2 Karmerseh, C. (Juror), xxix. Karnevitch, E., 56, 92. Kater, Capt., 249, 337. Kaufmann, A., 153. Kaufmann, H., 375. Kaulmah, —, 731.

Kawaii Copper Mines (New Zealand), 15. Sec also Copper Orr. Kay and Co., 356.

Kay, J., 536.

```
Ning, T. D.; 263, 114, side.

Ning, W. W.; 52.

Singlebry, Position, 523, accelling singlebry, position, 523, accelling singlebry, position, 523, accelling singlebry, position, 524, accelling singlebry, 2021, a
    Kazalett, A., 373.
    Kearse, T., 482.
Kearse, T., 462.
Keating, T., 46.
    Keene, -, 573.
Keep and Watkin, 505.
Keblaer, A. C., 221.
Kehu-De Brothers, 550
Kehu-De Brothers, 500.
Kehrll Brothers, 502.
Keil, Van (Sisters), 471.
Keilieh, II., 386.
Keitaihl, F., 681.
Keith and Co., 366.
    Keith, G., 505,
Keith, J., 516,
Keith, Shoobridge, and Cn., 380.
    Keith and Skidmore, 738.
Keil, A., and Cn., 505.
Kelen, B. Vander, 748.
    Keller, -, 253.
Keller and Co., 517.
    Kelp.—Chemical products derived from, 44, 50. See also Ioding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kiszewski, -, 162.
Kryenes Ravors, See Stores.
KLE-C. Bemica promote varieties of the Company of t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kitchener, W. C., 66
Kitchin, J., 92
Kitschelt, A., 505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kitschelt, A., 505.
Kitson, Thompson, and Hewitson, 186.
Klagmann, M., 732.
Klebin, —, 403.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kieln and Co., 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kieinjasper, — 334
Kieist, Baron Von, 4, 20,
Kiemus, G. and A., 330, 334
Klepatsky, --, 53.
Kleyle, Chevaller C. de (Jurer), zavil.
Klingsey, C. G., 686, 706.
Klossauer, --, 698.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Klosauer, --, see Kloth, Baron, 205.
Kloth, Baron, 205.
K SEARING MACHINE -- Elegant muchine for kneeding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           dough by means of a revolving spiral, 212.

Knecht, E., 251.

KNIFE-CLEANISM MACRISK—Specimen of, 205.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KY116-CLEATUR MACHIKE—Specimen of, 20%.
KS120-CL, 1928, 2023, 203.
Knight and Hawker, 412, 454.
Knight J., 618.
Knight J., 618
    Kerim Raghlm Ogli, 20.
Kern, J., 306.
Kerr, R., 372.
    Kerr, R., 379.
Kerr and Scott, 382.
Kerr, W., 73.
Kershaw, S. and H., 358.
Kershaw, T., 546, 551.
Kesler, —, 707.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NATTISO COTTONS—Specimens of, 348
Knocke, A., 322, 334.
Knorr, F., 367.
Rnowles, H., 365.
Knuepper and Steinhäuser, 336.
Kobell, F. Von, 529.
Koch, C. A., 431, 442, 454.
Kochmeister, F., 31. See also Nickel.
Kesler, -, 707.
Kesseler, C., 505.
Kesselkaul, J. H., 353.
K caselkaul, J. H. 553.
Kentner, ... J. H. Yun, 158.
Ketheley, Count J. H. Yun, 158.
Ketterisigs, F. O., 103.
Ketterisigs, F. O., 103.
Ketterisigs, F. O., 103.
Key, F. S. 59.
Key, F. 41.
Key, E. 8. 59.
Key, T. 51.
Key, S. and Mountford, 541.
Keyan De, and Co., 545, 717.
Keys and Mountford, 541.
Khamounikky Vlatka Forres of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kock, H. A., 90.
Koechlin Brothers, 459.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Korchlin Brothers, 45
Korchlin, D., 33,
Korther, J., 331, 334.
Koettig, J., 41,
Kohn, T. M., 450,
Köhler, J., 332, 334,
Kohnke, J., 278,
    Keys and Modestore, and
Khamounitsky Viatka Forges (Russia), 34. Mannfacture
of sheet iron at these forges described as oxidised,
remarkable for evenness, tenacity, and brilliancy of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kolb, Messrs., 726.
Köbel, B., 552.
Kolokolnikoff, P., 566.
Koloko, H., 508.
Kolyvan Imperial Manufactory, 566.
    surface, ib.

Khokholkoff and Gregorjeff, 54.

Kin Giovza-Specimens of, in the British Department, and from France and Austria, 481. See also Gloves, Leather.
Kri Latevina.— See Lenton.

Kri Latevina.— See Lenton.

Kidd, W., Aloncide Joh.

Kidd, W., Aloncide John, model of, 208.

Killear, — 228.

        Kin LEATHER, - See Leather,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kondrasheff, -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kongsarag Strven Wirks (Norway). - Specimens of ore
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NOSABLE MURES WRESS (NORWAY).— Specimens of ore
from the celebrated indic of Kongaberg, remarkable for
their large dimensims, and the beauty of the crystals
of native eliver ore, the Specimens of eliver in dif-
ferent states, the Also specimens of the rocks which
constitute the formation in which the veins occur, io.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           constitute the formation in which the v
Keing, F. P., 552.
Keing, L., 363.
Keing, L., 363.
Keing, A., 363.
```

Koucheleff, Count, 58, 56.

Kondivitant Importal Forges (Banis), 23, Kondivitant Importal Forges (Banis), 23, Kondi Berdere, 252, Kond

Kuseho, J., 250. Kutzer and Lohrer, 47. Kvaviloff, P., 21. Kyan, ---, 122. Kyd, J., 682.

Labbaye, 334. Laborde, Count L. de (Juror), xxxl.

Laborde, Count L. de (Juror), xxxi.
Laboulaye, C., and Co., 400, 422.
Labouring Classes, Society for the Improvement of the
Dreillings of the, 554, 521.
Laarax.—Coals and other minerals from Labuan, 15.
Specimens of woods, 133, 123. See also Borace.
La Calle Mines (Algiers), observations on the working and

La Calle Mines (Algiers), observations on the working and produces of, 22.
Lac (Shtal-Lac), various specimens of, exhibited, 22.
Interesting specimens of lac amongst the Indian resist, 23.
Specimens from Singapore, ib. Also specimens from Bombay and from Assam, ib. See also Luc-

Dye.

Lacarrice, A., 505, 518.

Lac Dyr.—Samples of lac-dye, 47, 42. Manner in which obtained, £8. Colouring matter extracted, ib. The dye Inferior to that from cochineal, ib. Dye and dyed samples exhibited, ib.

they give employment, 462. Total capital employed; annual amount of business returns, & Observations on the warp machine used, as well as the bobbin-net machine for making lace, ib. Articles originally made by this machine, ib. Improvements which have made by this machine, ib. Improvements which have been made therein from time to time, ib. Invention of what is called the Machlin net, the point net entirely supersecked thereby, ib. Introduction of an imitation of Mechlin lace, known as "two-course" net, ib. Also introduction of a kind of silk lace, known as "blonde," ib. Importance obtained subsequently by these two kinds of lace, it. Enormous wages received by workmen for making blonde, it. Disappearance of Mechlin lacs on the introduction of the bobbin-net, is.

Production of what was called "Mock-twist," in imitation of the bobbin-net, is. Reference to the tatting trade which sprang from these various inventions, ib. History of the various degrees of favour and encourage-History of the various degrees of favour and encounage-ment which these different descriptions of ince received during a period of years, ib. Great improvements which have been made in dressing silk lace, 423. English-dressed lose now little, if at all, inferior in whiteness and brilliancy to the best specimeus from Lyons, ic. New kinds of manufacture which have been attempted from the warp within the last fow years, 56. Number of warp machines now in operation; various brenches in which they are employed, 56. Estimated number of persons employed in the warp trade; espital invested; estimated annual return, ib. of manufacture of the description of lace termed "Honiton," ib. Progress made in the manufacture; beautiful specimens oxhibited, ib. District in which the Humber leve is make; curved of the district, manher of previous employed in proliticity in the Ministry and the Control of the Heniton lace is made; extent of the district; Prize Medals have been awarded, and of whom Honour-Foreign Lare.—High position of France as a lace-making country fully sustained in the Exhibition by

Economic Lower- High positions of France case increase in the contribution of course of the most explaint on the contribution of course of the most explaint on the property handsmark, also be recent remarks on the contribution of course of the most explaint between the property of the course of the property of the course of the property of the course of the property of the proper

superb character, 457, 468. Observations on the dif-ferent descriptions of lace manufactured at Brussels, Mechlin, Valencicones, and Grammont, 4:3. Speci-mens exhibited; names of exhibitors; Prizes and Honourable Mentions awarded, 470-472.

Lace, Distans ros.—Notice of the principal designs for lace, 682. Critical remarks on the application of designs lace, 629. Critical remarks on the application of arrays to the patterns of lace, 741. Ornamental twiking o peruliarity essential to lace, ib. Principles on which the great excellence of the French and Illelgian lace consists, 743. Just appreciation of quantity in the crosmental arrangements of Brussels and Valenciennes has, ib. Houldon lace two old and equal in effect, ib. Disservations on the designs for lace contained in the

Exidition, ib. Fewer errors in the designs for lace than prevail in other manufactures, ib.

Lace Frames.—Single tier Jacquard bobble net machice, making figured laces, combining all the receot improvements, 127. Ibouble tier bubbln-net machine, ib. Warp-lace machine of excellent workmanship and design, ib. Frame for gassing lace, ib. Lace-dressing

design, ib. Frame for gassing kee, ib. Lace-dressing machine of superior construction, ib. Lace PAPERS.—Directed paper and cardboard, 448. Im-proved manufacture thereof, ib. Variety of specimens exhibited, ib. Moda of perforating paper and card-board by machinery, ib. Large quantities exported, ib. Kanamples applied to bordering note paper and valen-tion. 28. Avanth. 453.

tines, ib. Awards, 453, 454. Lacey and Phillips, 3.4. Lachapelle and Levarlet, 3 Lacroix Brothers, 432, 452, Lacroix and Sons, 196, 199, 204,

Ladd, C. P., 490, 425. Ladd, W., 207, 267. Lames Carrer Needlewood, 473 Ladles' Iodustrial Society (Dublin), 469. Ladles' Jury.—List of awards made by this Jury, exx.

Ladighin, Madame, 163.
Ladock Mines (Cornwall).—Ingot of tin found in these mines, 12. Probability of its having been cast by the Phonaicians, ib.

Consideration of Consideration of Management of Management of Management of the trade, \$\frac{x}{2}\$ and \$L_{\text{a}}\$ before \$C_{\text{a}}\$ 234. Labours, \$\frac{x}{2}\$, \$\frac{x}{2}\$ 245. Labours, \$\frac{x}{2}\$, \$\frac{x}{2}\$ 255. Labours, \$\frac{x}{2}\$, \$\frac{x}{2}\$ 256. Labours, \$\frac{x}{2}\$, \$\frac{x}{2}\$ 256. Labours, \$\frac{x}{2}\$, \$\frac{x}{2}\$ 256. Labours, \$\frac{x}{2}\$, \$\frac{x}{2}\$ 256. Labours, \$\frac{x

Laing, J. and A., 372.

Lak, D., 22.

Lake (a colour), specimens of, 45.

Lake Superior.—See Copper.

Lakenath Baboo, 101.

Lakenath Baboo, 101. Laianne, L., 311. Laiemand, Dr. (Juror), xxvlii. Lambet, 4, 431, 452. Lambett, A. C., 563. Lambett and Bury, 469. Lambett and Bury, 469. Lambett and Burler, 60.

Lambert and Co., 33

Lambert, Elizabeth, exx. Lambert, G., 254. Lambert and Rawlings, 516. Lambert and Son, 331

Lambert, T., 505. Lamberts, A. C., and Son, 348. Lamberty Brothers, 23.

Lamberty, C., 23.
Lambruschiul, R., 162.
Lamel, — (Juror), xxix.
Lamorna Granite Quarries (Cornwall), well-known excel-

lence of the material from, 556, Obelisk exhibited from, Lamornaix, C. S. de (Juror), xxix.

Lamplough, 11, 47.

Lamra, - Observations on the various descriptions of lamps,

No experiments made to ascertain their relative its, ib. Various descriptions of lamps exhibited, merite, ib. Various descriptions of lamps exhibited, for 562, 562, 562. Extract from the Minutes of the Jury of Class XXIX. as to making experiments with the sumps 362.—See also Cassites.

LAW-SHADES.—Goorams and pranorams from France,

Lawa Dyn. — Description of this colouring material from

British Guiana, 20. Colour remarkably permanent, ib. Specimen exhibited. 5.

Lancaster, —, 16.
Lacebenick, Jane A., exx.
Landale, D., 13.
Lanino, S., 32, 272.
Landerneau Joiotetek Linen Company, 273.

Landerreau Joiot-slock Linen Company, and Landerraff, 6, 425. Lanimos Sters—Model inf, 202. Simplicity and Ingenuity of the system, ib. Importance of the object, ib. loca-pantis was of construction, ib. Landra, J., 657

Landron Brothers, 3 Landron Brothers, 3 Lano and Lewis, 557 Lane, T., 543, 551. Lano, W. R., 58. Laneuvillo, V., 197

Laneuville, V., 197.
Lang, G., Helrs of, 602.
Lang, J., 221, 348.
Lang, L., 508.
Langelaie, E. F., 614.
Langelaie, J., 420.
Langdon, W., jun., 394, 325.
Langdon, W., jun., 394, 325.

Langenheim, Langevin and Co., 364 Langlois and Lectoreq, 405. Lankester, Dr. E. (Juror), xxx.

Lankmere, Pr. E. Colwey, Exx.
Lanes, K., 201.
Lava and P. Lava and Color of Lieut. Rigenalder's plan of, for setting up the standing ringing of aliqu. 212.
Lavy and P. Lavy and Color of Lieut. Rigenalder's plan of, for setting up the standing ringing of aliqu. 212.
Lapyring, M. C., 28.
Lapyring, M. C., 28.
Lapyring, M. C., 28.
Lapyring, J. Lapyring, C. Lapis banll, remarkable for lapyring the plant of the standing of the stand

Larcher, Faure, and Co., 355. Lareher, J., 84. Lann.—Specimens of oil obtained from, 163.

LARD.—Specimens of oil obtained Larderel, Count F. do, 38, 47, 524. Lardinois, N. C., 221. Larlviere, C., 39, 559. Larkins, T. W., 35. Laroche, E., 470, 689, 202. Laroche, Martin, 271.

Laroche, Martin, 271.

Laroque and Jaguemet, 152.

Lart, J., and Son, 432.

Latt, J., and Son, 432.

Late, M. R., 450.

Latter, J. Throws lathes exhibited, 192. Construction of some of them, and purposes to which applicable, 25.

Latime, -, 273. Latour, A. de. 501 Latour, A. de. 504. Laué, J. F., 208. Laugher and Cosens, 469.

Laugher and Cosens, 202. Laugher, —, 65. Laumain, C., 341, 342. Laun, J. A., 304. Laur, J. A., 304. Laurance, A. and A., 475. Laurance, L., 505.

Laurean, L., 505.
Laurear, Dt., See Oils.
Laureace, T. B., 505.
Laureace, T. B., 505.
Laureat, F., 449, 530, 552, 655.
Laureat, F., 449, 530, 552, 655.
Laureat, Pauline, 687, 202.
Venus Reothers, 478, Lauret Brothers,

Laurie, -, 219,

Lantic, -, 223, 257.

Lanty, G., 499, 508.

Lanty, L., 499, 508.

Specimens exhibited, &.

Lava, Marazine.—Specimens of a material colled metallic lava, a plaster capable of being worked lote a variety of patterns and coloure, 52:0.

Lava, Parvirson ns.—Notice of this process, 7:02.

Lavanchy, J. R. (Juror), xviiii.

Lavanchy, J. R. (Juror), xviii.

```
Lavolsy, A. D., 239, 242.
Lawler, J., 685, 523.
Lawls.—Remarks on the specimens exhibited, 371, 372, 373.
    Lawrence, E. J. (Jnror), xxvii.
    Lawrence, L. 308, 316.
Lawrence, J., 203, 214.
Lawrence, M. M., 277.
Lawrence, Stone, and Co., 382.
    Lawrence, W. (Juror), xxviii. (Exhibitor), 47.
         Lawson, -
Lawton, ~, 358.
Lawton, 1, 312.
Lawton, 1, 312.
Lawton, 1, 228.
Lawton, 1, 228.
Lawton, 2, 314.
Lawton, 2, 315.
Lawton, 3, 315
Laycock and Sons, 388.
Laydet and Co., 333, 481.
    Lazare and Lacroix, 20
```

Lazare and Lacrons, 26.
Les, A. 47.
Les, W. 14.
Les, M. 14.
Les, M

LEAD, CHROMATE OF.—Introduction of the yellow dischar (chromate of lead) upon Turkey red cloth, by Daniel Koechilu, of Mulhouse; improvement in the manufac-ture of hichromata of potash to which it led, 39.

ture of helicomats of pisuds to which it led, 20.
Lab, founce r. - - pisquirant of, 26.
Lab, founce r. - pisquirant of, 26.
Lab, founce r. - pisquirant of, 26.
Lab, founce r. - pisquirant of, 26.
Laterchartin of the system into France, pisquir, and France, pisquirant founce for the content of the system into France, pisquirant founce for the restrict of the system into France, pisquirant founce for the restrict of the system into the restrict of the system into the system int and of the products obtained at the works, exhibited by his Grace, d. Description of the consistent, and from the lead misses of Mr. Johns Byren, in the county of Duchama, 2, feet smildsted by Mr. Nopseth, Life and the contract of the con Stolberg, 3l. Lead ores from the mines of Count Julius of Lippe, 3b. Specimens of rare lead ores from Stolberg, such as withemite, chloro-phosphate of lead, and crystalline carbonate of lead, 3b. Specimens of lead ore sod manufactured lead from the mines of Bracal (Portugal), 35. Specimens of argentiferous lead from Sweden, 35. Specimens of lead orms and metallic from Sweden, 5. Specimens of lead ores and metallic lead obtained from them, from Turkey, 5. Products illustrating the processes of separating lead from its ores, and its subsequent conversion into white lead,

LEAR, NYRATE OF.—Samples thereof, 45, 47, 50.

LEAR, OXECULORIDE OF.—Blode of preparation thereof, according to the process of Mr. Psttinson, 42. Specimens of Pattinson's patent, 43.

An, Oxinz or.—Use thereof in the form of minimin in glass

making, 523, 528. How obtained, 524.

Lean Pipe.—Specimens of, 31, 504. See also Lead Tubing.

Lean, Red Dictionary or.—Samples thereof, 42.

LEAR, RED DISCHROMATE OF.—Samples thereof, 42.

LEAR, SALTS OF—Specimen of, 43.

LEAR TERRO.—Establishment at Villach, Caristhia, for the manufacture of sheet lead and lead tabling, 21. Great length and perfection of the tubing exhibited, ib. See also Lead Pipe.

LEAD WIRE.—Spun lead or lead wire for horticultural pur-poses, 22. Resista atmospheric influences, ib. Tenacity of the wire, ib.

LEAD, Worns or Aur 18 .- Remarks thereon, 68. Leale and Albrecht, 508, 582.

Learmonth, T., 152 Learoyd, J., 375 Learoyd, W., 375 Learnes.—Interest resulting both to menufacturers and artisms from the calibition of the various descriptions an analysis from the extension of the various descriptions of the property of in which much has been effected by mechanical means in which much has been effected by mechanical means, within the last fifty years, & Sport secount of acceral within the last fifty years, and the second of acceral dressing; a specimens thereof both in the English and of Breight School, and the English and the various kinds of leather exhibited, 201 of acc, it is the shadowing of the second with mixed work; leather from New Division tanance with mixed work; leather from New York and the second with the secon York tanned with the bark of the hemlock; simple method of tanning sole leather practised in some of our colonies; considerable increase in the importations of tanned hides and skins from foreign countries sineo the abolition of the duties thereon; articles exhibited, names of exhibitors and awards, 300, 301. Curried leather: description of the operation of currying leather; pre-eminence of France in their mode of tanulng and currying calf leather; excellent leathers of tius and currying car issues; excesses teathers of this class from Switzerland; number of exhibitors in this class; names of the exhibitors to whom prizes have been given; articles exhibitor, 221. Varnished leather; great perfection to which varnished and can-melled leather has been brought during the last twentyfive years ; mode of preparation ; number of exhibitors ; articles exhibited and awards made, 591, 322. Morocco and dyed sheep-skin leather; number of exhibitors and countries whence exhibited; excellence attained in the manufacture; specimens of morocco from Turkey, manufacture; specimens of morocco from Turkey, Tunis, and Egypt, show the manufacture in its origin; objects exhibited, exhibitors to whom awards have been made, 252. A lum and gloving lestber: slum or white leather manufactured principally for the pur-poses of the glove maker; common method of making this leather; specimens of excellent kild leather from Prance; articles exhibited under this least; names of

LEATURE, INCLUDING SADDLERY AND HARRESS, SDINS, FURS. FEATHERS, AND HAIR (Class XVI,),-Tabular classification of objects in the Exhibition into which this Class is divided, xv-xviii. List of Jurors and Asso-ciates appointed for this Class, xxviii. List of Exhi-bitors in this Class to whom Prizo Medals have bees awarded, kxx-lxxxii. And of these of whom Honourable Mention is made, ixxxll, ixxxiil. Enumeration of the different heads under which the Jury bave distributed the articles exhibited in this Class (Class XVt.), 353. Importance among the manufactures of England of the manufacture of the skins of animals into the of the manufacture of the skins of anisms into the various useful articles to which they are applicable, it.
The hides, skins, and furs, upon which this labour is employed mostly the produce of our own country, it.
Immense quantities are also imported from North and South America, Europe, and the East Indies, ib. Table showing the number of unmannfactured hides and skins annually imported into Great Britain for tanning skins annually imported into Great Britism for tanning and leather dressing; large portion re-exported in the raw state, B. Remarks on the various articles constitution, and state of the state of the state of the state of the state of exhibitors, and swards, 382, 384, 594. Feathers; objects exhibited and swards, 382, 384, 474 fields high; names of exhibitors and swards, 382, 382, 384. Varieds high; names of exhibitors and swards, 382, 382, 484. Wores have for furniture and other purposes; names of exhibitors.

exhibitors, prizes awarded, &c., 3/2, 2/3. Oil or chamols leather: quality of this leather and mode of manufac-ture; articles exhibited, 3/3.

Lehmann, R., 158.

```
and awards, 285. bib. Leather; pround remarks, and awards, 285. bib. Leather; pround remarks, and a state of the control of th
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lehrkind, Falkenroth, and Co , 31.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Leideofrost, E., 391.
Leifehild, T., 47.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Leighton, B. (Luke Limner), 424, 689, 741.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Leighton, J., juo., 635.
Leighton, J. and J., 424, 452.
Leighton, Mrs., and Son, 425.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Leipzig Spluning Company,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Leisegaog, W., 449, 454.
Leiske and Habler, 373.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Leistier, C., and Son, 425, 449, 545, 550, 723, 724,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Leister, C., and Son, 425, 449, 545, 550
Leister, G. L., 614,
Leistenberger, F., 450,
Lemaire, A., 568,
Lemaire, Descamps, and Plissart, 375,
Lemaout, —, 405,
Lemaout, —, 405,
Lemare, Descamps, and Prissart, 375,
Lemare, J., 405,
Lemare, J., 405,
Lemareler, R. J., 688, 703,
Lemereler, R. J., 688, 703,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lemire, — 43.
Lemire and Son, 366,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lemolt, A. E., 52, 237.
Lemolt, A. E., 52, 237.
Lemon, Sir C. (Juror), xxx,
Lemonier and Co., 388.
Lemonier, G., 514.
Chart Associate Ji
    Leavitt, G., 491
         Leblane, -, 41
    Lebinoc, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lencisa, Chev. (Associate Juror), xxx.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Leneisa, Chev. (Associate Juror), XXX.
Lendennano, —, 413.
Lendy, N., 265, 104.
Leneise, Anturian Company (Spain), 34.
Leneira, M., 520.
Leneiranod, A., 533.
Leneiranod, A., 533.
Leneiranod, A., 533.
Leneiranod, A., 534.
    Leblels, H., 78.
Leblond, J. D., 59
         Le Breton, -
    Le Breton, —, 95.
Lebrun, A., 254, 273.
Lebrun, A., 254, 273.
Lebrun, L. J., 524.
Lebrun, L. J., 525.
Lecasons Actus Prepared from lichens, 50.
Lechense, A., 551, 695, 731.
Lechense, A., 551, 685, 731.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lexusz Ann Pinuss.—Observations on the various leaves and prisms exhibited, 2II.—Bee also Advanuate Leaves. Liphthone Apparatus. Optical Glass.

Lexusz A. Perez A. Perez A. Perez A. Perez Alexander Leaves. Liphthone Apparatus. Optical Glass. Lexusz L. Leconard, J. E. Perez A. Perez
Lechesne, A., 551, 685. Lechest, -, 451. Lecher, -, 451. Lechere, Brothers, 22. Lechere, H. E., 172. Lechero, H. F., 52. Lechero, H., 515. Lecoa, H., 515. Lecoa, H., 515. Lecoaltre, A., 341, 342. Lecoaltre, A., 341, 342. Lecoaltre, Col., 52. Lecoa, Col., 52. Lecoaltre, Col., 52. Lecoaltre, Lecoaltre, Col., 52. Lecoaltre, Col., 54. Lecoaltre, 54. Lec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lepage-Moutier, 221, 738.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Le Paisant, L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lepelletier, Fouche, 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Leptary, J. (Jaror), xxix.
Leptary, J. (Jaror), xxix.
Leport, T., 162.
Lequesne, E. L., 685, 700.
Lerebours, —, 523.
Lerkhe, —, 480, 526.
Lerolles Frères, 518.
    Lecuo and Co., 475.
Lecuo and Co., 475.
Lecuo and Co., 475.
Leroque, Soos, and Co., 475.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Leroux, -, 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Leroy, A., 408.
Leroy and 800, 341, 342.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lervilles, J., 52
Le Secq. H., 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Les Seeq, H., 279.
Leshenne, -, 545.
Lesigne, --, 466.
Lesle, E. R. (Juror), xxvii.
Lesolooe, C. (Juror), xxvii.
Lester, T., 468.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Letestu, -, 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Letourneau, -, 530.
LETTERS FOR SIGN-BOARDS, &c., EARTHFRWARE, 541.
LETTERS FOR STICKING ON GLASS, - Specimens exhibited, 682.
    Lefaucheux, —, 519.
Lefaucheux, —, 519.
Lefchure, T., and Co., 42, 47.
Lefchure, Ducatteau Brothers, 37.
Lefébure, J. P., 422.
Lefébure, V., and Co., 595.
Lefebure, V., and Co., 595.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LETTIES FOR STREETS ON GLASS.—Specimens exhibitatives of all Leubes Brothers, 57.4.
Leubes Brothers, 57.4.
Leuneans Brothers, 517, 348.
Leuneans Brothers, 517, 348.
Leuneans Brothers, 517, 548.
Leuneans Brothers, 517, 548.
    Lefebure, Y., and Co., 595.
Lefebure, -, 404.
Le Fevre, -, 307.
Lefevre, -, sen., 47.
Lefevre, E., 152.
Lefevre, G. (Juror), xxviii.
Lefingwell, C., 443.
Lefevre, sen., 645.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lettactisms—Specimens of, from Switzerland, dis.

Lettals, Suxytonis And origins.—Various instruments

referred to, 23s, Level of new construction from

Prussia, 23.5. Contrivace greatly facilitating the

adjusting a level, ib. Peculiar importance of the loves-

tico, ib. Levelliog-protentor from Prussia, d., Im-

proved levels of various discriptions, from the Imperial

Polytechnic leading to the Comp. from the Imperial
    Leffingwell, C., 443.
Lefort, ..., sen., 455.
Leforaçois, ..., 635.
Leforaçois, ..., 635.
Legentil, ..., 64nor, xxviii.
Legentil, ..., 64nor, xxviii.
Legentil, ..., 64nor, 64nor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Polytechnic Institute gi
Lever, J. and J., 324
Leverkus, C., 47.
Levey, J., 50.
Levie, J. M., 502, 725.
Levin, H., and Sons, 375.
Levy, Freres, and Co., 512.
Levy, W., 551.
Levy, W., 551.
Levis, W., 552.
    Lehmann, A. F., 508.
Lehmann, D. J., 376.
Lehmann, M., 476.
```

Levy, W., 54. Lewis and Alleoby, 363, 381.

Lewis, F., and Sons, 200, 204, Lewis, G., 508. Lowis and M'Lardy, 195.

Lowis and M'Lardy, 125.
Lewis, Mrs. 424, 525
Lewis, T., 15
Leyis, T., 15
Leyland, Captain, 584
Licenses—Manufactured products from, 50. Highly conmission of lichem preparation, 88. Liceneza—Manufactured products from, 50. Highly consplete and instructive series of lichen preparations, various samples of lichem or orchilla weed, 89, 90, 91. Lichtenthal. — 534.
Lichtenthal. — 534.
Lichtenthal. — 534.
Lichtenthal. — 534.
Lichtenthal. — 534.

Lienard, J., 545, 550, 686, 701, 721, 723, 724. Lienart-Chaffaux, Madame E., 375.

Lienart-Chaffsex, alternate and base Lienards, F., 319. Liepman, J., 319, 344. Lieve, H. I. 4, 409. Life-Boats, Raffs, &c - Encouragement given by the Life-Boats, Raffs, &c - Encouragement given by the Life-Boats. Dake of Northumberland for the construction of life boats, 217. Essentials necessary to accomplish the objects for which they are designed, ib. Numerous models contributed, ib. Excellence thereof, ib. Various models of apparatus for saving life, by means of rafts,

&c., 212. Lirz-Buoya &c.—Buoyaut mattresses and air-tubes for saving life, 219.

LEGITHOUSES AND THEIR APPARATUS. - Design for a light-

INTROCEMS ARE THEIR APPRACES.—Design for a light-bouse, 2ES. Remarks relative to the principles and countraction of Mr. Chance's design for a lighthouse. 22.1. General sketch of the apporatus now employed, and of the improvements effected therein, by Freuel and others, 30.3.1. Models, e. of apparatus exhi-bited by the Commissioners of Nortbern Lights, by Meers, Chance, and by Mr. Wilkins, SED. Particulars

Mesers, Clauce, and by Mr. Wilkins, 529. Particulars as to the principal European Eighbouses, S. Elterrisis as to the principal European Eighbouses, S. Elterrisis Connectons.—Description of Sir W. S. Elterrisis Connectons.—Description of Sir W. S. Elterrisis Connectons and the Connecton Connectons and For the purposes of the electric telegraph, 291, 222. Specimens of lightning-roots from the Linic States, 191, 2013. Metals used in the composition, ib. Fastenings and glass insultance to almost greater convenience for their attachments.

ment, ib.

Ligane, Martin de, 65.
Liosrrz — Worked on the banks of the Tamaki River (New Zealand), 15. Specimens thereof exhibiting a passage to caunel coal, ib. Recent discovery of lignite on the shores of the Peticoliae (New Bruswick), 15. Collection of lignites from Austria, Styria, and Hungary, of the Peticoliae of the Peti 21. Extensively used for various purposes, ib.

ployed in puddling furnaces for iron, so.— See also Jet.
Lillilikrenzes, —, ifi.
Lina (South America).—Peachwood or Nicaragua wood,
obtained from, if...

Lima, E., 102.
Lima, F., 102.
Lima, Arterical.—Excellent collection of arms, legs, &c.,

3822.

LIME, ACETATE OF—Specimen of, 42.

LIME, CHROSIDS OF Specimen of, 42.

LIME, PROSPHATA OF.—Blocovery of modules of phosphate of lime, 11. Tolerably plentiful in the gault of Surrey, &b. Large quantity consumed for agricultural purpose, ib. Their value as manure. Namples of phosphate of lime from Bargess, Canada, Ifc.

IME, SCLPHATS OF -Specimen of,

LIME, SCHPIATE OF "SPECIMENT OF SELECTION OF

bited by Mr Grissell, ib.
Limner, Luke (Mr. Leighton), 424, 639, 741.
Limogra, D., 54.
Limogra Wann.—Notice of a work, a revival of this style

of art, 712. Linden, A. Van der, 61. Lindenberg, J., 83 Lindenschmidt, —, 700.

Lindgren, Constance, cax. Lindheim, H. D., 21. Lindley, Dr. J. (Juror), xxvi.

Lindsay, G., 4Z.
Lindsay, H. H., 65, 163, 362.
Lindsay, R. (Juney), xxiz, 425.
Larsa Lactso-Tisanas - Great variety and general merit
of the samples exhibited, 371-373.
Larsa Mascracreas - Observations on the samples exhi-

bited, 371. General excellence, ib. Specimens of various descriptions exhibited, 371-373. See also Dumust Tuble Linen. Flar and Hemp.

Lino-Livan Oil Samples of, 45

Linbares, Count de, St. Linklater, J., cxx, 47. Linley, G. A. F., 491. Lixered—Sample of, from Canada, 52

Lavageo Casa-Samples of, from Yorkshire, 26, luferior to the American, 16.

Lawren Out -See Oil Linergo Oil - ose Oil.
Linergo And Coas Causiners. - Disparity of power required
in working this class of implements, by different makers,

238. Mr. Stanley, of Peterborough, at present unrivalled with this machine, ib. Approval of Barrett and Exali's erusher, 16. ANNINSA FOREST INSTITUTE (Russia), 84

LINT (for Surgical Purposes)—Namples of, 48. Linton, W. (Associate Juror), xxvi. Liou Brothers and Co., 379.

Lico Bruthers and to, small Lipp, E. Van Gills, and Co., 425. Lipp, Co. Van Gills, and Co., 425. Lipscombe, J., and J., a

Liscoet, Du, and Co., 63 Lister and Sons, 519.

Lister and Sons, 519.

LITHAROL.—Specimens exhibited, 43. Specimens of red and gold littarge, 45. LITHOCHRONY.—Noticee of the principal contributions to

LITHOCHEGUE.—Notice of the principal contributions to this section of the Fine Arts, 626. Notices of the spe-cimens contributed by Frussia, 693. The like of the works in the Freuch Department, 705. In the Austrian Department, 45. In the Russian Department, 715. LITHICOLAPHE PRESENT.—Description of various lithographic preses in the British and in the French Depart-ments, 120.

meron, 125.

Strong and the property of the lithographic stones exhibited by Mr. Logan, from Marmon (Chemotare States) and the production of the property of the production of these stones, ib. Cood quality of stones from Vigau (France), 25. Specimens of lithographic stones from Messins, 32. Lithographic stones from John Messins, 32. Lithographic stones from Messins, 32. Lithographic stones from John Messins, 32. Lithographic stones from Me LITHOGRAPHIC S Florence, 55

Letthousavity.-Application of iron casting to the art of nonarity.—Application of iron casting to the art of orgraving on some with machinery, 25. Chiebes for this purpose from Nielerbroam, 36. More relatively printing in the Zollverin States, 256. September of ithography exhibited, and awards to the exhibitors, 27.4, 253. Notice of sperimens of lithography, including chromo-lithography, 688. Notice of the lithographs in the French Department, 206.—See also Lithodorous, Music Printing.

tion of imports a fair representation of a very large tion of imports a fair representation of a very large portion of the commerce of the country 62, 26, 86, Quantity of guans, relats, and guar-relats imported into materials above in the collection of Literapoul Imports (2. Extuasive veries of the cottons imported into Liver-pool rabibility by the Literapoul Capition of imports, salutances, 101, Collection of Foreign woods, 121, Collection of reason and the collection of the Liverapoul Deck, her-Model of, 609, 626. Liverapoul Deck, her-Model of, 609, 626.

Lloyd, G., Lin

Loosen, J. G., 165, Lorens Kapeller and Son, 583,

```
812
   Lloyd, G. B., 505.
Lloyd, Col. J. A., xxv. (Exhibitor), 312.
Lloyd and Summerfield, 536.
   Lloyd, W. and Co., 359.
Lobkowits, Prince Von.
   Loburg Starch Factory (Magdehurg), 78.
Looke, J. (Juror), xxvi.
Lockhead, J., 337.
Lockhead, J., 337.
Lockington, Buun, and Co., 24.
Locas.—Wolverhampton still sustains its ancient reputation
                             for the manufacture, 500. Advantages of the peculiar
division of labour adopted, it. Advanced state of the
manufacture both here and on the Continent, it. Present
                             manuscurre oon nere san on the Continent, io. resear
condition of lock-making traceable to English ingeauity
and invention, ib. Collection of locks on the British
eide deserves the place of pre-eminence, ib. Bank lock
from New York remarkable for ingennity of principle,
                             ib. Objection to locks with ponderous keys, ib
                             ness of key in proportion to size and strength of look
remarkable in the locks of Messes, Bramah and Messes.
Chuhb, ib. Inferiority of the locks from France, 501.
                                 Specimens exhibited and awards, 500
Speciment exhibited and awards, 355.
Locoscriv Reighly, 355.
Locoscriv Raussis.—Inside cylinder tank locomotive engine, 152. Model of tank locomotive engine, 65.
Outside cylinder locomotive engine, of good construction and workmanship, from Belgium, 122. Working model of a locomotive engine and tender, 123. Trigger for shuttley off steam from locomotives, 65. Large for shuttley off steam from locomotives, 65.
                         amount of flexted surface obtained in the singles called the "Literpoot," pariented by Mr. TR. Crampton, 15c. The "corporation resulting from the vast samount of based because it is a surface of the control of the co
                             amount of heated surface obtained in the angine called
                             eagine, is. working mostel of a tocomotive engine
made by a boy fourteen years old, 187. Miniature
model of a locomotive engine made by a boy living by
the side of a railway; the passing of the trains being
the only information within his reach, ib.
   Lodde, A. A., 387
Lodde, A. A., 335.

Lode, L. & Carror, Xxv, XxvI.

Locoxxvillos ars, Shourz, Model lodging-husers erected

Locoxxvillos ars, Shourz, Model lodging-husers erected

Logan, W. E. (Aurer), xxv. L. H. II. Prince Albert, 325.

Logan, W. E. (Aurer), xxv. L. (Exhibitor), I.S. (S.

Logans, —, 250.

Logans, —, 250.

Logans, —, 270.

South America, 32. Various dyre extracted theretions,

Specimens of cotton, sills, and wood, ydvel in those
   various colours, ib.

Lobe and Stahlberg Royal Forges (Prussia), 3L
   Lohse, E., 35
   Lokteff, J , 357
   Lolagnier, -,
Loleo, J., 517.
Lomas, J., 56
   Lomes and Sons, 36
   Loncke-llacze, C. L., 600
   London, Corporation of, 217.
Londou Druggista, The (or Drug Trade), 47, 72, 80.
London Marble Working Company, 562, 561.
Londo-Chorins.—See Cotton Manufactures.
Long-CLOTHS.—See Coron and Long, G., 283, 1 Long, J., 212, 1 Long, J. C. E., 13, 1 Long, J. E. and J., and Co., 218, 1 Longden and Son, 535. Longdon, R., and Sons, 480, Longdon, R., and Sons, 480, Longdon, M., and J. Longdon, M., 258,    Longman. — 401. Lox. The control of the min operation, 126. Many of them remarkable for novelty of construction and for important improvements, a. Various power teoms and jacquard Icons exhibited, 196, 192. In the British Iperaturent, a. In the French Department, 122. In the Inited States Department, ab. In the 2010 Eversity Department, ab. In the 2010 Eversity Department, ab. In the 2010 Eversity Department, ab.
       Longman
                                 the Belgian Department, ib. See also Jucquard Locus.
```

```
Loring, G., 602.
Loringer, Dr., 635.
Lortic, A., 425.
Lortic, P. M., 452, 741.
Lostey, E. T., 336, 342.
Louderback, M. J., 641,
Loulé, Marquis de, 54, 153
Louis XIII, 404
Louis Cherry
 Louis Quaroage Strik. Origin and character of the Louis
 Quatorze style of decoration, 709.
Louis, St. (Moscile), glass works at, 525
 Love, J., 502.
Lovelace, Earl (Juror), zxiz. (Exhibitor), 500.
 Loyeless, P.
 Lovell, G. (Associate Juror), xxvii.
 Lovell, G. (Associate Juror), xxvii.
Loweck, — 225.
Lowe, A., and Co., 228.
Lowe, G. (Juror), xxx.
Lowe, J. and II., 455.
Lowell Machine Shop (United States), 197, 192, 204.
Low Moor Iron Works, ID.
    owthian and Parker, 342
 Loy, W., 489.
Loy, W. T., 481.
Luard, Bredham, and Co., 557.
 Lubeck, Free City of Samples of oil-cake from, 55.
 Lubbert, E., 15
 Lucas Brothers, 360, 361.
Lucas Brothers, 360, 361.

Lucas, G., 582.

Lucas, H., 580.

Lucas, Moritz, 47.

Lucas, R. C., 686, 694.

Lucas, T. M., 420.

Lucas, E. (Juror), xxxii.
 Luce, P., 148.
Lucipea Marches.—See Chemical Matches
 Lucius, F. (Juror), xxviii,
Ludwig, T., 554.
Liler, A., 345, 346.
Lucttringhaus, —, 449.
 Luff, J., 580.
Lulime, J. F., and Co., 259, 207, 302, 305.
 Lumsden, J., 643
 LUMBIGER, J., 1833.
LENABLEN.—Lanarian, with a contrivance for showing the phases of the moon, 328. Apparatus of novel construction, called a "Sciencope," 314.
 Landy Foot and Co., 60
 Luntley, --, 302.
Lupton, D. (Associate Jurur), xxviil, xxxi.
Luranco Brothers, 568.
Lusson, A., 687, 702, 215.
Lusson, Worsten Yanss.—See Yorns.
 LESTRINGS-Samples of, from Switzerland, 366.
 Luther, -, 312
 Lüttig, —, 253, 306.
Lüttwitz, Baros Von, 99, 158.
Lutwyche and George, 322.
 Lutzo Brothers, 353.
Lutz, C., 341, 342.
Lutzow, — de, 20.
 Lutzow, - de, 20.
 Luxemburg Giove Company,
 Luynes, A., Duc de (Juror), xxv, xxix.
Luzos, island of, 501.
Lyoch and Inglis, 173.
 Lyons, J., 48
 Lyons, Morris, 38, 226.
Lyons, Agricultural Society of, 161.
 Lyons, Chamber of Commerce, xxxv, 161, 365.
 Mahlre, --, 52
McAdams, J. and W., 425, 454.
Macarthur, Lieut. Col., 157.
 Mearthur, Lieut-Col., 152.
M'Iside and Co., 318.
M'Callam, 21g. 54.
M'Callam, 21g. 54.
M'Callam, 21g. 54.
M'Callam, 21g. 54.
M'Cantau, — Samples of Inferior macaroni form France
almost equal to the heat Ralian, 32. Samples from
Fortugal, ib. Samples from Tuccany, excelling in
flavour, texture, and manufacture, ib. Fine series of
          macaronis and pates from Prussia, ib.
```

McCarty, R. (Jinror), xxvl. McCay, T., 372. MacCielland, Dr., 67, 166. McCleod, W. W., 25. M Clure and Co., 192, M Connell, J. E., 187, M Cormick, C. H., 231, 232, 241. McCra, -, cxx. McCree, H. C., and Co., 556. McCullagh, J. D., 62. McCulloch, C., 47. McDaniel, O. (Juror), xxvi. McDaniel, U. (ourvey, xxx).
Macdonald, Major C., 7, 8. See also To
Macdonald, D. and J., and Co., 464, 469.
Macdonald, Lawrence, 685, 693.
Macdonald and Leslie, 253. See also Turquoises. Macdoweld and Lewise, Son. McDongail, D., 478.
McDowell, C., 337, 342.
McDowell, -, 157.
Macdowell, P., 685, 633.
Macfarlan, J. F., and Co., 47. MacFarlan, J. F., and Co., 4 MacFarlane, G., 152. Macfarlane, G., 334. McGarry and Sont, 82. McGet, J. G., and Co., 482. McGibon, E., 342. McGibon, F., 54. Magregor, J. W., 602. McGregor, J. W., 602. McGregor, M., 520. McGregor, M., 520. Machell, J. C., 548. Machell, T., 344, 316. M'Henty, Mr., 52.

Marhet, Macriscary (Classes v. and va.).—List of Classes of ob-jects included in Group B. Machinery, iii, v. Tabular classification of objects in the Exhibition into which these Classes are divided, vii, viii. List of Jurors and Associates appointed for this Class, xxvi. List of ex-hibitors to whom Council Medals have been awarded, The like of those to whom Prize Medals have

been awarded, liv, lv.

The machines on which the Jury of Class V. has had to adjudicate generally of the Class called Prime Movers, that is, those more directly consected with the de velopment of power than with its application, 165 verogement of power train with its application, inc.
Still where the application of the power to the result is direct and immediate, this Jury has considered the mechanical expedients by which it is made, it, in the consideration of this class of machines, the Jury has been chiefly guided by the principles of mechanics as distinguished from those of mechanics. ib. The machines referred to the Jury were divided by the Commissioners Into seven Classes, viz., (A.) by the Commissioners has never Claims, viz. (A). Strong engines and bollow, where the Moshmik, and Strong engines and bollow, where the Moshmik, and parts of markhers, specience of variablements; i.i., and the strong engine of the commission of t together with the numbers of exhibitors and exhibite together with the numbers of exhibitors and shibitors in each country, and the proportions which these bear to the Medals awarded, [16], [16]. Observation of the could not be expected adequately for represent the mechanical capabilities of these countries, from the difficulty of transport of such machines as those included in Class V., [28]. Opinion of the Jury that the machines referred in their examination from Great Britain, effects of the countries, from the difficulty of transport of such machines as those included in Class V., [28]. referred to their examination from Great Britain, although numerous, and in some respects remarkable, do not duly represent the engineering resources and skill of Great Britain, ib. Opinion that any future exhibition would afford conclusive evidence of this fact, ib. Objects exhibited, and names of the exhibitors who were excluded from the competition for

Medais on account of the parties being members of the Jury, 162. Remarks in detail with regard to objects comprehended under Section (A.) before mentioned, showing the awards made, 169-173. The like In regard to objects included in Section (B.), 174, 175, Section (C.), 175, 175, Section (D.), 175, 184, 187; Section (F.), 187, 189, 184, 187; Section (F.), 187, 189, 191, Remarks on carriages generally, not including those connected with rail or tram-roads, 122, Observations on the various working parts of machinery exhibited, 129. - See also Manufacturing Machines and Tools, Rotation of Machinery, and likewise under the names of the respective machines. Macindoe, G. P., 195.

MacKay and Co., 163 Machine Jack L. Machine J. Machin Mackenzie, -- , 401

McNaughten, -, 148, 653. M'Nichol and Verson, 183 Macomic and Co., 424, 454 Maconochie, —, 122. McPherson, C. and H., 491. McPherson and Francis, 52.

Macquer, Roux, 523. Macquinay Brothers, 508

in Russia, 20. Not nearly sufficient to meet the de-mand, ib. Large quantities annually imported from Holland, ib. Wild or indigenous madder from Spain, ib. In Russa, 20. According to the manually imported from mand, ib. Large quantities annually imported from Spain, ib. Address. Large (A colorus)—Samples of 49. (Colorus)—Samples of 49. (Colorus)—Samples of 49. (Colorus)—Samples of 49. (Colorus)—Samples of wheat from Madeira, 52. Collection of colouring matters or dyo stuffs, 20. Series of dried

Madeas - Samples of plantain meal from, 62. Collection of woods, 123.

of woods, 123.

Madras, Commissary-General of, 81, 82, 122.

Madras Pettery, the, 542.

Maratin Bottanic Garden, 91, 154.

Maratin, Royal Library of, 34.

Maratin, Royal Library of, 34.

Markly, M, 29.—See also Oil.

Mare, 1, 270, 500, 502, 536.

Maffel, —, 38.

Marc, J., 270, 500, 502, alto.
Maffel, p., 565.
Maffre, E. F., 81.
Magcoburg Cathedral, model of, 688, 618.
Magciportil Brothers, 555.
Magcill, Jan. 370, 373.
MAGNEJA, CALCIED.—Samples of, 46.
MAGNEJA, CALCIED.—Specimens of, 46.

MAGNISA, CATCHUM-Samples of MacONISA, CATCHUM-Samples of MacONISA, CATCHUM-Samples of MacONISA, PARTO-Samples of MacONISA, MACON

MADERIAN SAUTH—Specimens of, 30.

MAGERICAL INSTRUMENTS—Photographic apparatus for
the self-registration of the changes of position of the
magnet, 220. Principles of the apparatus, 220, 221.
Chemical solutions for the preparation of the paper,
221. Fox's dipping needles formities with needles of
various lengths, 40. Pocket compasses, 45. Magnetie

cun-diple, 281. Prismatic compass, ib. Description of a magnetic-electric induction machine. MAGNETIC ORES obtained from the mines of Marmora (West

Canada), 16. Remarkable thickness and extent of magnetic ores in the Adirondac Volley, New York, 18. See also Irun Orea.

Machira-Very few magnets exhibited, 279. Powerful steel magnets, 250. Exhibitors applying themselves to further improvements, ib. Attention paid by — Hearler to accretain the receptive and permanent magnetic powers of cast iros, sh. Series of experiments. ments commenced by Dr. Scoreshy in 1832; general results thereof, ib. Hearder's experiment upon the magnetic properties of cast iron, ib. Observations of the Jury on, and description of, the magnets exhibited, 8. Powerful permanent magnets from the Nethor-lands, ib. Cast-iron compound borse-shoe permanent magnet, ib. Carbonised cast-iron magnet, ib. Powerful

compound linear bar magnets, 288. Magnin, J. V., 52, 55 Magnus, —, 571, 572 Magnus, -,

Stagnus, S., 22.
Magpoor, the Meharajeb of, 657.
Mahilloo, C., 331, 334.
Mehler, H. (Juror), xxviil.
Manager, S. Magnus, 8

MAHOJAN, Beautiful specimens of mahogany, 121, 127, 156, Excellent Spanish mahogany may be raised in the East Indice, 122. History of the introduction of ma-hogany for the manufacture of furniture, 345.—See else

Timber, &c. Mahen, Viscount (Juror), zxviii.

Maille and Segond, 62.
Meillot, E., 520.
Main-Spaines, See Watches.

Melr, J., Son, and Co., 348, 381, 463.

Meire end Co., 47. Meitland, Capt., 122, 128. Meitland Mines (Cape of Good Hope), 164.

Meithaud Misse (Cispe of Good Hope), £6.

Matter, A.; 428.

Matter

MAIRE-FLOUR.—Semple of maize-flour, commonly called corn meel or corn flour, from the United States, 55. Majo, S. de, 635

MAJOLICA WARE. -- Gerden pots and vases modelled in imitation of, 540. Remarks on a species of majolica-warr for friezes, &c., exhibited by Mesers. Minton, 716, 717.

Major end Gill, 318 Mekepeace, F., 642 Makin, W., 489.

Makin, W., 489.

M. CARAD. Collection of woods from the Melebar forests, MALABAD. 32. Sosp composed of cocos-nut oil, end sods from,

MALACEA - Tin are, sulphurets of antimeny, and specimens of other from, 14. Cinnamon from, 62. MALACHITE. - Remarks on malechite decorations exhibited LLGHITT.—Remarks on make-hit of ecorations exhibited to the Russian Department, 25s, 21s. Makehite has been keng entry the property of the pro

necepting to M.M., Jenniton, so. Inlaying or vecering for decorative purposes by no means a modern application of this material, 520. First establishment of a manufactory of St. Petersburg by M.M. Demidoff, St. The works sent by M.M. Demidoff to the Exhibition produced at this manufactory, St. The working of malachite on large scale activements tedious and black. produced at this manufactory, io. The working of malachite on nelways scale extremely teclious and laborations, ib. Detailed description of the method of working and comenting medicalite, 570, 571, Value of the malachite, 521, Objects exhibited by MM. Demilding remarks of the Jury on their extraordinary richness continues and the semillanes of the translations and the remarks or the Jury on term examoratary finances end beauty, the excellence of the production, and the application of various new methods of manufacture; award of o Council Medal for these objects, ib. Re-marks on the specimens of melability goods exhibited from Paris and Derbyshire, 571. Beautiful set of twelve toals hite and or-molu table ornameots, &

Malapane lass Fornost (Pressia) - High character of this foundry for the quality of their cast end wrought iron and steel, 31.

Malatinzky, E., is2.

MALAY - Collection of the woods of, 137, 138,

Malcolm, J., 373 Malborhe L. 201 Malherbe, L., Malin oud Sons, Malingie, -, Lin

Mallet Brothers, 47

Mellet, --, 347, 348. Mallett and Barton, 462.

Malloch, -, 207.

Malmon Island (Sweden). - Extensive stene quarries in

the island, 566. Specimens of stone from, ib. Molo-Dickson and Co, 323.

MAIT.—Few samples of milt exhibited, 52. Sample of porter malt, prepared by a pateet process, by S. R. Poole, containing in consequence of larger proportion of saccharine matter, ib. Samples of, from Ipwich, ib. From New Zesland, ib. From Van Diemen's Land, ib. Sample of malite, from the United States,

United States, 55.

MATA—Sample of white wheat from, \$2. Interesting series of cottons, \$25. Specimens of farm silk, \$163. Cotton yarra, \$25. Specimens of fligree work, \$25. Specimens of carred stone, \$554. Vasce and other objects carred in the soft stone of Multi, \$268. Specimens of inlaid werk in marble, \$55. Masket of rich shell-flowers, \$612. Kinorgaphical figures modelled in the shell-flowers, \$612. Kinorgaphical figures modelled in \$160.

wax, 6 wax, 649.
Malvirux, C. T., 83.
Mame and Co., 406, 459.
Mamede, B. G., 520.
Man, Capt. H., 102.
Manby, Capt. W. G., 212.
Manby, Capt. W. G., 212.

MARCHESTER -- Plan pursued in causeweving the streets

of Menchester; use of, made of concrete and pitch, Manchin end Morel, 412, 454,

Maendhe en Morei, 125 and Manco, 3, 24 Menderson, — 13. Menderson, — 14. Menderson, — 15. Menderson, — 15. Menderson, — 16. M

Maniac, K., 301.

Maniac, K., 301.

Manuta.—Fine specimens of shells yielding mother-ofpearl from, 164. Economical Society, 103, 126, 131.

Manioca Figure—Samples of, from Trinidad, Ceyleo, and

Angola, 62 Manley. General G. (Juror), zzxi

Maolove, Alliott, and Co., 203, 204. Manly, J., jun., 538. Maooesmann, A., 482.

MAGOGERMAN, A., 352.
MANDANTES.—Description of an instrument exhibited in
the French Department, called a manometer, 321.
MANS CATHEGRAL—Pointed windows io, referred to, 534.

MANG CATHEORAL—Pointed windows io, referred to, \$33, Mansard, ~ \$\frac{1}{2}\$; \$23. Mansell, \$1, \$2, \$23. Mansell, \$1, \$2, \$23. Mansell, \$1, \$23. Mansell, \$1, \$23. Mansell, \$1, \$23. Mansell, \$23. Mansell, \$1, \$20. \$22. Mansell, \$20. \$23. Mansell, \$20. Mansell, \$20. \$23. Mansell, \$20. Mansell, \$20. Ma

Manufield, 603, 649, Manto, R., MANTEL-PIECES.—Chesp end useful combination of Iron and glass in the construction of mantel-pieces, 587.

See also Chianry-Pieces.
Menton and Soo, 221. Manuel, C., S.

MARIUCACTURES (generally), —List of classes of objects in cluded in Group C, Textile fabrics, iii, v, sili, xvii The like of objects included in Group D, Metallic vitrous, and ceramic manufactures, ib. The like of The like of

nbiects included in Group E. Miscellaneous manufac-

MANUFACTURING MACRINUS AND TOOLS (Class XV.) .- Trbutter classification of objects in the Exhibition into which this Class is divided, vili. List of Jurors and Associates appointed for this Class, xxvi, xxvii. List of exhibitors in this Class to whom Council Medals have been awarded, ivi. The like of those to whom Prize Mednis have been awarded, ivi-lviii. General remarks on the articles exhibited in this Class, Number of exhibitors, 125. Subdivision of the articles into sections, ib. (A.) Machines for conversion of raw material late a continuous thread, and subsequent pro-cesses. J. Cotton, 195, 195. 2 Wood, 196. 3. Flax and hemp, 3b. 4. Silk, 3b. (15), Weaving of all kinds. 2. Leoms, 196, 197. 6. Lace frames, 197. 7. Stocking or hosiery manufacture, 4b. 8. Heald machines, seving

Mappie, H., 598.
Mappie, H., 598.
Mappie, H., 598.
Mapplebeck and Lowe, 505.
Mars.—Various kinds of maps executed in consec

surveys made for navsi, military, or geological pur-poses, 222. Accurate surveys executed under the super-intendence of the Admiralty, ib. Drawings of great intendence of the Admiralty, & Drawings of girst nacurary exactured by the Hydrographical Board under Admiral Beaufort, B. Publication and sale of three service, & Scheno and practice of Dylingraphy over much to France, & Brought to perfection by the cells of the Board of the Company of the Great Britain, th. Great forwardness of this vast enter-prise, th. Encombast due to the establishment at Southampton for the execution of the plates, th. Nu-lection of maps from Austria, 262. Invention of an excellent process for colouring maps by the foreman of the Lithograph's National Press of France, th. Sim-plicity and ingenuity of the process, th. MAPS, Grastograft—One of the most useful means of ad-

rs, GEOLOGICAL.—One of the most useful means of advancing mineral industry, 2. Importance of the map prepared under the superintendence of Sir II. T. de in Beche, ib. Observations on the geological survey of Enginad, undertaken by Sir II. de la Beche, 223. Grological map of France, ib.

MAPS, RELIEF.—Specimens of model or relief mapping in its various stages, 322. Tools necessary for use, ib. Manner in which the work is executed, ib. Chenp, simple, and generally applicable mothed of surface modelling, ib. Model in relief of Mount Sentis, ib. Plastic material and apparatus used in its construction, the artist's own invention, ib. Relief model of the late

Plantie materia and apparatus owner. In the artifus on increasing, Al. Relia model of the late artifus on microston, Al. Relia model of the late artifus on microston and artifus of the state of the st by Norma Devuite and Co., of Paris, 27. Collection
of markles of the Voyage, th. Engals, warm, and po.
learning of the Voyage, th. Engals, warm, and po.
learning of markles of Siesies, 22. First series
of markles from Evere, 23. Specimens of the markles
and the series of the Siesies, 22. First series
of markles from Everye, 23. Specimens of the markles
and the series of the Siesies of Siesies of the Siesies

marbles and alabaster from Tustany, 35 .- See also

MARRIE, ARTIFICIAL, Specimens of artificial marble, from

MARLET, ARTIFICIAL—Specimens of artificial marsies, from Austria and Prassis, 273.

MARMAT, INTATION.—Vailous specimens of great excel-lence, 246, Awards to exhibitors, 251.

Observations of the Jury on the initiations of marble executed in stone, slate, for, 19dect exhibitors, 251.

MARRAT, ISLAIO WORN 15.—Specimens of, from Derby-shire and Devonshire, and last from Melta, 2628. De-shire and Devonshire, and last from Melta, 5628. De-

shire and Devonshire, and also from Metts, 605. Are scription of the twe principal methods of producing marble mosale; objects exhibited and awards, 568, 563. MARBLE, MANUFACTERS 23...—Inly pre-eminently the country where this manufacture has been found most congruinal than artistic feeling of the people, 560. congenial to the artistic feeling of the people, 550, France, Spain, Portugal, and parts of Germony and Belgium, have, bowever, of late yoars, employed for their own use, and in their own style, many useful marbles with which they abound, 46. Manufactures have also arises in Eagland and Ireland, which lieve done much to raise the character of marble decoration, ib. The quarries of Parian and other antique sculpture 8. The queries of Perins and other surings evolution matthes in Green (Lay, and Ankal Davies over substant) and the perins of the perins of the perins of the perins of the perins and the perins and perins anal perins and perins and perins and perins and perins and perins

in black and other marble exhibited, 564.

Manuz, Wonzs or Art 18.— Notices of the principal, 685,

636. See also Sculpture, Models, &c.

62th. See also Svaptare, Anaton, gc. Morcel, — 545, 551, 717, 723. Marcell, — 545, 551, 717, 723. Marcet, — 721. March, E., 853, 586. Marchand, F. B., 505, 580. Merchand, Professor, paper by, in the Chemical Gazette,

adverted to, 40. Marchesi, G. B., 311, 423. Marchesi, L., 686, 703. Marchesi and Ossoli, 578.

Marchest and Ossoli, <u>578.</u>
Marchetti, L., 544, 521.
Marchin Commorciai Commission (Beigium), <u>23.</u>
Marchin Commorciai Commission (Brigium), <u>23.</u>
Marchinelle and Coullet Smelting Company, <u>23.</u> 175, <u>308.</u>

Marcos, J., 91, Marc, C. J., and Gu, 217, Marc, C. J., and Guynon, Mesers., 686, 702, 215. Marrechal, J., 284. Margo, E., 562.

Margetts and Eyles, 557. Margetts and Eyles, 557. Marguerie, -, 502 Marguerita, Señera, 472

Stariette de Chassagre, -, 687, 688, Marin, J. E., 602, 650. Marimanoff and Armakoena, 166. Marine Baromerena, --Specimen of a marine barometer,

Manine Boilens,-Model of a telescope chimney for ma-rine boilers, 173.

Amazu Escaria, Commercia, cod or as stockowe mount you ma-Maxum Escaria, Commercia, cod for an stockower speers which was a commercial control of the stockower speed river norigation, the Tair of Underse power consiliating cylinder direct-casting engines for river norigation, cylinder direct-casting engines for river norigation, description thereof, the Amazu daniely cognition of the share of the stockower of the stockower of the Stockower description thereof, the Amazu daniely cognition of the bent content of the stockower of the stockower of the bent content of the stockower of the stockower of the Decision of the stockower of the stockower of the stockower of price in the season of decks, 222. Also for uniting large influence for new of purposes, 1

```
Marmora; magnetic ores obtained therefrom, 16 .- See
     Marmora; imagnetic ores obtained therefrom, Ha. See also Iron Oren, Lithographic Nonce.

Marchett, Harvin, 216, 663, 263.

Marchett, Harvin, 216, 663, 263.

Marquett, Capt., 122, 137.

Marquett, Capt., 122, 137.

Marquett, L. to 2, 38, 34.

Marquett, Marquett, Oren of the most beautiful and in-
Marquett, Worst.—One of the most beautiful and in-
                                           teresting inlays, 545. Account of the process em-
ployed, ib. Admirable specimens exhibited, ib.
Awards to Exhibitors, 550.
     Awards to Exhibitors, San.
Marr, W., Sob.
Marratt, J. S., 253, 264, 308.
Marrist, J. S., 253, 264, 308.
Marrist, J. S., 253, 264, 308.
Marrist, J. P., (607.
Marrist, J. P., (607.
Marrist, the Venerable Archdescon, 465.
Marrist, W., 465.
Marsux and Legrand, 505, 520.
Marsux and Legrand, 505, 520.
          Marsden Brothers and Co., 482
          Marsh Brothers, 491.
          Marsh, J., 541
Marshall, —, 6
     Marshall, -7, 521, Marshall, -7, 52, Marshall and Co., 98, 101, 370, 371, 372, Marshall, E. 8, 165, 215, Marshall, J., 47, 82, Marshall, J., 47, 82, Marshall, and Sorigrove, 363, Marshall and Sorigrove, 363,
     Marshall and Sons. 520,
Marshall, T. J., 198.
Marshall, W. C., 685, 625.
MARTANAN—Collection of the woods of, contributed by the
                                           Indian Government, 136
     Inman (rovernmets, 122,
Martel, Geoffray, and Co., 367
Martens, —, 244, 245, 278, 279
Martin, —, 133, 169
Martin, Baskett, and Co., 520
          Martin and Casimir, 366.
          Martin, C. A., 470.
Martin and Gray, 500
Martia and Gray, 205
Martin, Hugh, 52
Martin, J., 454
Martin, J. 7, 454
Martin, L. P. A., 334
Martin, Maria Glementine, 614
Martin, Maria Glementine, 614
Martin, W., 205
Mart
MARTIN's CERENT-Referred to, steb.
Martinoz, P., 29.
Maryland Committee, 61, 71, 151, 652.
Maryland Scap-Stone Company, 559.
MASTLAND, STATE OF See United States,
MAST and Weigert, 573, 380.
Mary and Co. 28.
Mara and Weigert, 375, 322. Mara and Weigert, 375, 322. Mara and Co. 28. M
     this, as a work of art, 702,
Masse and Tribonillet, 623, 62
Masser and Tribouillet, 623, 623
Massertin, C. L., 321.
Massett, J., 307.
Massey, E. J., 336.
Massey, W., and Co., 505.
Massez, —, 412.
Masses, —, 1410.
Masses, C. 2010.
Massing, Hubert, and Co., 266.
Masson, C., 126.
Masson, F., 126.
Masternan, J., and T., 265.
Masters, T., 252.
Martin, T., 126.
Martin, J., 12
                                           Schrötter's amorphous phosphorus, 45. See also Che-
                                           mical Matches.
     Matesaux, A., 91
```

stonen for the restoration of the standard of length, in Marx-Miseros Macuria, 221.

Marx, Princary in...—See Afford of Theorems, 2018.

Marx, Princary in...—See Afford of mechanism to illustrate the different proportions of the beausing flugging. 222.

Mechanical arrangements, ib. Dimensions of the tended application, ib. Promise applications, ib., Mechanical Securities, ib. Promise applications, ib., Mechanical Visitans.—See Birryl Organs.

Mechanical Visitans.—See Birryl Organs.

Mechanical Visitans.—See Birryl Organs.

Mechanical Visitans.—See Birryl Organs.

Mechanical Visitans.—See Birryl Organs.

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Mechanical Visitans.—See Birryl Organs.

Mechanical Visitans.—See Birryl Organs.

Mechanical Visitans.

Mechanical Vi MATHEMATICAL INSTRUMENTS.—Diagrams inlended to fuel-litate the study of mathematics, 214. Method of using the diagrams, ib. Disadvantage under which students at present lie, ib. These diagrams excellent studies, ib. for lucifer matches, 635, Mothod particularly applicable for adults, ib. Demon-MECONIC ACID-Samples of, 47.

stration of the theorem of the right-angled triangle by the trasposition of parts, 314. Quadratic trisection of the square, ib. Diagrams of the retrogressive parabola.

the square, ib. Diagrams of the ib. Gyroscope, ib. Mather, W. and C., [73, 196, Mather, W. and Weber, 47, Mathevon and Bouvard, 365, 730, Mathey, G. (Associate Juror), xxlx, Mathey and Son, 33, 505. Mathias, -, 405 Mathieson, A., 482.

Mathieson, T. A., 491.

Mathleu, L. (Juror), xxvii.

Mathieu, B., 326.

Mathiot, G., 411.

Mathys, J., 103. Matrico.—A new astringent, 46. Matico.—A new astringe Matifat, C. S., 512, 519, 57 Matisen, A., and Co., 629, Mattat and Sons, 353 Matthews, —, 307, Matthews, E., 220, Matthews, S., 596, Matthews, W., 482

Matthews, N., 1895.
Matthias, —, 206.
Matthias, —, 206.
Mattoria, B. de, 65.
Matterians, J. G. H. (Widow), and Son, 543.

Mauban and Journet, 452. Maucomble, -, 278. Maudo, -, de, 84. Mando, -, de, & M. Mandolny, H. (Juror), xxvi, xxxi, 169.
Mandolny, Sons, and Field, 169, 200, 203, Mandolny, Sons, and Field, 169, 200, 203, 203.

Mauley, Jord of Gurry, ANY, ANN.
Maund, v. 93.
Maunder, J., 95, 262.
Maunder, J., 95, 262.
Good samples of occou-nut oil, 23. The cultivation of the silk-norm greatly promoted in the Maurities, 163. Artificial fi-wers in palm-tences and shell work, Asy.

MAUBITHES, Royal Society of Natural History of, 83, Mauraine J. N., 173, Mavroianni, -, 56, Max Meyer, and Co., 376,

Max Meyer, and Co., 375. Maxwell and Co., 325. Maxwell, W., 556. May and Baker, 47. Mayerl, J. E., 245, 276, 277. Mayer, A. J., 601. Mayer Brothers, 273.

Mayer Brothers, 279, Mayer, L., 322, Mayer, J., 520, Mayer, Mahame J., 404, 450, 453, Mayer, Michel, and Co., 322, Mayer, T. J. and J., 541, Mayne, D., 122, 127, Mayn and Ch., 187, White Brothers 977, Mayn and Ch., ext.
Meade Brothers, 217.
Meal. Mills.—Remarks on the mills for grinding fine meal exhibited by Messrs. Hnrs cod, by Messrs, Cross-kill, and by E. H. Beutail, 258. Prizes awarded, 258.

Mears, C. and G., 505, 510.

MEASISTING INSTRUMENTS AND MACHINES.—Various ANGRON INSTANCESS AND MACHINEA,—VARIOUS machines for standard measures of length exhibited; two of them extremely beautinal, 28th. Gauge for measuring of the extremely beautinal, 28th. Gauge for measuring and action, d. Convention for new. d. Standard lear measure, 25th. Description thereof, d. Blesself, (Prassian) standard measure; description thereof, d. Standard yards prepared for Her Mejesty's Commissioners for the restoration of the standard of length, d. Standard yards prepared for Her Mejesty's Commissioners for the restoration of the standards of length, d.

MEDAIS, AND MEDALLIONS, AND COINS .- Notices of the principal works of a medallic character, 315, 686, 683. Notices of the principal works of art in this section Notices of an principal works of fit in this section contributed by Prossa, 6:88. No contributions from France to this Section, 701. Remarks on the works of this Class in the Belgian Department, 705. MEDIATAL ARCHITECTURE.—Numerous objects sculptured

In Caen stone, imitative of English Mediaval architec-

MEDIEVAL COURT (in the Exhibition), - Remarks as to the fitting up of the, by Mr. Pugin, 687, 626. General remarks on the articles of furniture in the Mediaval remarks on the articles of turniture in the Accileval Court, 223. Good taste displayed in the hangings of the Mediseval Court, 220. Manyak Chantyr.—See Cements, Roman, 5c. Medina Del Compo, Mayor of, 52. MEDITTARANYAY, The—Preparation of various salts from the nearwater of, by the process of M. Baland described, 32. Mee Compila 479.

Mec, Cornelia, 472 Meek, -, 448.

MXERSCHALM PIPES.—High estimation in which these pipes are held, 660. Meerschaum a mineral of somewhat rare occurrence, ib. Variable constituents of the comrare occurrence, ii. Variable constituents of the com-pound, ib. Qualities of pure and good meerschaum, ib. Meerschaum met with in various localities in Spain, Greece, and Moravia, ib. Largest quantity derived from Asia Minor, ib. Elegantly carved bowls of pipes, ib. The art especialty cultivated in Petth and pipes, ib. The art especially cultivated in Pesth and Vienna, ib. Beautiful specimens of meerschaum ex-hibited, ib. Processes of preparing meerschaum for pipe-making, ib. Frequent attempts made to initate meerschaum, 520. Use of the meerschaum parings in making massa pipe-howls, ib. Specimens of composition pipe-bowls and cigar-tulees from Austria, ib. Mode of distinguishing these pipes from real mecrachaum, ib.

Numerous collection of pipes from Austria and other
German States, 671. Samples of carved bowls from

German Somes, art. Samples of carved lowis from Sardinis, G72. List of Awards, Exhibits, and successful Exhibits and successful Exhibits and successful Exhibits and successful Exhibits of Specimens of mearschaums from the environs of Thebes, 32.

Messer, —, 163. Melsen, Ettell, 57. Meha, J. M. F., 26, 1 Meidinger, Baron, 18 Meier, F., 480. Meier, F., 480.

Meifredi, A., 367. Meigh, C., and Sons, 541, 694.

Meillet and Pichot, 451 Melpert Brothers, 478.
Melpert Brothers, 31.

Meinhold and Sons, 413.

Meinhold and Sons, 463.
Meinig. —, 282.
Meinig. C., 8.—See also Hones.
Meissner, F. T., 353.
Meissonier, —, 41.
Mejean, A., 192, 361.
Melion-ythan Chemical Company, Neath, 42.
Melior ythan Chemical Company, Neath, 42.

ments, 332.

Melotte, E., 471.

Melton, H., 381.

Melzer, D., 513.

Mene, P. J., 505, 585, 701.

Menet, J., 161, 361.

Mengen, M. Von, 373.

Mengen, G., 532.

Mengus Brothers, 366.

Menier and Co., 47, 59.
Menispensiss — A chemical substance, 48.

20x319EAMINE—A chemical substance, 48.
Merpore, F. D., 202.
Meronz, J. H., 470, 702.
Merover, J. (Jures and Associate), xxvi. xxvii, (Exhibitor), 62, 517, 432, 63.
Mereter, J., 433, 64.
Mereter, J., 433, 65.

MERCURY, JOHINE OF Samples of, 46 Merculy, Preparations of (undescribed)-Specimens of,

MERCERT, RED OXIDE OF-Specimens of, 45.

Maccair, Aux Oxnor or—Specimens of, 32.
Mincrair, St. Petriver or—Samples of, 45.
Mercair, J. H., 8,55.
Mercidt, J. H., 8,55.
Mercidt, Malame Van, 55.
Merine, Malame Van, 56.
Mincray -- , 223.
Minayon—Specimens of, in the British Department, 3,56.33 cycliness of merinos from France, Saxony, as-sia, 316-328. Specimens of merino dyeing, 429. Mranso Woot.—See Wast. Mranso Faxs.—See Farms. Merice, V., 132. Specimens of merinoa from France, Saxony, and

Merklinghans and Wex, 3

Merlie-Lefevre and Co.,

Merlie-Lefevre and Co., Merlin, A. and V., 373, Mermooz Brothers, 342 Mero, C. D., 83, Meron, E. 166, Merriweather, J. B., 25,

Merryweather, J. B., 25, Merryweather, —, 316, Merryweather, Moses, 173 Merrey iron Company, 17, Mertens, A., 6-8, 738, Mertens, D'Ostin, Baron,

Merz and Sons, 246, 251, 2 Messier and Cartier, 202 Messat, A., 365. Messenger, S., 50

Messanger and Sons, 438.
Messtyler and Hamoir, 372.
Mestyler and Hamoir, 372.
Mertagathic Acto Samples of, 46.
Meragathic Acto Samples of, 46.

in the Exhibition, 603.—See also Costungs, Browne.
METAL Woss (for architectural purposes).—Remarks on

METAL WORK for stronger and purposes).— seems as we the examples of exterior and other metal work, such as gates, balconies, flower vases, tazzas, &c., in the Exhl-bition, 219, 220.

METALLIC LAVA.—See Lava, Metallic.

METALLIC INVA.—See Lara, Metallic, METALLIC MANDARANE W BOOK.—Preparel paper used for these books, §§2. Description of the process of prepara-tion, & Prendi marks become almost as permanent at ink, & Numerous pool specimens exhibited, & METALLIC SPONGE CEMENT.—A curricum and ingenious con-

trivance for a pavement, invented by A. Chenot of France. METALLIC, VITETOUS, AND CERAMIC MANUFACTURES.—List of classes of objects included in Group D, Metallic, Vitrous, and Ceramic Manufactures, iii.

METALLOGRAPHY-Specimens of a new art termes, was METALA-See Bruss Manufactures. Copper. Iron. Zinc. Platinum

METEOROLOGICAL CLOCKS.-Description of a meteorological clock exhibited by Hall, 311 METEOROLOGICAL INSTRUMENTS.—Greatly increased atten-

FRONDIGUEAL INSTRUMENTS.—Greatly increased atten-tion paid to meteorological researches upon a systematic plan, 238. Surprising and lamentable to perceive in-struments of so ordinary and inefficient a construction, ab. Greater part ill adapted and totally undit for me-teorological observations, ab. Barometers elegant and decorative articles of furniture; little attention paid to their essentials as philosophical instruments, ib.
Elliot and Sone' barometers are fairly models of chaste design and excellent wood carring, ib. Observations on themsometers, 229. Mostly fitted with scales of irory, ib. I vory most unsuited to a graduation of any kind, ib. Balbs of those exhibited nearly all too large, ib. Nothing new in the self-registering thermometers. No attempt made to improve the working of the 36. No attempt made to improve the working of the Instrument, b. Very few thermometers in the English portion graduated on their stems, ib. Superiority of that method, ib. Instruments in the Foreign Depart-ment generally pretty good, ib. Injurious effects of had instruments, ib. Little attention paid to the construc-tion of meteorological instruments in Lorsdon, ib. Essention of meteorological instruments in London, ib. Essen-tials of good barometers and thermometers, ib. Fastry, his thermometers the best in the Exhibition, ib. Mestra, Negrecti and Zambra the best in the English Depart-ment, ib. Observations in detail on the various stricter in the Computer of the Computer of the Computer of the Meronous Carten, Manner-Model of a, 659, 268, Meronous Carten, Manner-Model of a, 659, 268,

Metternich, Prince, 505. Metzner, W., 508. Meurang, E., L. Mevins, C. de, 162.

Mevissen, G., 99. Maxico-Sample of a remarkable orange-coloured resin from (called pipitzaluse), 76, 50. Contribution of wax flowers and wax fruit, 643.

Meyer, ..., 166, Meyer Brothers, 367,

Meyer Brothers, 2022.
Meyer, C., 253, 454.
Meyer, E., 403, 454.
Meyer, L. G., 100, 455.
Meyer, M. G., 100, 555.
Meyer, W., Chirop's, acc, xxxii, (Eablider) 535.

Meyers, B., 650, 663, 666 Meynier, -, 689, 702, Meyrs' Nephews, 536,

Meyrueis and Sons. 47 Mica, - Large sheets of, from Boston, 18. Used for doors of stores, rb.

Micheels, Major J. L. (Juror), xxx ii. Michel, A., 42

Michel, G., 2

Michelin, T., 42 Micaoscores. - Rich collection of microscopes exhibited, 263. All varieties from the simplest forms to the most elaborate, ib. The microscope second only in im-portance to the telescope, ib. Great assistance afforded by it to geology and medical men, ib. Steady and pro-gressive improvements traced, ib. Valoable suggestions of Sir David Brewster, ib. Low-priced lustra-ments exhibited deserving of high commendation, ib. Advisable that the angle of aperture should not be extended to its utmost possible limit, ib. Requisits qualities of microscope stands, 256. These desirable qualities of microscope stands, 256. These desirable points are admirably attained, ib. For purposes of de-lineation Nuchet's form of prism is more advisable than that of Wollaston's, &. Observations of the Jury on the various microscopes, microscope stands, and microthe various microscopes, microscope samos, and microscopic apparatus exhibited, 255-263. Observations on the illustrations of the uses of the microscope as shown by M. Leonard in his correct representation of many by M. Leonard in his correct representation of many different anabaneae, &c., when highly magnified, 267, different anabaneae, &c. when highly magnified, 267, Martine and A. Martine, C.
Mileb, A., 580.

Miles, A., Seil.
Miles, B., Marco, ravil, 226, (Exhibitor) 506.
Milland, P. 458, 459, 458.
Milland, P. 458, 459, 458.
Great Britain, B., Models of the ancient and new fortifications in Great Britain, fig. Models of the ancient and new fortifications in Great Britain, fig. Instrument descriptions in Great Britain, fig. Instrument descriptions of the second section of the section of the second section of the sec

great rapidary, acre.

It very incapensive, ib.

Milka-Tusa.—Sec Coopers' Work.

Milka-Tusa.—S

from France, ib.

from France, ib.
Miller, —, jun., 490,
Miller, D. and W., 54, 77,
Miller, F., 502,
Miller, F., 502,
Miller, G. A., 505,
Miller, G., jan., 551,
Miller and Richard, 410, 454,
Miller and Richard, 410, 454,

Miller and Richard, 400, 454.
Miller, T. J., Jurop., xxx. (Exhibitor) 622.
Miller, T. J. (Jurop.), xxx. (Exhibitor) 622.
Miller, W. H., Jurop.), xxiii.
Miller, W. H., Jurop.), xxiii.
Miller, F. (of Manich), 692, 707.
Miller, G., jun., 513.
Miller, T. (a., jun., 51

though of great importance in many parts of the world, 53. Samples of millets from Egypt, 53, 54. From Cevion, 54. Large series of small grains from works, as: "suspect of mitten from Fgypt, 35.
From Ceylon, 34. Large series of small grains 1
Turkey; the samples are insufficient and dirty, 54.
Hillian, Jun., 51.
Hillian, A. M., 55.
Hillian, A. M., 15.
Hillian, A. M., 15.
Hillian, A. M., 15.
Hillian, M. M., 15.
Hillian, A. M., 15.
Hillian, A. M., 15.
Hillian, A. M., 15.
Hillian, M. M., 15.
H

Milligen, W., 197. Milligen, W., and Son, 356, 360. Millington, B. and E., 202. Millner, H., 159

Mills, -, jnn., 6 Mills, Robert, 2

MILLSTONES .- Superiority of the millstone rock of La Ferte, APTOVANS.— Superiority of the millatone rock of La Ferte, 27, 28. Importance of the trade, 25. Collections ex-biblied, ib. Mode of re-dressing millatones, ib. Sim-plicity of the machinery invented by t.7 Fousilion, ib, Moderate cost of re-dressing, ib. Specimens of mil-stones from the States of the Zellverein, 25. Lava stones from the States of the Zelliverein, 32. Lava millstones from Niedermendig, near Andersach; pur-poses to which applicable, ib.—See also Grindstones, Milly, L. A. de, 604, 623, 622, Milly Stearin-Casalle Company, Vienna, 622, 622. Milly Stearin-Casalle Company, Vienna, 622, 622.

Milner, J., and Co., 300 Milner and Son, 500.

Milokroshetebool, K., 22. Milon, P. D., sen., 478. Milton, J., 66. Milvain and Harford, 372.

Milward, J., and Sons, 483. Mimerel, A. (Juror), xxviil. Mina, -400

MINERALS - See Mining, Quarrying, Sc. MINERAL Actos Specimens of, 43

MINEALL Actos—Specimens of, 43.
MINEALL COLDURS.—See Colours, Mineral.
MINEAL FUEL.—Observations of the Jury on two blocks
of mineral fuel from Tuscany, apparently of good quality, 35.

MINERAL PAINTS .- See Paints, Mineral, MINERAL NUMBERANCES, MANUFACTURES IN, FOR BUILDIN (Class XXVII.)- Tabular elassification of objects

In the Exhibition into which this Class is divided, xxi, xxil. List of Jurors and Associates appointed for this Class, xxx. List of exhibitors to whom Council Me-dals have been awarded, cix. The like of those to whom Prize Medals have been swarded, cix, cx; and nf those of whom Honourable Mention is made, ex-exil, those of whom Honourable Mantion is made, ex-exii, freat variety of articles manufectured in stone, marble, and elay comprised in this Class, had. These articles grouped into two principal divisions, ib. The one in-cluding all dressed, extred, sculptured, and polished work in solid material, whether stooe, marble, granite, or other mineral substance; and whether solid, wrought, or initial in stone, ho. The other, including or other mineral substance; and wictier solid, wrought, or inlaid in stone, ib. The other, including modelled and moulded work in ciay, cement, certain kinds of glass and pottery, and artificial stone, ib. Classified arrangement into groups of each of these divisions, ib. Beference to the most interesting of the British and Foreign exhibits, 554, Principles by which the Jury have been guided in their recommerdation of the Jury lave been guided in their recommendation of objects for whe Council Media! Diplets for which Council Media! Diplets for which Council Media have been awarded; names of exhibitors, and remarks and explanations on the various error, and remarks and explanations on the various error. Materials. Group L. Manufectures in ampoisised Stone, A. Flage-dense, paring-stores, & e.g., § § § 60. B. Chiefeld, earred, and smilptured stone work not positively, for the confidence of the council of the cou minerals, 559, 560. Group 2. Polished and Italiad Worl in Stone, &c. E. Manufactures in marble and slabaster F. Works in ornamental stone, granite, and 560-565. 560-565. P. Works in ornamental stone, granite, and spar, 565, 566. G. Mossis or liabil work in stone, 565-571. H. Enamelled slate and other imitations of marble, 571, 572. H. Mineral Manufactures in Plastic Material and Artificial Compounds, Group 3. Munufactures in Cement and Artificial Stone, &c.—I. Massistant State of the St

factures in Cement and Artificial Stone, &c.—1, Mas-sive and increasted ements, 52-527. K. (also and per-celain monitor, 527, 525. Group 4, Manufactures in Terra centra, 825-528. N. Gian roters, first-brick, &c., and chemical utensiti, 584-586. O. Glazed fire-clay goods, 586, 597. Appendix experiments on the strength of Portland cement, 587-589. MY Portland cement, 587-589. MINERAL AND VIGETABLE PIGMENTS (undescribed) - Sam

MINERALOGICAL SPECIMENS AND FORMES.— Minerals and fossile collected by Mr. J. Tennant, with a view in promoting mineralogy in colleges and for educational proposes. I.I.

MINERA—See Maning, Quarrying, &c. Sufety Fines. Venti-

lation of Mines.

Mines, Ecole des (France), 223

Minghettl, M , 22. Mining Penra. See Pumps,

MINING, QUARRYING, MITALLEBOICAL OPERATIONS, AND MI-NESAL PRODUCTS (Class L) Tabular classification of objects in the Exhibition, into which this Class is divided, v. vi. List of Jurora and Associates appointed for this Class, xxvi. List of exhibitors in this Class to whom Council Medals have been awarded, xxxv. The like of those to whom Prize Medals have been awarded,

xxxv-xxxvil; and of these of whum Homourable Mention is made, xxxvii, xxxviii.
importance of the mineral kingloss, L. Immense utility
of the products, ib. Copper mines of Corowall profitable to the adventurers, ib. Abundance of the ores,

ib. Collection of minerals exhibited incomplete, ib. Contributions of native silver from Sweden and Nor-Contributions of native silver from Sweden and Norway, ib. Large amount of mercury supplied to the whale world by Spain, if. Specimens of mineral wealth of the Peulinsula, 1, 2. Several copper works and gold-washings of Russia unrepresented, 2, 1 ron the only important object from Russia, is. Great inonly important objects from Russia, ib. Great in-terest of the objects of mineral inclusity from Aus-tria, Belgium, France, and the States of the Zoilverein, ib. Cullection of metals of the United Kingdom suffi-ciently complete, ib. Collections of ores valuable for instruction, ib. The mineral has everywhere followed the development of other industries, ib. Methods of working acquiring a certain uniformity of system, ib.
Wherever fisel is abundant it is more wastefully used
in the working of metals, ib. Geological maps one of
the most useful means of advancing mineral industry, ib. Importance of the map prepared under the super-intensience of Sir II. T. De la Beche, ib. Interesting collection from Canada, ib. Model showing the m collection from change, io. Model showing the me-chanical preparation of copper ores, ib. Duke of De-vonshire's crystals obtained from New Gransia, 2, 3. Granite rock from Elba, 3. Native silver from the Descubridora Mine, Chili, ib. Lead from the Laxcy Mines, ib. Magnificent lump of galena from the mines of Shailbatch, near Shrawsbury, ib. Motives by which the Jury have been influenced in awarding the prizes. Honourable Mentions, 3-6, 7, et seq. Great Brit the most favoured country in the world for the devel-Great Britain we most navoured country in the world for the develop-ment of mineral industry, §. Fuel distributed equally throughout the three countries, ib. Remarks un the coal formation of the British empire, ib. Ores of the abundantly distributed in several of the coal basins, ib. Quantity of east iron needleed in Frontant in. Quantity of east iron produced in England In the years 1836, 1840, 1814, 1846, 1848, 1849, 1850, ib. Quantity of coal raised in England in 1850, ib. Propor-Quantity of coal and from exported to the colonies and foreign countries, ib. Native copper discovered on the shores of Laka Superior, ib. This may at some future time lead to competition with the Cornish mines, ib. time lead to competition with the Cornish mines, ib. England divides with Saxony and the Indian Archipe-lago the monopoly of the trade in tin, ib. Annual pro-duction of copper in Cornwall, ib. Lead mines of England by no menus of secondary importance, ib. Saxony and the contract of the property of the con-traction of the quantity of lead raised in England, 6, 2. Further remarks in detail on the objects in the British Department to which Prize Medals and Honograble Mention have been awarded, 7-14. The like in regard Meistino Jaco ben susciled, 7-14. Tor like in regard, 1-14. Tor like in regard 1-14. Tor like in

Miner, G., Sad Co., stand forement among the British ex-hibitors in the Germaic Department, Sag. Remarks on the Committee of the Committee of the Committee of the modelled in imitation of the Committee of the Hard porcelain for chemical purposes, th. Other arti-cles, ib. Other references to the productions of Messrs. Minton, 554, 578, 587, 688, 694, 716, 718, 734.

Mintorn, J. H. B., E., and R., 643, 645, Minutell, Counseller Von, 32, Mirat, D. G., 72,

Mironde Brothers, 199, 20 Mirov Frères, 518.

Missons, Leoring-Glasses, &c., 526.
Missans, Leoring-Glasses, &c., 526.
Missans, Leoring-Glasses, Cullection of the woods of, contributed by the Indian Government, 137.
Misserblasseous Manifactures and Shalk Wares (Class

XXIX.) .- Tabular classification of objects in the Exhition into which this Class is divided, axii. List of Jurors and Associates appointed for this Class, xxx. List of exhibitors in this Class tux whom Council Media have been granted, exiii. The like of those to whom Prize Medais have been awarded, exiii-exv. And of those of whom Honourable Mention is made, exy, exvi. Number of exhibiturs in this Class, 600. Articles com-prised in this Class, subdivided into sections, 603, 604. Principles by which the Jury have been guided in

making their awards, ob

Remarks in detail on the various articles falling within the scope of their inquiries; with list of awards made the scope of their inquirec; wish list of awards made in each section. A Manufacture depending upon chemical principles: L. Yoop and perfusion; a varieties (Very, 153). U. V. Blacking, Cot. C2. v. v. ruffical (Very, 153). U. V. Blacking, Cot. C2. v. v. ruffical (Very, 153). U. V. Blacking, Cot. C2. v. v. ruffical (No. 154). The conference of the control of the con-marking, 632-635. VI. Conference of the con-trol of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the control of the con-trol of the control of the control of the control of the con-trol of the control of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the control of the con-trol of the control of the control of the control of the con-trol of the control of the control of the control of the con-trol of the control of the control of the con-trol of the control of the control of the control of the con-trol of the control of the control of the control of the con-trol of the control of the control of the control of the con-trol of the control of the control of the control of the con-trol of the control of the control of the control of the con-trol of the control of the control of the control of the con-trol of the control of the control of the control of the con-trol of the control of the control of the control of the con-trol of the control of the con-trol of the control of th C. Articles connected with education: I. Educational models, 643, II. Ethnographical models, 648-650, III. Collections of produce, 650-652. D. Manufactures for personal use: I. Dressing-caves, writing-decks, work-boxes, &c., 652-655. II. Parssols and umbrelles, 655-661. III. Washing-steks, 651-666. IV. Fan, 656-655-661. [III. Washing-steks, 651-666. IV. Fan, 656-655-661. V. Pipes and smiler minimizerary, security VI. Snuff-boxes, 674-677. E. Manufactures relating to amusements: I. Manly games, 677. II. Fishingtackie, 677, 678. III. Toys, 678-682. F. Miscellaneous, 682

Misson, E. and L., 602, 655. Mitchell, D. W. (Associate Juror), xxx. Mitchell, J., 503.

Mitchell, Sir T. L., 103. Mitchell, W., 505. Mitchell, Rev. W., 305, 559.

Mitford, B., 602. Mitford, G. M., 76 Mitterd, G. M., 45. Mitterherlich, Professor, 602. Mitterherger, J., 508. Mitterwsky, Count A. Von, 158.

trowsky, Count A. Vos. [25].

To Fanasc, Class X.V., Tabeliar classification of objects in the Exhibition into which this class is objects in the Exhibition into which this class is distributed by the control of the various materials, shut with either cotton, linen, wool, siik, mohair, or uther substances, 374. Division of the articles composing this Class into sections, ib. culty in ascertaining the origin of many uf these fabrics, ib. Varieties made in Yorkshire, Globoester, and Norib. Varieties made in Yarkshire, Gloucester, and Norfolk, &b. Introduction if squansitik with wool detection the revocation of the Edict of Nantes, in 1685, ib. Tabiets or poppling produced in Ireland ever affine 1771, ib. Novelties being constantly introduced, &b. Vatuabile experiments of this character adapted within the last. vears, ib. Introduction of also ca and mohair, ib. Great importance of this class of manufactures, ib. Rapid development of the alpace and mobair manufac-tures, ib. Chief credit of searching for and adopting most of the new and important materials accorded to England, d. State of the manufacture in the several fureign countries, 374, 375. In most descriptions of this manufacture the hand-toom alone is made use of, this manuscrure the hand-toom atone is made use of, 325. Number of exhibitors; objects exhibited and awards, 375-377. General remarks on the shawls of various descriptions, 327 of 459. Objects exhibited and awards made to the exhibitors, 379-382. Moberly and Co., Messrs., 42.

Moberly, W., 47 ANATOMICAL.-Beautiful models of soutomy exhibited, 315. Models can never supply the place ut actual dissection, ib. INDEX,

Models, Architectural.—Notices of the principal architectural models exhibited, 688, 681, 698, 700, 205.—See also Architectural Designs.

Ciril Engineering, &c. MORDANTS .- Nature and use of mordants in the process of dy cing, 87, Mordini, C. G., 162, Moreau, A., 49, 47, 84, Moreau, A., 49, 47, 84, Moreaux, A., 509, Moreaux, A., 509, MODELS OF A MEDALLIC CHARACTER. - Notices thereof, Monelle, Topographical - Notice of, 682. Moeller, C., 685. Moreaux, A., 552, Morel Brothers, 26, 500, 505, Morel, J. V., and Co., 512, 600, 738, Morel, H., 450, 512, 600, 738, Morel, — 495, Moreton and Langley, 508, Moennich, Count H. L., 158. Mocnarch, Count H. Le, 158, Mocring C. 950, Mocser and Kölm, 463, Mocsent.—, 493, Moglin, D., 577, 687, 204, Moglin, Cavallere L., 557, 687, 701, Moglin, Cavallere L., 557, 687, 701, Moglin, Cavallere L., 557, 687, 701, Morewood and Rogers, 9, 10, 505. Morey, C., 201. Morgan, J. (Juror), zavill, xxzil, Morgan, J., and Co., 379, 382 336, 357. Importance of this manufacture, 374. Rapid development the reof, ib. Monain Yanss.—See Yurus. Morgenorth and Krugmann, 376 Morgue and Co., 162. Morimont, J. B., 23. Morin, - (of El Blar), 61, 95, 161. Mohl, —, 405. Mohr, W., 480. Moir, J. (Juror), savill, xxxl. Morin, Captain, 16. Morin, Colonel A. (Juror and Associate), xxvi, xxvii, 163. Moira, Lady, 28. Moldenhauer, Dr., 633. Mole, R., 221 Molins, A., 6 MORINDA BARR .-- I'se thereof in different parts of the East Molins, A., 3 Molinari, A., 3 Indies as a red dye, 22. Permanency and value of the dye, ib. Well worthy the attention of dyers, ib. Specimens eshibited, ib. Molineus, Webb, and Co., 535. Morisot, N. J., 548, Morley, J. and R., 478, 479, Morland, J., and Son, 661. Moll, E. (Jaror), zzvii. Moller, C., 697. Mollet-Warme Brothers, 357. Morkey Works, Plympton. Porcelain and pottery clays from the Morley Works, near Plympton, Devonshire, 11, 12 Mollison, -, 307, Moltcal and Siegler, 25 Mörman-Vaulaere, J., 372. Mornieux, F., 470 Motred, and Stegres, and Morech, J., and Co., 445, 455. Morecheur, F. and A. 22 Morecheur, F. and A. 24 Morecheur, F. and A. 24 Morecheur, F. and A. 25 Morecheur, F. and A. 2 Moro Brothers, 35 Moro Brethers, 3:3.
Moratus, Hunocullorare or Specimens of, 41
Moratus, Hunocullorare or Specimens of, 41
Moratus, E. Specimens of various preparations
phine, 4, 47, 43.
Morrell, H., 527
Morrell, H., 528
Morrell, B., 800
Morrell, M., 800
Morrel Awards have been made, showing the nation, name, and objects rewarded, ixi, ixviii, ixix, ixxiii, ixxvii, laxavi, exia. Monfort, F., 162 MORAIS, E., 445.
MONALAND IAON AND STEEL COMPANY, 12, 13.
MONDAYOF, J. P., 491.
MONDOLHOME PAINTING ON TILES.—New mode of, noticed, Morris, Captain, 59. Morris, Jones, and Co., 17. Morris, R., 394. Morson and Non, 47. Mortimer, T. E., 221. Mortlock, Miss. 65. Murtlock, W. (Juror and Associate), xxx. Montal, C., Montanari, A., 546, 551, 681, 713. Montanari, N., 559. Montanion Brothers, 311, 342. Morton, -Morton, J., 50 Montcharmont, -, 202 Montcharmont, -, 202 Montchelle, Marquis Affred de, 233 Montchior, Sir M. B., 538 Montchior, L. A., 58, Montchro, M. B., 23 Montchior, M. B., 23 Morton, J. and G., 483 Merton, S. and H., 207 Morton and Sons, 475 Mosaics and ingain Works.—Ornamental inlay applied to ARES AND SEARD WORKS.—O'rnamental inlay applied in furniture, 613. Description of the processes, ib. Speci-mens exhibited, and Awards, 550, http://mportance-of-tion-objects-exhibited from Italy and India, 551, Re-marks on the Cavalier Barberi's Remain mosaic, 554, 572. The art of mosaic originally applied only to the Montero, M. B., 25. Montesinos, C. S., 84. Montesiuy and Choner, 356. Montgolifer, —, 428, 432, 433. combination of small dice-shaped stones (tensers) in patterns, 55. Now understood to include all kinds of inlaid and veneered work in whatever material, ib. Monti, Raffaelle, 685, 703. inlaid and veneered work in whatever material, δ_c . Statement of the Jury that they have only to consider those specimens in which narribe and gens are the materials principally made use of, $\frac{562}{162}$. Division of these specimens into three classes:—lat. Florentine mosaic, or work in gens (pietre durs). 2nd. Derbyshire mosaic, instantion of Florentine, but it marble, $\frac{5}{162}$. Russian mosaic, or latid work in male bite. Moatigny, G. do, 20 MONTLLCON (FRANCE) - Glass works established at, 527, MOYTREAL CENTRAL COMMISSION, 140. MONTREAL COMMITTER, PRESIDENT OF, 71. MONTBEAL MINING COMPANY, 16.
MONUMENTS, TOMBS, &c. -- See Sepulciral Monuments. Mooklar and Chiles, 61. Objects exhibited; remarks thereon, and Awarda, 567-571. The art of inlaying manufactured cement, glass, or porcelain, different in all respects from lolsying marble or germs, 577. Remarks on the manufacture of Moon, --, 552 Moon, W., 421 Moon.—Maps and Models of—Model in high relief, 328.

Linearian with a contrivance for showing the phases of the moon, ib. Globes of, ib. Map of the moon, its Enlarged representations of certain portions. Roman and Venetian mosaic; mode of preparation; objects exhibited; names of Exhibitors; Awards &c., 577, 578. Remarks on the manufacture of clay and Enlarged representations of recomb.
 Accuracy and excellent execution, ib. Moore, E. D., 65, Moore, J., 159, Moore and Murphy, 640 orcelala mosaics; Eshibitors, exhibits, and Awards, porrelaia mossios; Estiblitors, exhibits, and Awards, h28. Notices of the principal objects of art in this division, vis.:—1. In stone, 687. 2. In titee, ib. 3. In virtified materials, ib. 4. J. In wood, ib. 5. In metal, ib. High proficiency to which the artists of Romo hard attained in this class of art, 701. Notices of the parl attained in this class of art, 701. Moore, P., and Co., 505. Moore, W. F., 373. Moorson, Miss —, 508. Mooslirugger and Rowe, 574. MONAL PARMENTS. General remarks on the examples of mossic pavement coatsined in the Exhibition; principles on Which this class of design should proceed, 716, 712. Morand and Co., 357, Morant, G. J., 546, 551 Moratilia, F., 515. Mordan, Sampson, and Co., 199, 450. Moseley, Rev. E. (Juror), xsv, xxvi.

Mosely and Sons, 489, Moses, H. E. and M., 52, 54, 64, Moses, S., 160, Moses, Son, and Co., 163 Mosman, -, 418. Mosmer, -, 442. Moss, Darro-Specimens of, 157. Moss, N., 60. Moss, P., 502. Mossman, W., 503. Motala, forges of (Sweden), 35. Motard, A., 623, 622. Motelli, G., 562. Mother-of-Pearl and Articles Therein.—Shells which

yield the manufacturer the flowst kinds of mother-of-penti, List. Fine specimens of those shells in the Indian Collection, ib. Specimens of mother-of-pearl ornaments, buttons, &c., 600.

Mott, W., 520.
Mottet, C., 47, 90.
Mottett, C., 47, 90.
Moulanl, Mille., 470.
Moulank and Machine—For cast-fron pipes, Mot i Mrzis - Specimens of teak from the woods of, 137. Mouitoo, S. C., 525 Mount Cenis, near Autun-Glass-works at, 528.

Mourecau, -, 357. Moureue and Bousquet, 162.

Moussaune-mediaine-Specimens of, 337, 338, 456, 45

MOUSELINE-ME-LAINE—Specimens of, 357, 358, 456, 457, 459, See also Wiven, Span, ye., Fabrica (printing or dyring). Moustipla, Nouri Pacha, 162, Mouster, Le Page, 519, 249, Mousia Mines (Affers). Observations on the products of 29, Grey quarter one form. 2

of, 29. Grey copper ore from, ib. Mouzaia Mining Commission, 29.

Mowland, C. G., exx. Moxen, C., 401, 546, 551. Muchl, Von der, Brothers, Moxon, C., 200, Muchl, Von der, Brothers, 200, Muchl, Von der, Brothers, 200, Much, Wahl, and Co., 500, 712, Mucseier, M. L., 22, Muhr, J., 648, 642, Muir, -, 412, 2011, p. 617,

Muir, --, 412. Muir, P., 677. Muir, W., 199, 202, 204. Muirs, Connell, and Co., 483. Müllenbach and Thewald, 673

Müller, --, Müller, A., 500

Munro, J., jun., 220. Muquardt, -, 465. Murcia, Province of (Spain), 162, 501. Murley, W. J. C., 376. Murphy, J., 505, 510. Muray. --, 401.

Murphy, J., 505, 310.
Murray, S. J. M. D., 42.
Murray, Sir J., M. D., 42.
Murray, W., 18, 501.
Murray, W. R. Sart, 191, 122.
Murlman, A. Von, 32, 535.
Misse Printing.— Illatory of musle printing from 14:0 to

Misse Parisman.—History of musle printing from 18:30 to the present time, all., Speciatron of musle and music of M. Derring, of Paris, S., Difficulties to be nar-mounted before manie pletted by heterprove can equal produced by transfers of enganced musle on lithogra-pication of the control of the control of the produced by transfers of enganced musle on lithogra-pications, Co. Cost of printing by lithograph general 1979, Av., 251, 452, 1981, Av., 251, 452, 1982, Av., 251, 453, 1982, A

lxv, lxvi. The like of those to whom Prize Medals have been awarded, lxvi, lxvii. And of those of whom

Honourable Mention is made, Evil. List of Exhibitors in favour of whom money awards were made, hvill, Report of the Jury of Class XA on musical Instru-ments, 324, et sep. Unfrigned satisfaction and piesments, 324, et seq. Unfeigned satisfaction and plea-sure which they have derived during their inspection, from becoming acquainted with some of the most beautiful specimens of musical instruments of air kinds beautiful specimens of musical instruments of all kinds ever manufactured, 224. Report of the Jury on time organs exhibited, 324-325. On pianofortes, 326:323. On harps, 320. On how instruments, 36. On brass instrumence, 330, 331. The wind instruments (wood and metal), 332. On harmoniums, &c., 36. On instru-and metal), 332. On harmoniums, &c., 36. On instruments of percussion, it. On automatic instruments, 332, 333. Miscellaneous articles in connexion with numberal instruments, 332. Awards, 333-335. See also Brass Instruments. Stringed Instruments. Wind Instruments. And likewise under the name of each Instrument.

mente. And thewire under the name of ench Lastrament.

MUSLASS.—Specimens from Ginagon, Switzerland, and
France exhibited, 1342. Defails thereof, 348, 322.

Specimens of printed muslins, 422. Specimens of
muslin wisdow curtains, 450, 411. Remas keen worked
and ecoloured mostlins inteoled for window curtains; rinciples to be observed in their oronneutation, Defective designs in the Swiss muslins, ib. The English ma oufactures in better taste, ib,

Muso, on Muzo Misus (New Gramada).—Specimens of fina

emeralds from, 13, 33, Muspratt, J., 41, 605, Mussini, Professor C., 48,

Mussini, Professor C., 48, Musson, R. and J., 472, Mustapha Aga Hadji, 366, Mustapha - Exhibited abundantly from France, 62

MUSTARD SELD-Samples of, from the Cape of Good Hope, Egypt, India, Portugal, and Spain, & Myers, U., 557, 687, 693, 118. Myers and Son, 165. Myerscough, Steel, and Co., 348.

Marnana-A preparation for medical use, 47.

Nacks and Gehrenbeck, 475 NACHE. See Mother-of-pearl. Nacit. See Money-of pears. Naci, Matthias, 348. Nacf and Schwartzenbach, 366.

Naclijens, G., 471. Nacuny, II., 449. Nail-maxing Machines,—Machines for making, from France, 201. - Importance of this extensive branch of manufacture

in Belgium, 501, Quantity annually exported, ib. Prico of iron used for nail-rods lower in Belgium than in or iron used for nail-roos lower in Selgrum than in England, & Samples of hand-made nails from Belgium excellent, ib. Excellent quality of the hand-made noils from Austria, b. Peculiar twist to the shank which increases its truncity, ib. Reference to the machineincreases its remerry, io. Hererence to use macrono-made sails of the United States, ib. Great importance of the trade, ib. Specimens exhibited and Awards, 505.

Natior, J., 95. Nairo, E., Nakhitchevan, Town of (Russia), 472.

Nanni, -, 563 Nanucci. Nanucci, -, 453. Napier, R. (Juror), xxvi.

Napier and Son, 198, 204, 218.

Napier and Son, 198, 204, 218.

Napierrita—Obtained by the distillation of tar, 32. Als

from cannel coal, ib. Purposes to which applied, 42, 45

Napierritalise—Obtained from coal-tar; samples thereof

Naturitation—Obtained from out-tar; samples thereof, \$\frac{15}{25}\fr

of clay-pipes, 671, 673.

Nast, II. 1., 242.

NataL—Specimen of red ebony from, 140. Promising

specimens of cotton, 25

specimens of cotton, as.
Natchet, — 28
Natchet, — 28
Natrons—Obtained from lakes in Lower Egypt, 22
Natrons—Obtained from lakes in Lower Egypt, 24
Natror, Rajah of, 254.
Natrorical bermuniaris—Azimuth compass, from the Compass Department of the Admiralty, 225. Excellence of this instrument, 26. Marine compass of Mr. Dent undisturbed by the motion of the ship or firing of the

guns, 218. Description of this and other instruments exhibited by Mr. Dent, ib. Instrument for registering the magnetic ecuese of a vessel as actually steered, ib Compass in spirits, ib. Such instruments found very valuable in heavy seas, ib. This instrument recom-mended by its charpness, ib. Compass of new and ingenious invention from the United States, ib. Instrumeets for measuring the rate of a vessel through the water, ib. Instruments for measuring the depth of the sea, 219. Exhibitors of mantical instruments few, and sea, 219. Exhibitors of nantical instruments icw, sau but little novelty displayed, with the exception of those exhibited by Eriesson and St. John of the United States, 232. Observations on the nautical astrono mical instruments exhibited, ib. Various other nau-

tical instruments, 232, 233.

NAVAL ASCHITECTURE, MILITARY ENGINEERING, ORD-NAVCE, ARMOTE AND ACCOUTREMENTS (CLASS VIII.).— Tabular elassification of objects in this Class, ix, x. Tabular elassification of objects in fils times, it, a List of Jurors and Associated appointed for this Class, xxvii. List of exhibitors to whom Council Medala bave been swarded, lix. The like of those to whom Prize Medala have been awarded, lix-chi. And of those of whom Honourable Mentloin is made, it. List of exhibitors to whom Money Awards were made, is, Very little improvement effected in the Navy until after the general pacification in 1814, 202. Improved method of naval construction brought forward by Sir R. Seppings, ib. Introduction of semi-eircular or ellip-II. Soppings, 66. Introduction in semi-sercine or curp telephangon atterns, 16. Entergrament of the upper declaration of the production of the production of the Additional solidity introduced in the construction, greater durability obtained, 16. Advantage of caps and harmorrs being adapted to the great guns, 46. Intro-duction of complete latteries of 65-pounders, 16. Com-bination of large masts rendered more economical, easy, and solid, 66. Improvements introduced by Sir Symonds, &. Series of experiments and researches undertaken by Mr. J. Scott Russell to ascertain the undertaken hy Mr. J. Scott Hassell to ascertain the form of least resistance at a bight velocity, A. Theory of stability examined by the Rev. II. Moseley, 210. Nowage of ships much lamproval of late years, &. Substitution of iron tanks for water casks at the sug-gestion of General Bentham, &. Modes invented for preserving meat, &. Preservation of panjowsker form lamidity, &. Great improvement in the Francisco. Series of improvements of the highest importance the anter of ships, ib. Introduction of chain cables ab. Series of improvements of the highest unjourseer to the afferty of ships, dt. Introduction of chain eables into the Nary by Sir S. Brown, ab. Means devised by M. Barboin, Captaio in the French service, by which the chain cable can be worked on the capstan, do. Remarkable improvements recently made in anchora; General remarks on Sir W. S. Hatris's lightningconductor, ib. Important advantages resulting from Its introduction into the Navy, ib. Substitution of iron for wood in ship-building, ib. Advantages of iron ships over wooden vessels, ib. Iron vessels not, however, over wooden vessels, ib. Iron vessels not, however, suited for war purposes, ib. Economy resulting from the invention of the block machinery by the late 8ir J. L. Branel, b. Improvements in the construction of large blocks, ib. Rope making likewise improved, 211. loge alocks, st. Rope-making alsewise improved, all-operations of laying the ropes by mechanical power owing to British ingenuity, st. Codage exhibited by the Commercial Marise of France superior to the British, dt. Improved texture of sail-cloths, dt. Large merciant builders, dt. Opinion that some recommendation those ships about the provided the control of the those ships about the provided the control of the those ships about the prevent in maker to inflect the latest the control of the contr the present state of inval architecture in Great Britain, Principal dimensions and calculated elements of a complete series of sailing ships in the Navy from a first-rate man-of-war to a small brig. 211, 212. Increased width, or breadth of beam, of ships, introduced into whith, or breadth of beam, of ships, introduced into the Navy within the last twenty years, 211. Breath of beam, when carried to excess, contributes to make manned and confidence of the contribute of the contribute and columbated elements of the experimental frigates of the Royal Navy, 211, 215. Experimenta and with these vessels to text their salling qualities and results, 211. Principal disnatutions and calculated elements of the experimental Infige of the Royal Navy, 211-213. General observations on paddle-wheel steam ships, 211-215. Application of the screw propeller to ships of war of recent date, 215. Table of the prin-elps1 dimensions and calculated elements of ships of war fitted with screw propellers, 216. Enumeration of awards for naval purposes, and objects connected with the naval service, 215-219.

```
Naylor, J., 506.
Naylor, J. W., 491.
Naylor, Vickers, and Co., 10.
Naylor, W., 48, 537.
Naze and Co., 689, 702
Neal and Totaks, 522.
Needham, H., 221.
NEEDLES AND PINS—Specimens of, 503, 505, 506, 500.
Needliewomen, Society of, 482
NEEDLEWORS - Specimens of various kinds of, 472.
Neft, J. J., 348.
Neft, M. C., &
```

Negretti and Zamhra, 299, 300, 301, Neic, F. W., 472 Neil, R., 421, 455 Nells, J., 161 Nelson and Butters, 502.

Neison, T., jun., 198. Neison, T. and J., 36 Nencini, Professor L., 686, 201.
Neukomm, Chevalier (Juror and Associate), xxvil, xxix.
NETAL (EAST INDEX) - Collection of the woods of, 123,

Nepal, H.H. the Maharajah of, 73, 75, 89, 102. Nernudeau, J. A., 426, 424. Neshitt

Nesbitt, -, 358. Netcher, A. D. Van der Gon, 95

Netuent, A. D. Van der Gon, 22.

Netuentanus—Samples of pearl barisy, groats, flunr, &c.,

from, 55. Samples of oil cake, 56. Chocolates, 59.

Samples of starch derived from different sources, 78. Samples of sarca derived from universal sources, 18.
Samples of drawn horse-hair, 160. Samples of wax, 163. Specimen of animal charcost, 166. Levelling apparatus, 254. Balances, 250. Powerful magneta, 250. Dynamostater, intended for use as a dynamo-Dynamorater, interested to the sea of symmo-meter for ploughs, 394, 325. San-dial, 328. Specimens of corlage and damasks, 373. Few specimens of print-lng, 495. Examples of bookbinding, 425. Statistics of the paper manufacture of the Netherlands, 444. of the paper manufacture of the Netherlands, 444. Collection of stationery, printing, fee, 452, 454. Specimens of earpets, 455. Bronze stature, bells, zinc maning, fee, 505, 265. Articles of glass, 353. Japanned Serren, 521. Specimens of India-rubber boots, 526. Nexeler, A. D. Van der, 102. Next, 102. Next, 103. Specimens of Section 103. Next, 103. Nexeler, A. D. Van der, 102. Next, 103. Specimens of Section 103. Next, 103. Nexeler, A. D. Van der, 102. Next, 103. Next, 103. Nexeler, A. D. Van der, 102.

Neuber, F., 478 Neuberger, -, 502. Neubruger and Blösch, 35. Neumann, T. L., 529, 449. Neumann, T. L., 529, 449. Neviant and Pficiderer, 37. Nevill, A., and Co., 478. Newall, R. S., 506. Newberry, F., 315, Newberry, J. and R., 415

Newbould and Baildon, 491.

New Barsswick.— Geological structure and mineral pr * Barkswick.—Geological structure and mineral productions identical with Canada, Ig. Recent discovery of amphalte and lignite on the shores of the Peticodise, id. Resources of New Branswick with regard to the manufacture of iron and sizel, ib. Fine specimens of myrile or berry wax from New Brunswick, 32. Small

collection of woods, 140. Sample of eaudies made from vegetable wax, 626.

Newsray (Branes)—Collection of soils from the neigh-NYMERSY (LERKS)—Collection of soils from the neighbourhood of, 13.
Newcastle (New South Wales)—Preserving Company, 53.
Newcastle ARIMAN STATION—Model of the roof of, 228.
Newcastle-on-Tyne Coal Trade Committee, 10.
New Colling, Ourono—Painted windows in the chapel

of, referred to, 531 ewcomb and Jones, NEW GRANADA.—Emeralds, in the veinstone, from the Muso (Muzo) Mine, 13, 33.

Newington, Dr. S., 242. New Jensey - Iron wire from, regularity and tennity

thereof, 18.
New Jersey Exploring and Mining Company, 18.

Newman, -, 557. Newman, J., 262, 300, 301, 303. Newman, J. W. (Juror), xxviii.

Newnlam, T. G., 208. New Onleans Moss.—Bale of New Orleans moss prepared as a substitute for horse hair, 103.

NEW QUAY QUARAITE (Conwatt). Porphyry, described

as Elvan stone from, 13.

New South Wales—Samples of olive oil from, 83. Sam. Nördlinger, Professor, 153.
ples of cotton, 25. Collection of specimens of woods, Nordmann, 6, 1s., 128.
147, 148. Specimens of tallow, 163. Collection of Nostrous Islandon-Sample of coffee, 58. spermaceti and spermaceti candles, 227. Contribution of a polished-wood desk, 653 Newton, C. T. (Juror), xxxl. Newton, U. T. (Juror), xxxl. Newton, Jones, and Willis, 475, 728.

Newton, L. V. Van, 411. Newton and Son, 307. New York Agricultural Society, 52

New 1 ork Agricultural Society, 52.
New York for Bridge Company, 2025.
New Zekanon.—Ores exhibiting the result of geological exploration in New Zealand, 15. Cereals from New Zealand, all of good character, 52. Sample of maire, 53. The "Maori flort" from New Zealand deserving of notice, 55. Beautiful sample of resio, 16. Specimens of himsu, a bark used for dyeing black, 20. Alselieben nr orchilla weed, ab. Good specimens of tan ning barks, 23. Samples of flax prepared from the leaves of the Phornium tenar, 101, 103. Interesting specimens showing the manufacture of New Zealand specifical substitution of management of a grown la, New Zealsord, 120, 142. Specimen of scap, 610. Specimen of preserved innects, 625. Native dressing-case, 625. See also Coul. Copper Ore. Lignite. Linearium. Ore. Pranice Store. Sulphar.

NICARAGUA WOOD. See Pench-road. Nichol, G. G., 23.

Nicholas' Sr., Chuccu, <u>Hamurus—Model</u> of, 688, 626.

Nicholay, J. A. (Juror), xxviii, xxxii.

Nicholay and Non, 324.

Nicholls, J., 13. Nicholls, M., 32

Nicholson, W., 421. Nicholson, W. N., 238, 242, 506. Nickels.—Speciment of ores of uranium, nickel, cobalt, and EXEL—Specimens of ores of urminum, sickel, cobult, and vansilium, from Prague, 21. Ores of nicks and cobalt from the Mine of Zemberg, in Humpary, ib. Products thom of cobalt, from Pesth, Humpary, ib. Ores of cobalt and nickel from Boiza, in Humpary, ib. Me-cullie nickel and cobaltiferous products, ib. Collection illustrative of the preparation of nickel, ib. Prepara-tion of nickel at the lashelmhitte Sameling Works,

near Dillenburg, 33 Nichel, C., and Co., 5:6. Nickels, C., and Co., 5:6. Nickels and Sneath, 5:66.

Nicol and Allen, 546. Nicol, G. G., 89. Nicolsa, P., 201. Nicolla, Miss, 600.

Niedree, J. E., 425, 453, 741. Niezzao-Woan. - Notices of objects of art in, 637. Charac-teristics of this kind of work explained, 635. The art

long neglected, revived in the present day with great success by Wagner, ib, Nietzehmann and Vaccani, 306

Nietzehmann and Vaccana, 220.

Nieuwerkerke, Conte, 700.

Nigz., 9 688, 701.

Nigz., 9 688, 701.

Nightingark, W. and C., 160.

Nightingark, W. and C., 160.

Night-Tourinsk Imperial Establishment (Russia), 33.

Night-Taglisk Copper (Fround (Siberla).—This the most important locality at present known for the finer kinds of Siberian malachite, 162.

Nillus, —, jun., 172. Nineven.—Specimens of glass manufacture from, 521, 523.

NINEY SIL.—Specimens of glass manufacture from, 2011, 2023. Missen, Hillary, and Parker, 38. Missen, 2, 2002, 2025. Missen, 2, 2002, 2025. Missen, 2, 2004, 2025. Missen, 2, 2004, Nitrate of John Nitrates, of Silver, Nitrate of John, Nitrate of Silver, Nitrate

Nrrauc Acin.— Price there Nixey, W. G., 48, 569. Nobsek, C. (Jure), xxviii. Nobert, F. A., 268. Nobli, C., 568. Noc, O., 568. Noc, O., 568. Noc, O., 569. Nogariele, J. L., 169. Nogariele, J. L., 169. Nogariele, J. L., 169. Nogariele, D. L., 169.

Noordendorp, P. H., 403, 406. Norchi, --, 466.

Nordlinger, Professor, 123.
Norlingan, G. 1., 128.
Norlingan, G. 1., 128.
Norlingan, G. 1., 128.
Supplied the Conffect 22. Box of Cayenge pepper, of very superior quality, 22. Arrowood, id. Remarkable colouring materials and the Conference of a colouring materials. tree growing in Norfolk Island, 30.

Norman, -, 403. Norman, 8, W., 480. Northcote, Sir Stafford, xxv

Northern Circans (East Indies).—Collection of the woods of, contributed by the Indian Government, 192.

Northern Lights, Commissioners of, 530.

Northumberland, Documents on the geology of the coal districts of Northumberland, 10, 11.—See also Lead Ore.

Northumberland, His Grace the Duke of, 217 North Wayne Scythe Company (United States), 483.
Nosway—Collection of wood carvings from, 602.—See also Secretes and Norway.

Nott and Gamble, 288 Nottbeck, C. (Jaror), axviil.

Nottingham.—See Love.

Nouvelle Montagne Zino Mining Company (Belgium), 23.

—See also Zinc.

Nova Scotta.-Geological structure of the colony illus-A Norria.—Geological structure of the colony illustrated, 16. Barytes, manpanes, coal, from and enperore, gpsum, and basaltic minerals found there, 16. Lz. Samples of good red whest, 52. Small collection of woods, 140. Specimens of furs and skins, 256. Yellow soap from Halifax, 610. Tallow monid candles, 618. Contribution of stuffed birds, 546. Specimen of a simple

Indian fan, 658 Nova Scotia Central Committee, 16, 384, 385.

Nowill, J., and Sons, 489.

Nober Bey (Juror), xxlx. Nulh, —, Van Der, <u>425.</u> Numberino, Paoiso, &c., Machines.— Seo *Paging Machines*

Nunn, --, 2.6.
Nunns, R., and Clark, 33L.
Nucreasen Foreyrats—Model of the, 208, 609, 608, 705.
Nucreasen Status — Bearipplon thereof, 52E.
Nucreasen Status — Bearipplon thereof, 52E.
Louring matter preclyitated, 3b.
Nya E, 345, 502.
Nya E, 345, 502.
Nya E, 345, 502.

Oak Bana.—Superiority thereof for tanning purposes, 21 Samples of English, Colonial and Foreign bark, 92, 93. OAR VENEERS-Handsome specimens of, 12

Oakley, E., II. Oastler and Palmer, 322.

Oastler and Palmer, 2022.
Oartea, J. P., 321, Sampler of .53.
OATEAL FLORE... Sampler of .53.
OATEAL FLORE... Sampler of .53.
OATEAL FLORE... Sampler of .53.
Samples of cate from America, .53.
Samples of cate from America, .53.
Samples of Polish oats from Canada, of admirable quality, .65.
Samples of Sampler of fair quality, .65.
Samples of oats from English seed, from Russia, .53.
Samples of oats from English seed, from Russia, .63.

Obbard, R. (Jnror), xxx. Oberconz, H. 311. BIECT GLASSES FOR TELESCOPES,-See Telescopes.

Obry, Bernard, and Co., 428, 432, 454. Ockel, -, 158.

Other, Bernad, and Co., 200, 202, 402, 624.

(Ceck.)— Eas. A. (2.5), 63.

(Ceck.)— Simulation of the property of the Composition of the Com

Orden, -, 20

Oger, J. L. M., 614

Ogilvie, Captain, 89, 90, 122. Ogleby, C., and Co., 621, 624, 626, 623. Onto Board of Austrustrat, 55.

Ohle, E. F., 31.

Ohle Caser—Samples of, from Great Britain, 53, 56. From Canada, 56. From Belgium, 56. From Hamburg, 56. From Austria, 56. From the Netherlands, 56. From Luber, 56. From Expt., 56. From Exp

ornsley's oil-cake bruisers, 238. Prixes awarded, 234,212

Ott Colorns, Paintino in. See Printing in Oil Colours

One LEATURE. See Leather. Olis (Varjous) — Apparatus for the distillation of oil from schist, by M. Machly, 22. Valuable oil for lubricating purposes procured by the distillation of cannel coal, 43. Specimens of oil for watches and fine machinery, 44. Grent importance of oil, 72. Number of purposes to which applied in arts and manufactures, ib. Divided into two classes, the fat or fixed oils, ib.; and the essential or volatile oils, ib. The first of these classes is again divided into fluid and solid oils, ib. Quality essential or vosacie vosacie il sagain divided into fuild and solid oils, ib. Quattry depends in part on the nature and goodness of the seed or nut from which expressed, ib. Quality also influenced by the process employed in extraction, ib. Many descriptions of oil admirably suited for various pursuant little used on account of price, ib. These poses, but little used on account of price, ib. The Price of tailow to some extent regulated by that of palm and cocoa-aut oil, ib. Use of oil for the lubrication of fine machinery, ib.; also in wool-spinning operations, \(\delta\). Good specimens of new oils always of comisionable practical interest, \(\delta\). Of the six prin-eipal vegetable oils, namely, palm, occoa-aux, castor, oilve, inseed, and rane, the four first are imported in the state of oil only, \(\delta\), it be two last chiefly as seed, \(\delta\). Quantities of these oils, also whale and spermacelt, imported lato Great British in 1850, \(\delta\), Quantity of rations, ib. Good specimens of new oils always of tallow imported, ib. Valuable series of specimens of cotton seed, and the oil and cake obtained from it, ecution seed, and the oil and cake obtained from it, after the expression of the oil, $\dot{\phi}$. Oll of conton-seed made in small quantities for a contiderable number of years, $\dot{\phi}$. Good samples of rupe, oilev, and almond oil, \dot{m} . Baye oil better suited for the lubrication of machinery than any other oil, $\dot{\phi}$. English grown rape yields oil of superior quality to any foreign seed, Various descriptions of oils exhibited; Priac Molais and Ronourable Mentions awarded, 80, et sep. Valuable spries of ells included in the collection of Liverpool imports, 80. General remarks on the several descrip-tions of oil and vegetable butter from India, 80-82. Shouldes of eighteen descriptions of oil from Ceylon, 82. Fine speciment of myrtle or berry was from the Cape of Good Hope and New Branswick, 82, 83. Excellent material for the manufacture of caudies, 83. Interesting collection of oils and oil-seeds from Western Africa, ib. Good samples of cocos-nut oil from the Mauritius, ib. Specimens of laurel and crab or carapa oil from British Guiana, ib. Crab and coco-nut nil from Trinidad, ib. Samples of obve oil from South Australia and New South Wafes, ib. Specimens of nils from America, ib.

Sories of samples of oils from Austria, ib. Samples of good vegetable oils in the Belgian collection, ib. Vegerous in the Bergan collection, the Vegetable was from China, the Physical character thereof, the Series of Egyptism oils worthy of Special Mention, the Collection of samples of oil from France, 83, 84; also from Algeria, 24. Samples of uils from the States also from Algeria, 24. Samples of uils from the State of the Zollverein, ib. Fair samples of uil from Holland Large number and excellent specimens of oils in the Portuguese collections, ib. Namples of the empythe Portuguese cottections, so. Nampice or me empy-reumatic volatile oil, obtained by the destructive dis-tillection of hirch bark, from Russia, sb. Employment of this substance in the preparation of Russia leather, sb. Specimens of oils from Sardinia, ib. Fine somples of oil in the Spanish collections, sb. Simples of common fixed olls and volatile olls used in perfumery from Tunis, ib. Good specimens of linseed and rape oil from Tunis, ib. Good specimens of linseed and rape out from Sweden, ib. Numerous and interesting series of oils included in the Turkish collections, 81, 85, Good samples of olive oil, from Tucany, 85. Class of sub-stances under this head likely to be of great com-mercial linportance, 163. Properties differing from the finest vegetable oils, ib. Some of them can be the meet vaccasie ous, is, some of them can be supplied in large quantities and at a molerate cost, ib. Specimens exhibited, names of exhibitors, and to. opecument exhibited, names of exhibitors, and awards, ib. See also Cod-liver Oil. Lavender, Oil of. Ling-lever Oil. Shote-liver Oil.

OIL SEEDS AND CAKES. Remarks on the collection of oil seeds and their cakes, 55, 56.

OLDENBURG CASTLE-Model of, 700. Oldfield and Co., 263. OLIVE-OIL.—See Oils (various)

Olaves and Olave-Oit. Observations on the exhibition of olives and olive-oit, br. Magnificent olives from Spain, ib. Those from Portugal elso admirable, ib.

Olivier, -, 408. Ollerdissen, P., 92.

Olmo, J., 57.
OLONETZ, IMPRODAL FRUNDSHES FOR CANNON, 33.

OLOSTE, HEFSELL FRUNDERS FIRE CASNOS, AM.

BORIOS, E., 450.

Onalow, A. P., 63, 73, 192, 192.

Onalow, A. P., 63, 73, 192, 192.

Open-Arriaghes manufactured from onyx and agate from Obsertein, in Prusils. 217.

Openholf and Hartung, 333.

OPERA-GLASSES. - Observations on the opera-glasses exhihibited, 277

Origez and Chazelle, 482, Orth. Specimen of French opium, 43. Orth. -Specimen of French opium, 43. hited by Mr. Chance, stating the dimensions of the disc, its weight, its state as to tension, &c., 270. Remarks on the other optical-glasses and diese exhibited, 270, 271. Great difficulties attendant upon the manufacture 271. Great difficulties attendant upon the manufacture of optical-glass; in what they consist, 522. Attention which has been given to the subject by John Dollond; prizes in vain offered by the Academy of Sciences at Ports, 522. Solution of the difficulty, by Guinand, do. Commission, compused of Messra. Herschel, Farnday, Commission, composed of Messirs. Herecoet, Paraday, Dollond, and Roget, Instructed to pursue the inquiry as to the manufacture of flint-glass, \$\delta\$. Death of M. Guisand; his invention not divulged; works carried on by his widow and sons, \$\delta\$. Experiments conducted by M. Bontenps, \$i\delta\$. Success of Messirs. Chance in producing discs of large dimensions, \$i\delta\$. Mode of presuments used of large universions, so. Mode of detecting defects by means of polarization of light, dis-covered by Mr. Ross, 520. Lighthouse lesses, &c., 529, 521. Council Medal awarded for optical-glass, Honourable Mention, 537.

The Memorable Westlen All, 2000 and opposing the Control New York of the College of English glass, the Notice pieces of space-rayle controlled to the College of English glass, the Notice pieces of space-rayle controlled to the College of English glass, the Notice pieces of space-rayle controlled to the Dayset, the Notice pieces of the College of English glass, the College of the College of the College of English glass, the College of the

from, 88. Various specimens exhibited, 88, 20. Onerx.—Prepared from lichens, 50. ORDAIN STONE, -Pinnacle made of Ordain stone from Bel-

gium, 538.
Ohdsaner. - Effectiveness of the artillery of Great Britain. NANCE.—Effectiveness of the artillery of Great Britain, 219. Some of the rare qualities due to the overtions of General Congreve, &. Employment of rockets, in the army, as projectiles due also to General Congreve, &. Difficulties in the use of, at first; these have been over-come, &. Attempts made by the French, Germans, Prussiana, &c., to use this weapon in warfare, ib. Canno and their carriages, 219, 230. Small arms, 220-222. See also Cuano

ORDNANCE DEPARTMENT OF GREAT BRITAIN, 222 Orduna, V., 300

Ones (various).-Ores obtained from the erystalline rocks of the Island of Ceylon, 15. Ores exhibited, the result of explorations in New Zealand, 5. The coal of Waikato, and the copper mines of Kawaii, already the object of (Algiers), 2. Sandry ores from the provinces of Algiers and Constantine, ib.

Organ, J., 13, 565.
Omoans.—Explanations of the various improvements illustrated in the organs exhibited by Measrs. Hill and Son, by Mr. H. Willis, and by M. M. Ducroquet, of Paris, 324, 325. Remarks on the various organs exhibited, 324, 325. Remarks on the various organs exhibited, 324-326. Explonation of Gray and Davidson's inge-nious and simple contrivance for combining the great organ with the swell organ, 325. Beautiful specimen

of a chamber organ from Florence, 326. Description of Schulze and Sons' organ possessing two manuals, ib. Senall choir organ, by libdlich; peculiarity of the stops, ib. Enharmonic organ invented by Leut-Colonet T. F. Thompson, M.P.; built by Robson, ib. Sea also Barrel Organs.

ORGANIZAR— Specimens of, 356, 364.

ORISEA (East Indies).—Collection of the woods of, contributed by the indian Government, 127.

ORLEANS CLOTH - Specimens of exhibited, 358. Specimens of dyeing in Orleans cloth, 450.
ORNAMENTAL WOODS. - See Timber, &c.

ORNAMENTS FOR INTERIOR DECORATIONS. - See Carton-Pierre. Papier-Maché.

ORNAMENTAL DESIGN,—General remarks on ernament and AMENYAL DESMIN.—I-teneral remarks on ornament and ornamental design, 70.5, # ag., Liability of the public taste to vidention, <u>ids.</u> Distinction between design and ornament, id. Remaissance style, <u>70.5</u>, Leuis Quatorze style, <u>id</u>. Ancient styles of ornament; necessity for discrimination in the adoption thereof, <u>id</u>. Two classes of ornamentists: the traditional who enperatitional reverses the remains of past acrs, and those who pay modeference to anthority, it. Governing principles in modern transmitties; Incongruities and incongratible modern transmitties; Incongruities and incongratible motivation of the control of the control of the control motivation of the control of the control of the motivation of the control of the control of the diffused in Kingdan, it. Circumstances to be considered in comparing the progress of that country in address in the control of the control of the control of the diffused in Kingdan, it. Circumstances to be considered, in comparing the progress of the country in control of the control of the control of the control of the design, III. Arristic design as developed in the Exhibi-tion, in the control of the reverence the remains of past ages, and those who pay

Consideration of the subject of ornamental design classi fied under various heads, vis.:—Decoration of build-ings, 712-720. Domestic and other furniture, 720-731. Domestic utessiis and objects of personal use, 731-741. Garment fabrics, 741-748,

Extension of education for art-workmen expedient; struction at Government schools of design, 748, 749. French public establishments—Paris, Lyons, &c., 749. ORRERIES, PLANETABLENS, &c.—The time, ingenuity, and expense devoted to orreries, plauetariums, and astron mical machines wasted, 30c, 307. Remarks on the correries calibited, 307. Observations on the various planetariums exhibited, ib.

Orsettl, C. T., S)

Orsi and Armani, 57 Orler, F., and Co., 532, 536, 735.

Osmond, G., 162.
Osnanuras. Goueral excellence of the specimens exhi-

bited, 371, 372
Ostin, Baron, E. M. D' (Juror), xxvii.
Osuigo Stanch Factory (United States), 55, 78.

Otte, C. J., 21. Ottman, -, 425. Ottman, -

Otto, -, 104. Oudard, L., Son, and Boucherot, 637, 641.

Omiard, L., Son, and Boucherot, 537, 541.
Oudin and Co., 55.
Oudkovsky, M., 53.
Outscarr, The Company or (France), 548.
Outhwaite, T. P., 225, 226.
Outridge, J., 75, 140, 526.
Overman and Delevigne, 475.

Owen, C., 48. Owen, H., 278, 401. Owen, J., 81.

Corne, J. Corne C. Outro ...

Outrain and C. a. 33.

Outrain and C.

Oxland, R., 9, 48. Oxley, T., 28. Oyler and Anderson, 61. Oyler, S., 45.

Pacini, D., St. Pation and Ford, 505. Paging Machines.—Elaborate machine which prints, nam-

bers, cuts, and packs railway tickets, 138. Smaller

machines for the same purpose, 128. Specimens of paging machines for ledgers, cheque books, &c., ib. Machines for ruling paper, ib. Improved mode of numbering the leaves of account books by means thereof, Paguerre.

Paguerre, —, 405. Paguy, —, 470. Pahud, H. (Juror), xxlx. Paillard, E., 506. Paillard, V., 515. Paillard Brothers, 391.

Paillette, P., 600

Paine, J. M., 11, 55.
Paine, J. M., 11, 55.
Painten Chorus ron Funnitum, &c.—General remarks on

PAINTED CLOTUS FOR FURNITY OF THE STATE OF T 533. Rules to be observed by the artist in this department of the Artis effective styles of composition for such works, &. The works of the first half of the sixth works, &. The works of the first half of the sixth works, and the sixth of
glass, &c., 686, 687.
Connexion between Gothle architecture and stained glass, 114. Principles on which the production and applica-tion of painted glass proceeded in the carly ages, 714.

115. Different views of the art which have spring up

215. Different views of the art which have sprung up with its rival; application of pletorial art to glass pictures, 215. Notices of the principal works in the respective styles in the Exhibition, ib. Pault in modern painted glass of having a prevailing tint or hue; this often the case with Ernnh glass, 713, 716. Doubst whether the subject of leading has had the attention it deserved. 216.

deserves, 711 PAINTER GLASS, DESIGNS FOR .- Notice of, 659, 702.

PAUPTER GAISS, DERIGHT FOR. "Molfe of 609, 202.

PAUTER GAISS, DERIGHT FOR STATE CONTROL AND ADDRESS OF CONTROL ADDRESS OF hllahments, 623. Remarks on the works of art contri-buted to this department: 1st. Eccleismitted or archi-tectonic style, 6b. 2nd. Pictorial style, 3b. Remarks on a work furflas section in the Pavarian Department, 522. Of works in the Austrian Department, 202. Of works in the Austrian Department, 323. PANTMO of TLEN.—New process of monochrome painting on the described, 623.

PAINT, MINFAL.—Compounded to dry under water and to remain attached to metals exposed to heat, 43. Misseral substances used in the manufacture of paints, 44. PALAN-COTTAIL (2st Indies.)—Collection of the woods of, Packer of the metals of the metals of the median of th

Palistor, V., 552.
Palist A., 615.
Palist Ware—Remarks on examples of, 734. Palling, W., No.

PARM Leavise—Great use thereof to the inhabitants of the tropics, 601. No part of the family of palms seems to be useless; new use developed at every stage of their growth, id. Samples of manufactures from the fibres of the palm; prizes awarded, ib. PALM OIL.—See Oil.

PALE SCHARS.—Exhibited chiefly as curiosities, 63.

Palmenist, —, 28.
Palmenist, —, 28.
Palmenist, —, 28.
Palmer, S., 491.
Panciaticchi, Marquis, 363.
Panciaticchi, Marquis, 363.

PANEICONOGRAPHY. - Method of reproducing, by means of

the typographic press, any lithographic or other draw-ing, 407. Description of the process, ib. PANEL DECORATIONS—Handsome specimens of, 546. PANICUM. Samples of different species of panicum from

India, 51, Panizzi, A. (Juror), xxxi. Panna and Alexis, 158, Panna and Hanschild, 318,

ANTALOON STEFFS. Specimens of these cloths, 375, 376. Paoletti, F., 55 Paolides, B., 164

Papavoine and Chatel, 196, 122.

Papavoine and Charlet, Iron and Pape, J. II., 331.

Paper AND PAPER MAKING.—The introduction of paper dates from the arrival of the Araba in Spain and Sicily, in this part of Europe, and from the time of the Cru-phian and Company of the Crupher Compan saders as regards the southern portion, 426. Originally invented in China, ib. History of the origin and pro-gress of the manufacture, 426, 427. Establishment of a paper-mill at Nuresaberg, in Germany, in 13:0, 426. Introduction of paper-making into France dates from Introduction of paper-making into France dates from the fourteenth century, \$22. In England the manu-facture was introduced much later, and was imported from France, \$\delta\$. Improvements made in paper-making by Baskerville in [750, by wove mends, \$\delta\$. High reputation maintained by Holland for its herd-sized hand-made laid writing-papers, \$\delta\$. Invention of mahand-made laid writing-papers, &b. Invention of ma-chines for making continuous paper, &b. Subequent English improvements, &b. Mode of drying, finishing, and cutting paper, invented by Mr. Crompton, &b. Rapid manufacture of fine writing-paper, 222. Strong and firm paper required for newspapers, &b. Use of gelatine for sizing paper, &b. Insertian of the water mark and maker's name in continuous paper, so as to resemble hand-made paper, ib. Improved mode of finishing paper by measanf cast-fron rollers, the inven-tion of Mr. Barratt, ib. Patent for inserting the watermark, &c., into continuous paper, obtained by M. Jequier in [831, ib. Peculiar construction of strainers Invented by Mr. Bottonn in 1830, ib. Must countries have adopted these strainers, ib. Superiority of Englishmade writing-paper, ib. Thinnest post wriding-papers best manufactured on the continent, ib. Considerable best manufærfurrd on the continent, & Considerable quantify of this lin paper inspired in Singland, not-quantify of this thin paper inspired in Singland, not-papers and strong second book blue-laid papers, of English make, untviatile, & Ellering-paper, for chemical purposes, invented by M. Journat, & Firs-dam, and the strong second book blue-laid papers, of chemical purposes, invented by M. Journat, & Firs-dam, and the strong second book blue-laid papers, and the strong second book blue-laid papers, divantages, d. Gelatine preferred in this country for string writing papers, d. Introduction of high glating far paper consequent on the use of steel pens, 429 far paper consequent en the use of steel pens, 229, 429. [Glazing, now carried on at most paper-mills, in all countries, \$22. [Different processes of glazing, lb. No. paper, different modes empleyed, db. Ilse of steem as a multier power, lb. Advantages possessed by Englazing from the chesquess of 1th fuch, particularly for steem drying, db. Price of labour in England and on the continent, db. Dutthe es to whether the cost of mannifectur, db. Dutthe es to whether the cost of manniferent gas a process of the continent grant facture of paper be not as cheap in England as in other recurrer of paper, so not as creap in Engelsia as in other countries, ib. The price of rags mainly regulates the price of paper, ib. Paper mechines introduced in different parts of the world in proportion to the progress of civilization, ib. Account of the number of paper. of civilization, do. Account of the number of paper-millia in England, Sectional, and Ireland, and the number of beating-engines employed; amounts of duty, quantity and vata employed at paper-mills in the United King-dom in the last ten years, do. Annoual value of paper manufactured in this country, 320. List of the prin-cipal sizes of writing-paper mode in Regland and France, do. Account of the quantity of rays, &e., for France, à. Account of the quantity of rags, Ac., for making paper imported in the year 1850, showing the countrie from which imported, the Enormous quantity of material for paper-making poduced by the want of Manchester cotton-units and the spinplespellis in the material control of the spin of the spin of the spin of makers exhibit, the Specimen contributed, the Learness makers exhibit, the Specimen contributed, the remains the consumption of letter and note paper on the introduction of the party potange, the Priese of writing-papers, th. Patent cutting-machine of the late Gr. Whiton, a powerful assisting to making the paper. of this branch of the paper trade, ib. The new sizes and improved mode of patting up writing paper in packets due to Mr. De la Rue, ib. Exhibitors of writ-

ing-paper in packets, 431, 432. Remarks relative to the paper-manufacture of France, 432. Species of paper made in the Sandwich Islands from vegetable submade in the Sandwich Islands from "executive sub-stances, ib. Every fitnous plant is capable of being converted into paper, ib. Algerine paper of the dwarf in 1855, b. Interest of the French paper of the dwarf in 1855, b. Interest of the French paper unders contri-lating specimens, ib. Present statistics of the French paper-making tradies, ib. Tales showing the Impor-mation proper, read, this in France, 1855, and paper making tradies, ib. Tales and paper approach and export of paper, read, this in France, 1855, and of the trade, ib. Santieness of the paper exported from Beigiam in 1870, ib. Smittlers relative to the manufacture of paper in Beigiam, 201, 255. Specimens facture of paper in Belgium, 434, 435. Specimens exhibited and names of exhibitors, 435. Samples from Roma, ib. From Denmark, ib. Increase of papermaking in the German Zollverein within the last few making in the German Zoliverein within the max new years, & Activity of the trade, & Imports and exports of paper in the States of the Union, & First machine established in Berlin in 1818, & Printing keeps pace with paper-making, & Number of esta-blishments in the various States of the Zoliverein, 426, Lithographic printing much more on the increase than the other branches of printing, ib. List of paper-mills, specifying the number of vats and paper-makers in each of the States of the Zollverein, together with the number of persons employed in the year 1846, ib. number of persons employed in the year fees, as, imports and exports of raw materials for paper-miking in the Zollverein in 1850, 437. Table showing the imports and exports of paper in the Zollverein States in 1850, 433, 439, 440. Table showing the weight of books 433, 439, 440. Table showing the weight of books imported into and exported from the Zollverein States in 1850, 440, 444. Specimens of paper exhibited from the Zollverein, and names of the contributors, 442. Illatory of paper-making in the United States of America, 443. Only since 1830 any great impole given to 1t, 80. Introduction of machinery about 1850, Amount of import duty on all kinds of paper, 36. Instance of the paper of the states of the Amount of Import only on all kinds of paper, a. Imported fields of paper by the introduction of from and proved fields of paper by the introduction of from and paper of the introduction of fields of Austra, a. Row materials and fillips, ds. Aunout of Austra, a. Row materials and fillips, ds. Aunout of Austra, and the Australia of Austra, and the Australia of the Australia of International August and Australia of Austr

hibitor, 431,436.

Pares-Cyrrus Maenyrus — Minirably matructed and &c. 128. Machine for cutting dates of card-hoard into parts of crash, save of character as a constant of card-hoard into parts of crash, save of character as a spiled to colon-making exceptible in the preparation of enamelied papers, 435. Purpose for bidsh used, a manifeld paper, 435. Purpose for bidsh used, as the colon-making exceptible in the preparation of enamelied papers, 435. Purpose for bidsh used, as the colon-making exceptible of the colon-making exceptible of the preparation of enamelied papers. A series of paper with the colon-making exceptible of the colon-making e

Papea-Pourson Machiesett.—Two machines for gumming and folding envelopes, exhibited in operation in the British Department, 128. Effective machine for folding printed sheets, d. Machine for making eigerstes, d. Papea-Hascatton.—Wood, flocks, and paste colours for the manufacture of paper-hangings, 43. Manufesture of considerable importance, 24th. Carvied on in most of that principal cities in Europe, d. Large number of the principal cities in Europe, d. Large number of artists, designers, and operatives employed, ib. Diffi-cult to determine the period when invented, ib. Sup-posed to have been first made in China, ib. Three kinds, the flock, the metal, and the coloured, ib. Each Invented at a different time as an imitation of a distinct material, ib. History of the invention of flock-paper, mode of manufacture, ib. Establishment of papermode of manufacture, ib. Establishment of paper-hancing manufactories in England, ib. Imposition of a duty of 12d, per square yard in 1712, ib. High reputation of English paper-hangings in the early part of the last century, M.T. Perfection of this branch of manufacture in France, ib. Many important improve-

Parkes, II, W., 525.

Parkes, II, W., 525.

ments introduced, 547. Protective duty of 12d. per yard imposed up to 1816, reduction thereof to 2d., ib. The high duty acted nimest as an exclusion to foreign makers, to. Great progress in the art in England since the reduction of duty, it Process of manufacturing ordinary paper-hangings, also thock and metal papers, ib. Great perfection attained by English masufacturers in the preparation of metal papers, ib Introduction of steam-power to machines for prioting Introduction of steam-power to machine for prioring paper-langing, A. Quantity or printing machines are apper-langing, A. Quantity or printing machines are equal to block printing, A. Nataties of paper-langing in the year 183, A. Beautiful specimen exhibites, 123, List of exhibit, subhistors, and awards, 50, 251, 252, List of exhibit, subhistors, and awards, 50, 251, 252, List of exhibit, subhistors, and awards, 50, 251, 253, List of exhibits, subhistors, and awards, 50, 251, 252, List of exhibits, and paper-langing, 125, Resiproval appear-tion of colours and patterns, 121. The same laws which govern design for paper-langings should regu-

Parnuit, Dautresme, and Co., 313. Paroissien, A., 645.
PARQUETURE FLOORS.—Principles of ununfacture of par-Remarks on the examples in this department of art-decoration in the Exhibition, 713, 712.

PAPEO-MAKING MACHINERY.-The machinery emp paper-making chiefly represented in the Exhibition be models, 12st. Explanation of some of these models, 16

models, USS. Explanation of some of these moseus, so. Complete seite of paper-macinizery, of full size and excellent workmanship, in the French Department, ib. PAPER AND PATIONERY, PRINTING AND BOOKRISHING, (Class NVII.) -Tobalar classification of objects in the Exhibition into which this Class is divided, aviil. Lixt of Jurors and Associates appointed for this Class, xxvi List of exhibitors in this Class to whom Council Medals have been awarded, lxxxiii. The like of those to whom Prize Medals have been awarded, lxxxiii-lxxxv. And of those of whom Hononrable Mention is made, lxxxv, of those of whom Hononrane Argunous as most there, inxxvi. Also of those in whose favour money awards have been granted, ixxxvi. Outline of the objects falling within this Class; proceedings of the Jury, 3.8, 20.7 Manoche in Juliu mon the seyred matters falling under their observation, viz., Printing, 397-423; Bookbindiag, 423-426: Paper, 426-441; Playing Cards, 444-447; Message Cards, 447; Drawing Boards, ib.; Euvelopes, 447, 448; Fancy Stationery, Re., 448-451. List of awards, 451-455.

PAPER, TINTED.—For printing cheques upon, 48.
PAPER WESORTS.—Ornamental paper weight from Switzer-

land, 681

Papi, C., 395.

Papi, C., 395.

Parize-Macur. — This material, used for architectural works, differs in some respects from the ordinary material, \$12. Mode of preparing the material, \$15. Manner in which the ornaments are made, ib. Specially and the manufacture exhibited, \$15. Warrisans. Manner in when the ornaments are made, ib. Speciences of this manifecture exhibited, ib. Varieties in papier-mache, 551. General remarks on the articles of furniture in papier-mach in the Exhibition, articles of furniture in papier-mach in the Exhibition, Papillo, J. M., 453.

Papillo, J. M., 453.

Papworth, -, PATTROGRAPHY. Several examples of cut-paper ornaments, 1 acquarity.—Several examples of cut-paper viriancears, first. Beantiful paper transparency, representing Chep-stow Castle, Monmouthshire, by S. Herbert, ib. Close

resemblance to the porcelain pictures, ib.

Paracutures, See Aerial Machines.

PARAFTEN—Samples of 50.
PARAFTEN—Samples of 50.
PARAMATTAS—Specimens of 377.
PARASOLA—See Umbrellus and Parasols.

Paravagua and Cascila, 161.

PARCHMENT.—Specimens of white and coloured, 453. See also Leather. Velturs and Parchment. Pardoe, Hoemans, and Co., 475.

Pardos, Hoemans, and Co., <u>47.5.</u> Parent, ... | 19., 405, 419. Parent, C. F. W., <u>442.</u> Parey, C. F. W., <u>442.</u> Carrara, or Satuary Porcelain, <u>525.</u> Is a modification of "Bisently," ib. Does not possess a smillient amount of moveley to be entitled to the Council Media, <u>522.</u> Articles of merit in Parian referred to, 540, 541, Panian Centry,—Large and handsome screen of Parian

cement, representing the various qualities of the ma-terial, 575.

Paris Chocolate Company, 58, 638, 641.

Parke and Sons, 30% Parker and Brown, 155

ermentier, P., 372. queterie for floors, 240. Specimens, showing the perfec-tion to which the art has been brought, ib. Awards to exhibitors, 550, 550 Parr, Captain, exx

Parr, Curptain, exs.
Parr, Curptain, exs.
Parrott, W., 48.
Parrott, W., 221.
Parsons, P. M., 187, 202.
Parridge, N., 450.
Partridge, N., 633.

Parker, C. E., and Co., 196, 203. Parker, J., 4811. Parker, J. H., 401. Parker, Rev. Dr., 151

Parker and Sons, 450

Parkes and Son, 281, Parkin and Marshall, 491,

Parkinson and Frodsham, 336, 340, 342, Parlanti, E., 472, Parlett, O'Halloran, and Co., 82,

Partseli, A., jun., 623. Pascai, Michael, 686, 70 Pashkoff, A. and M., 34.

Pask, J., 331, 334, Pask, J., 331, 334, Pask, A. de, 166, Passmore, W., 324, Pastorelli, D., 692, Pastorelli, D., 692, Pastorelli, D., 692,

Patta, G., 600. PATE TENDRE" WARE - Specimens exhibited, 542.

Patek and Philippe, 341, 342 PATENT FULL, See Warlich's Patest Fuel. Paterson, -, 195,

PATES Samples of, from Prussis, 55. See also Mocearonis.

Parrian, v., 242.
Parrick, v., 220.
Paton, J. and Du 382. (26), 536.
Paton, J. and Du 382. (26), 536.
Parrians ros Printero and Otties Farrian, &c. – See
Drops for Printed and Ween Fabrics, &c.
Patt seem, J., 360., and Co., 348.
Patternon, Jamieson, and Co., 348.

Pattisson, H. L. (Juror), xxvi. xxxi. (Exhibitor).—Method adopted by Mr. Pattinson for separating silver from lead; objects exhibited illustrative of this process, 4. Description of his process for making white lead; 22.

Pattinson, Messrs, 42.

Pattinson, W. W., 45.

Pattinson's Patent Oxichloride of Lead—Samples of, 43.

Patterie-Lupin and Co., 159, 357, 359, 361. Paublan, -

Paul Brothers, 502 Paulaky, J., 182.
Paulaky, J., 182.
Paulaky, J., 182.
Paulaky, J., 182.

of, contributed by the Indian Government, 130,

also Figg-Stones, fre

Pawson, Son, and Martin, 353. Paxon, W., 308. Paxton, Joseph (afterwards Sir Joseph), Associate Juror,

Parton, Joseph (atterwards Sir Joseph), Amoun xvii, ziv. Sac. Sec. Gul. Payen, A. (Juror and Associate), xxvi, xxvii, Sil. Payen, A. (Juror and Associate), xxvi, xxvii, Sil. Payen, H. (2) Payen, Payen, H. (2) Payen, Payen, H. (2) Payen, Payen, H. (2) Payen, Pay

Peace, H., 489, 491, Peace, Wood on Nicaragra Wood—Samples of, from Lima South America, St. Dyes extracted ib. Specimens of dyeing on silk, wool, and cotton, ib.

Peacock, G., 48,

Peake, T., 581

Peake, T., Sal.
Peal, N., 48th.
Peale, C. W., 18.
Pearce, W., 48th.
Pearte-Ass.—Use thereof in glass-making, 521
Pearte-Ass.—Use thereof from Russia, 53.
Pearte-Ass.—From the United States, 46
Peart Salan.—See Sago. From Lille

PEARLS. - An excretion of superimposed concentric lambure

of a peculiarly fine and sense metreous substance, con-sisting of membrane and carbonate of time, 164. Finest quality produced by the bivalve of the Indian seas, ib. Fine specimens exhibited in the Indian and Ceylon collections, ib. Pearls of an inferior description furmed In a fresh-water bivalve, sh.

PEARLS, ARTIFICIAL - Specimens of, from France, 518. l'ears, A. and F., 615. Pearse, Clara, ex-

Pearson and Co., 343

Pearson, J., 481.
Pearson, W., 562.
Peas.—Samples of peas exhibited in the British Department, 54. Samples of, from Canada, ib. Samples of green sugar peas from Rossia, ib.

Paugar peas from Rosala, ib.
Pease, H., and Co., 327, 359, 361.
Pease, J. (25).
Pease, J. (25)

finished, ib.

finished, 66.

Peel, J., fitz.

Peet, T., 103.

Pramarrras.—See Parcelois.

Peill and Co., 158, 353.

Peidrian's Helrs, 272.

Peligot, E. (Juror and Associate), xxvl, xxx. Pelikan, J., 53

Pelimier, C

Pell, R. J., 142. Pellatt, Apsley, and Co., 536, 736. Pellier Brothers, 65. Pellie, J. Z., 543. Pelloux and Co., 162.

Pelteresu, F., inn., 330 PENANG-Collection of the woods of, 133

Pencil-cases. - Specimens of pencli-cases and pen-holders in various styles, 223.

Pencau, J., 65.
Peninsular and Oriental Steam Company, 378.
Pennaus-Mawa—Weish paving stone from, remarkable as being both the hardest and toughest material for road stoff yet discovered, 555

stoff yet discovered Penn, J. (Juror), xxvil. Penn, J., and Son, 172. Penny, C., 442. Penny, J., 305. Penrose, F. C., 306.

Pens, Metallic - Specimens of, 503, 506.

Pens, Metallic - Specimens of this instrument; principle of one, exhibited in the French Department, 306.

Penz, J., 421.
Peplow, W., 430.
Perren - Samples of, 62.
Perand and Mineur, Messrs., 22.

Pereivai, Dr., 35. Percy, Dr. J. (Associate Juror), xxvi. Percz and Co., 545, 551, 687, 705, 723.—See also Pinto, Perc and Ca

PERFUSIAN, —Use thereof from the earliest times, 608. Its application in Ancient Egypt, ib. Extent of this trade in the remoto ages, ib. The free use of soap in modern times has superseded the necessity for its lavish employment, ib. Pitacliest by which performer; may be defined, ib. Esau-de-Coiogne generally considered the perfection of perfumery, ib. Differences in the to defined, io. Fain-to-Coopin generally considered the perfection of perfamory, ib. Differences in the quality of perfumes, ib. Particular interest of several of the perfumes or essence exhibited, 62%, 622. Series of artificial organic compounds, possessing qualities which permits of their substitution for natural vosatilo oils and essences, 602. Extensive use of winter green oll in perfumery. ib. Chemical analysis of this oil, ib. General remarks on, and modes of preparation of various

artificial essences, namely, pour oil, ib. Apple oil, ib. Pine-apple oil, ib. Cognac oil and grape oil, ib. Arti-ficial oil of bitter almonds, ib. Inferiority of the

American spiritums: perfumery, 602. Eac-de-Cologan of excellent quality from Austria, ib. Interesting and of excellent quality from Austria, ib. Interesting and Excessive we to perfomery in France, ib. Properties of the manofacture, ib. Spirituous perfumery prepared of the manofacture, ib. Spirituous perfumery prepared in great perfection by the manufacturers uf Paris, ib. Mode of preparation of ossential oils, ib. Number of performers in Paris, ib. Quantity exported from France

in 1850, 56. Perfomers of Germany in great force, 611.
Four Farinas In the Exhibition, all claiming to be the Four Farinas in the Exhibition, all claiming to be the original, ib. German performery generally very good, ib. Extent of the manufactories of perfumery in Russia, ib. Small quantity of tooth powder and help oil from Switzerland, ib. Collection of Tunisian perfumery, ib. Mode of preparation, ib. Ottos of Tunis prized as being more fragrant than those made in Eastern company. tries, ib. Importance of this branch of commerce in Tunis, ib. Large collection of perfumery from Turkey, ib. Specimens of perfumery, the manufacture of Great Britain, 612, 613. Statement of the number of exhibitors from the various countries, 613. List of awards.

exhibits, and exhibitors, 613-615, Perigni, -, 3 Model of this instrument designed for the simple elecidation of solar and lunnr phenomena, 307

Perkins and Brown, 158 Perkins and Co., 446. Perkins, H., 63. Perreaux, -, 257. Perrinet, -, 331.

Perint. — 333.

Perron, E., 26 fd.

Perron, P. 27 fd.

Perron, D. 27 fd.

Perron, D. 28 fd.

Perron, D. 28 fd.

Perron, D. 28 fd.

Perron, G. 28 f

PERSIAN BERNIER.—Dye stuff extracted therefrom, 88.
Persor, J. (Juror and Associate), xxvi, xxix, 41.
Perspective.—Description of an apparatus, in illustration

of the items of perspective, 31 PERTUSHIN:- Collection of ores of copper and lead from various mines in, 13. Pratties.-See Wiga

Pant nes.—See Ways. Peyel and Memoet, 357. Peter's, St. (Rouno), Royal manufactory, 577, 704. Peterkoff Imperial Manufactory (Russia), 567.

Peters, R., and Son, 593.
Peters and Sons, 193.
Peters and Sons, 193.
Peters, T. C., 158.
Peters, T. C., 158.

Petit, J , 542 Petithumme, L. A., 569. Petrucci, C., 162. Petrerau, A., 530. Petroidt and Ehret, 560.

Peyman, -, 561. Peyton and Harlow, 506. Pfaff Michel, 334

Pfelffer, J., 21. Pfenningherger, J., 367 Pferdmenges Brothers, 37 Pferdmenges and Kleinjung, 376.

Picoffer, C., 686, 608.
PHARTONS.—Park and Pony Phaetons, 123.
PHARMACEUTICAL APPARATUS.—See Chemical Apparatus PHARMACEUTICAL PLANTS, DRIED-Specimens of, 46.

PHARMACETTGAL PLANTS, DRIDT - OPECIMENS OF \$\frac{4}{2}\]. Products (undescribed), \$\frac{45}{2}\], \$\frac{45}{2}\], \$\frac{45}{2}\]. See also Chemical, \$\frac{45}{2}\]. Products. Plantamenti-treat. Plantisets AND Plantucts.—See Chemical and Phymacettical Processes and Products.

PRODUCIA. - Manufacture of glass, 521

PHENTL, HYDRATE OF-Samples of, 48.

Philibert, L. and F., 159. Pidlip, -, 600.

PHILIPPA OF HAINAULT, MONUMENT OF (Model), 689, 606 Philippe and Canand, 6:11.
Philippe and Canand, 6:11.
Philippe and Interesting collection

of the woods of, 136.

Philips, —, 302. Philipsyille, Beauregard de, 22. Philippos, G., 20

Philipps, —, 238. Philips Brothers, 520.

Pinner Fronters, com	Philippe Condition	Philippe Condition
Philippe Condition	Philippe Condition	
Philippe Condition	Philippe Condition	
Philippe W.	11, 12,	
Philippe W.	11 DESOFFICAL INFERENCES IN CLASS IN. — Tabular classifi-cation of objects into which this Class is divided, x. List of Jurora and Associates appointed for this Class, xxvii. List of exhibitors to whom Council Medals have been awarded, ktiii. The like of these to whom Prize Medals have been awarded, ktiii-kv. And of those of whom Monocrabia Manujon is reads in y. Durise of whom Honourable Mention is made, Ivv. Duties of the Jury very heavy, 213. Beneficial advance effected by the exhibitors of astronomical instruments by the nse of as few parts in their construction as possible Mainly observable in the British Department, ib. Worl manship of those exhibited by Germany deserving of high praise, & Application of electro-magnetism to the registration of astronomical observations; results obtained thereby, ib. Numerous exhibitors of nauti-cal instruments, ib. Little novelty of construction, cal instruments, \(\delta\). Little novelty of construction, with the exception of those of America, by Friesson and St. John, \(\delta\). Improvements in surreying and eveiling instruments exhibited by Austria, \(\delta\). Large number of exhibitors in optics, \(\delta\). Improvement of optical-glass in England, \(\text{France}\), and Switzerisand, \(\delta\). British microscope by far the best exhibited, ib. eminence of France in physical optics general Number of photographic cameras exhibited, ib. erally, ib. Number of photographic america exhibited, M. Atten-tion at present paid to their improvement both in England and France, B. Observations of educy on the utility of the photographic process, as regards in application to art and selence, and indirectly to litera-ture, 2.5, 2.1. Remarks on the collection of photo-graph present of the process of the process of the property of the process of the process of the pro-ting of the process of the process of the pro-ting of the process of the process of the pro-ting of the process of the process of the pro-ting of the pro-ting of the pro-ting of the process of the pro-ting from England, France, Austria, and America, 243-245. Prominent position of America as regards deguerreotype portraits, 214. No opportunity afforded for inquiry into the comparative importance of the different classes of instruments, 316. Each country characterized by some peculiar excellence, ib. Science will receive a some peculiar excellence, ib. Neience will receive a fresh impulse, ib. Means of self-education opened to the artians, ib. Probable effects of the concentration of science, ib. Promotion of science one great result of the Exhibition, ib.—See also attronomical Instruments. Chemical Apparatus and Utensits. Mathematical Instru-	

ments. Nantical Instruments. Philp, J. (Juror), xxviii, xxxi.

Philp and Whieker, 345, 489, Pulosipxin-Specimens of, 44. Phonix Company, Ghent, 198, 201.
Phonix Tompany, Ghent, 198, 201.
Phonix ar Corren - See Copper Ore.
Phonix ar Linx - See Line, Phonibate of.

PROSPIDENTS - Samples of, 44, 48, 42.

Prospingly - Red on ALLOTROPS. - Specimen exhibited of the aliotropic phosphorus of Schrötter, 33. Method of preparation and uses to which applied, ib.

Prostriours, Ren on Amourtous Specimen of, 60.
Puormonic Acto... Phosphorous acid is highly injurious to
bealth of workmen exposed to it, 38. Price of phos-

phoric acid in Germany, 42.

Provoca approx Grass - Speciment of, 275.

PROTOGRAPHIC GLASS - Specimens of ALLE PROTOGRAPHIC SELF-REGISTERING MAGNETIC, &c., APPA-BATIS. Description thereof, for the self-registration of the dry and wet-bulb thermometers, 200. Similar apparatus for the variations of the reading of the barometer, ib.

PHOTOGRAPHY .- Rapid as have been the discoveries conproductive the discoveries con-nected therewith, and great the Improvements, such still to be done to enable it to rask among the sciences of the age, 225. Regret expressed by the Jury that in the whole exhibition they have observed only one instance (that of M. Claudct) in which the study appears to have been in any way followed up to as to afford exhibition results, N. Nature of some of the

improvements which have taken place in this art, 226. Fine collection of photographs exhibited, 225. Many fine collection of photographs exhibited, 226. High rank held by Mr. Taibot in their production, ib Observations on the photographs exhibited, 276. et al., 276 sey. 1st. Daguerrectype pictures, 276-278. 270, yr. Talbotypes, caiotypes, and sun pictures, 278-279. See also Dispertectype Apparatus. Department per Paters. Processors:—Description of this apparatus for determining the period of the processors.

mining the liluminating power of gas, 31 Piancijo, D., 34

Planorosta Cases.-Specimen of a case of inlaid Japan, 551. Remarks on the ornamentation of pianotorte cases; false taste observable in some instances in the Exhibition, 223.

Planoperts.—General remarks upon pianofortes by Mr.

Thaiberg, 326-328. Farly history of the pianoforte, 322. Improvements that have been made therein, ib. Finosfories exhibited by Meses. Broadwood; details as to their nature and constructing. A Description of and also in the French Departments, A Paraderize exhibited by Meses. Collard and Collard, 222, 330.

Pleasit, G. F., Li, B., Pleasit, G. F., Li, B., Planderize exhibited by Meses. Collard and Collard, 222, 330.

Pleasit, G. F., Li, B., Pleasit, G. F., P l'innoforres exhibited by Messrs. Broadwood; details

Pickering,

PICKLES -- Samples of, 62. The Van Diemen's Land sauces and pickies worthy of notice, 62

Pickthorn, Esther, exx. Picruas France-Formed of various common English woods, 121

iepenstock and Co., 186. Pierre, W., 506, 562 Pierre, Count G., 162

Pieris, T. A., 76, 82. Pieris, pr. Toxyraar. - Pavement exhibited from France; manufacture of a stone so called, 555.

Pierret, —, 340, 342.
Pierret, —, 500, 342.
Pierre Dean, Woars in — Examples of inland work in pietra down from India, 554, 568. This manufacture consists dura from India, 554, 568. This manufacture coosists of certain kinds of hard stone inlaid in a slab of marble; pseudo gems which are used in this work; mode in which the work is performed, 567. Principal articles exhibited; countries from which sent; names articles calabled; conntries from which sent; names of the exhibitors, wards granted, ke, ib. The speci-mens of true Florentine mosale in phetra dura, tron Trucany and Russia, ib. Ruenrick on works in pietra dura, by Blanchini, Boschetti, ke₂ 557, 723.—See also Faliabl Work in Pietra Dara. Ciette, I., 431, 442, 551.

Piglia, J., 90. Pigot and Newton, 37 Pigott and Co., 502 Pigouchet, -, 3(14, Pike, W. and J., 13, 14,

Pillant, —, 449.
PILLERSEX AND TENNBACH IMPERIAL FOUNDRIES, 21.

Pillischer, -, 267, 305. Pim, Brothers and Co., 376.

Pim, Brothers and Co., 2029.
Pinan, J., 202.
Pina Bayard, 357, 380.
Piches and Co., 418, 451.
Piche Salt.
Piches Alt.
Piches A

Pipears - Specimens of 48.

Pipes, Smoanso. - Samples of tobacco pipes, 541. Materials principally employed in the manufacture of pipes for principally employed in the manusceure of pipes for smoking, 650. Different kind of clays more used than any other substance, th. Various descriptions of woods used for tubes, th. Extensive use of mother-of-pearl, horn, ivory, and home, for tubes and month-pieces, th. horn, ivery, and home, for takes and montin-preces, or. The precious metals and costly gens are not excluded from a share in the formation of player, b. 11th evil-mation in which meerschaum players are held most amber mouth places, and montine trace players players and the processor of montine trace, 660, 621. Extensive one of amber, and descriptions thereof, and mode of preparation, 570, 671. Numerous collection of

pipes from Germany, Austrian and Prussian contribu-tions the most extensive, 621. Specimens of pipes from the Bittish Cohonies and in the Indian collection, 46. Habit of smoking very general in China, 36. Uhinese pipes contributed, 46. Specimens of pipes in the Egyptian Court, 622. Numerous and well-manufac-tured elay pipes from France, 46. Extensive nature of the French trade in tobacco pipes, ib. Contributions of pipes and mouti-pieces from Persia and Sardinia, ib. Numerous rich examples of the narguile or water-pipe in the Turkish collection, ib. Various tubes from Turkey, mode of manufacture, ib. Choice collection of amber mouth-pieces and eigar-tubes in this collection, amber mouth-pieces and eigar-tubes in Inis conection, ib. Examples of pipes and tubes from Tunis and Tuscany, b. Pipes in the British Department unim-portant, b. Specumens exhibited, b. Pracess of making elay pipes described, b. Number of exhibitors and countries from whence contributions have been received, ib. List of awards, 672-674

PIFITZARUAC - Remarkable yellow resinous substance, some-what resembling gamboge, called, 26, 50. Contributed from Mexico, iò.

Pignes, --, 434. Pirson, J., 331.

PISTOLS. - See Arms (Pistols, &c.), Inlaid. Guns, &c. Pisrovs.—Spring rings for pistons, of good workmanship, 173—See also Paugus, Pistor, W. and G., 221.
Pistor, W. and G., 221.

Pitansler, --, 622.
Prrcu-Oil -- Purposes for which employed in timber, 42.

Pitonx, V., 165.
Pittnan, J. (Associate Juror), xxviii.
Pitts, W., 250.
Piver, A., 610, 615.
Pixzais. —, 301.

Plagniol, A., 273, 275, 278.
Plagniol, A., 273, 275, 278.
Platrico Machines. Platting machines of the usual construction from Belgium and Prussia, 197.

Plambeck, C. F. H., 501.
PLANETABLUM.—See Orreries, &c.
PLANEMETERS.—Ingenuity of these machines, adapted to the

determination of areas of plane surfaces by mechanical means, 216. Description of Sang's planimeter, 385. Detailed description of a planimeter from Tuscany, by

Gonella, ib. PLANING MACHINES-Excellent specimens of, exhibited, 200. Varieties of construction, ib.

Varieties of construction, ib.

Paxietieness.—Double planishere, designed to assist
navigators in great circle salling, 283. Description
thereof, ib. Pedestal planisplera exhibited, 362.

Plant, —, 307, 316.

PLAYATAN MALL—Samples of, of good quality from Demorara, &b. Samples from Democrara and Madras, \$22. lantins,-, 406.

PLANTS ASATOMIZED.—Beantiful collection of anatomized plants, flowers, and leaves; process by which prepared, see also Pharmoestical Planta PLASTER, CENENT, &c .- Statement of the most essential

Features of distinction between plasters and cements, 575. Various specimens exhibited; awards, &c., 575, 576.—See also Cement, Romon, &c. PLASTER, CLAY, &c., WORKS OF ART IS .- Notices of the prin-

cipal, 685, 686. PLASTIC ART - See Sculpture, Models, &c. PLASTIC CLAY. -See Clays.

PLASTIC MATERIALS AND ABTIFICIAL COMPOUNDS (Manufacseries Marsianas and Astrophysical Conference (Manufactures in)—Manufactures induced under this level; some of the content of the content of the content, 250–253. Hydroxide centents, 250–253. Hydroxide centents, 750–255. Hydroxide centents, 750–255. Hydroxide centents, 750–255. Hydroxide centents, 750–255. Hydroxide centents, 250–256. Hittorinous centerias and master, 2516, 252. Merallic propage centers, 552–256. Hydroxide centers, 552–556. Hittorinous centers

PLATE GLASS.—New variety of window glass, termed
"patent plate," introduced by Messrs. Chance in 1840; description thereof, 525. Extension of the process to France by Messrs. Patoux and Co., of Aniche, ib. The progress of mnnufscture of plate glass not rapid in France, 527. Works established at Tourlaville, near Cherbourg, in 1688, i6. Improvements affected by

Abraham Thèvart; works established at St. Gobain; opposition experienced, 527. Contributions from the three arent works at St. Gobain, Circy, and Mont-

Period of the Introduction of plate class into England, 267. Formation of "The British Plate Glass Company in 1773," ib. Establishment at South Shields, founded by the Cooksons in 1728; now earried on by Messes, Swinburn, ib. Works of Messes, Hartley of Sanderland; "The Thames Plate Glass Company" and others referred to, ib. Application of the steam-engine and other machinery to the manufacture, ib. Difference of other machinery to the manufacture, ib. Difference of opinion prevailing as to the finishing and polishing of plate glass, 33L. Prize medals, &c., awarded for plate glass, 33B. Size prize medals, &c., awarded for plate glass, 33B. Size prize medals, &c., awarded for plate grass, 33B. Size prize medals, &c., awarded for plate grass, 33B. Size plate articles, carefully executed and durable, 31E. Size also Precious Metals,

Works in the, he.

LATILLAS Assortment of blenebed, 372

PLATINA ALFNAICS—Samples of, 276.

PLATINA N. Manufacture of platinum, illustrated by complete collection, 10. Series of metals and metalsi products, including palladium, iridium, rhodlum, and uranium, 16.

Plattner, Professor, 5, 30 Playfair, Dr. Lyon, xxv.

PLAYING CARDS. - General remarks on the subject of their Invention, 114. Probable original processes for colour-ing cards, 444, 445. Complete change made in the honours of modern French cards, 145. Attempts made by Messrs. De la Rue to introduce modern costumes for court cards, and failure thereof, ib. Ancient cards of France, England, Spain, Se., ib. Artis known in China from an early period, ib. Circular cards in the ladian Department, ib. Cheap rards made in Germany and the Netherlands, ib. History of the progress of many and the Netherlands, ib. History of the progress r court eards, and failure thereof, ib. Ancient cards and the Arthermous, so. Illinory of the properties of card making and playing in England, 445, 446. Apple-gath's machine for card-priuting, 446. Excellent playing cards from Russia, surpassing most continental is, ib. Manufacture of playing eards only allowed London, Westminster, and Dublin, ib. Duty on in London, Westminster, and Dublin, ib. Duty or eards, ib. Re-issue of second-hand playing cards, ib earts, b. Measure of second-mand paying cards, b.
Reducing the duty would prevent snuggling and
forgery, b. Duty and export sees printed at Somegnet
linuse, b. Samp regulations of the playing card trade,
b. Annual amount of the duty, b. General mode of
painting playing cards, b. Huppovements in the manu-facture effected by Mears. De la Rue, 422. Specimens
are all the manufacture of the duty, b. Specimens
are all the manufacture of the duty, b. Specimens
to thibited and manuso of exhibitors, b. Marked advance in the manufactures from foreign countries, ib.

ischl, A., 50

Pleischi, A., 505.
Plenty, J. and E., 213.
Pliny, quoted in relation to the manufacture of glass, 521.
Plomdert, N., 321.
Plomdert, W., 323.
Plompet, W., 325.
Plompet, H., 577, 513.
Plocopet, H., 577, 513.
Plocopet, H., 577, 513.

vements which have taken place in England within the last twelve years in the construc-tion of the plongb, particularly with regard to the mould boards, 225, 226. Reference to the inventions and boards, 225, 226. Reference to the inventions and improvements of Mesers, Ransome, and of Mesers. Howard, and of Mr. Busby, 225, 226. Skill sequired by ploughmen who scarcely receive the ereilit due for It; correctness of eye acquired by ploughmen, 22 It is extractions of eye acquired by pleughtum, 226. Improceedings to the squise supersecting the use of the plough in the preparation of wheat lead, Is. Result of a critical of various prize ploughts with Bernalls vignation of the process of the

for some time been separately encouraged by the Royal Agricultural Society, 227. Exhibitors; prises awarded, &c , 242 COR, DRAINING .- Detailed description of the mode in which drains are formed by J. Fowler's draining plough which, but for the American resping-machine, would have formed the most remarkable feature in the agricultural department of the Exhibition, 240.

Plows, W., 557, 569, Plummer, H. L., 310, Plummer, R., 156, 30

Paran-Specimens of, 365-368, 375, 376

PLYMOUTH BREAKWATER-Model of, 208, 699, 626. PATMITTON (Devon).—Porcelain clay obtainear Plympton, 11, 12.

PREIMATIC BATTERY-For igniting gunpowder in blasting

operations, 286 PREMATIC GOVERNOR. - Patent pneumatic governor for regulating the speed of steam-engines. 173. POCKLY BOOKS.—This branch of trade very limited till 1828,

449. Improvements effected in that year by Messrs. De is Roe, and great stimolos imparted to the mannfacture, ib. Considerable export trade in these articles, Solidity of English workmanship, ib. Number of sands employed in the manufacture in the United Kingdom, ib. Specimens exhibited, 449, 450. Awards

Pocner Communication—Description of, by means of the electric telegraph, 282. Object for which designed, ib. Pocock and Rawlings, 353.

Poidelend, N., 162, 364, Poillen Brothers, 36, Poilly, De, and Ca, 136 Point Lack See Love

Poirter, i., 1625. Poirter, P., 489. Poirsert (Uncle), and Co, 629. Polak, F., 471.

Biot's apparatus for the polarization of liquids, 315. Reflecting and oxyhydrogen polariscopes,

oliakoff and Zamintin, 366. POLISH OATS. - See Outs Polishtva Stones - See House, Polisk, A. M., 635.

Pollock, J. 324. Polycarpo, A., 346, 4-1. Powgonanares.—Samples of dried, said to be used for dyeing yellow, 91

Pommerce of Smelting Company (Belgium), 22. Poncelet, A. (Juror), xxvi.
Poncelet, General J. V. (Juror), xxv, xxvi. 190.
Poncelot, General J. V. (Juror), xxv, xxvi. 190.
Poncelos.—Specimens of this fabric, 336, 338.

Pond and Co . 502. Ponomareff, Madame, 31, 34.

Pontou, C., 3/16. Poutifex, G., 103, 140. Pontifex and Wood, 48, 203. Posting, T. C., 48. Pook, S. M., 217. Poule, Messrs., 3

Poole, S. R., 52 Pooley, H., and Son, 191, Pooleo's Chinese Camen

Poore, J. B., exx. Poortman and Visser, 43. Pope, J., 95. Pope and Plante, 47

Pope and Famile, 3,23, Popelin-Docarre, 70, Popinoff, Sophia, 472, 480, Poplass—Specimens of, 375, 376,

Portays—Specimens or, otto, mass Poppel, A., 185. Poppel for, 185. Poppel for, 185. Portr Caars—Specimen of, from the East Indies, 25, 26, Ponert.ats.—Materials employed in Porcelain manofacture at the great works of Kining Tibl'Chin, In China, 25, Mutar of the specimene ethilated, 5. White porcelain

Nature of the specimens extinues, is, white purceaus ware from Limoges, 22. Kaolins and pegmatite used in the preparation, ib. Superiority of the procedule to the pority of the clay, ib. New patented application of coloured and modded porcelain for archication of codourcel and moulded porcelain for archi-tectural decoration, especially adapted for door-cases and arches, [62]. Invention of a vitrous marble paste in a kind of porcelain, de. Remarks on the high cha-racter of the works in biscuit or porcelain, exhibited by Nesser. Minton, Copeland, and others, as works of art, [62]. See also Ceranic Mossylatures. Chay, Pat-try, ye. Monics.

PORCELAIN FOR CHEMICAL PURPOSES, - Manufacture the Intely established by Messrs, Minton, 540. The labointely established by Messey, Minton, 288. To laboratory hitherto dependent upon foreign manufactories, ib. Articles of semi purcelain for chemical purposes by Grainger and Co. 541. Products of the Royal Sazon China Minufactory referred to, 543.

Peacezalay Gazzrs—Use of boracie acid in the preparation of, 32. Vessels made with the satt-glaze ware used in

of, 32. Vessels made with the satt-gi the manufacture of sulphuric acid, io.

PORCELAIN FOR PICTURE PAINTING-Specimen of, 542

Poncezas Non Pictri Be Paivrino—specimen or, add.

Poncezas Victia.». Examples of rartice or elothing and
North American porcupine, 603.

Portin at a xxx Womas Trainary.—Hemrathable heanty of
polish of a culterion of porphyry shink from Cornwall,
B. Moderate price of these slabs, from the mechanical 8. Moderate price of these slabs, from the mechanical contrivances used in polishing, do. Specimen of per-playry, described as Evan stone, from the New Quay quarter Conference of the Conference of periphrical conference of the Conference of the Conference phyry exhibited, 255. Few examples of foreign per-playry exhibited, 255. Few examples of foreign per-phyries in the Exhibition; objects exhibited, 255. 256.
Four Appa Appa — Pre-eminence of Pert Adelated for when

and barley, 52. PORT NATAL, See Natal,

PORT PHILLIP—Samples of good wheat from, 52.

Portelli, A., 520.
Porter, W. II., 524.
Pontrouses—Number of manufacturers contributing, 419 High degree of perfection in the manofactures of Germany, ib. Offenback the principal sent of mano-facture, ib. Improvement effected by De la Rue and Co., ib. Variety of specimens exhibited, ib. Awards to exhibitors, 453.

Postland Ciment. - Numerous objects in Portland cement

exhibited; prizes awarded, 573, 574, See also Crments Roman, &c.
PONTMANTEAUS, — Portmenteaus of very ingenious and eleve

contrivance exhibited, 324.—See also Leather, &c.

PORTROAL.—Large number of specimens of marbles from
Portogal, 33. Two excellent series thereof exhibited.

 Lithographic stones of even grain, and very com-pact, i. Specimens of lead ore and manofactured lead. pact, ib. Specimens of lead ore and manofactured lead, ib. Cercalia Illustrating the agricoltural resources of Portugal, 52. All of fair bot sone of particolar merit, ib. Sample of Carolina rice from Portugal, 53. Sam-ples of beans, peas, ic., 54. Samples of floor, 55. Olives and olivo oil, 52. Valuable reries of coffees from various of the colonies of Portugal, 52. Mustand from various of the colonies of Portugal, \$22. Mustard seed, \$2. Samples of capers, \$8. The mapple of copal from Angola, \$5. Samples of starch from Latramsdura mod Krown, \$2. Large sounder and occllent speciment on the contract of the colonies of the col

plet of glote, san. operanean or animae concross, an powder, ds.
Surgical instruments, 245. Cotton menufactures, 346.
Variety of woollen cluths, 322. Primitive character thereof, ds. General remarks on the silk manufactures of Portugal, 322. Specimens of mixed fabrics, 324. or Portugal, 322. Specimens of mixed fabrics, 324. promise of execulence, ds. Objects exhibited, ds. (the servations on the scaling-wax manufacture of this servations on the sensing-wax minimized on units constry, \$21, Specimens exhibited, in Observations on the printed goods, \$20, Specimens of carpets, \$25, Cattery, \$21, Articles of pewellery, \$20, Instructing series of waxes, \$25, Earthewayer, \$25, Instructing series of Foreign constructions of the construction of the constru

of Fortuguese marbles of great variety and beauty, 501. Interesting specimen of mosaic, 559. Fine specimens of terra cotta jurs, 524. Specimens of refractory bricks, 525. Specimens of coopers' work, 626. Creditable collection of soaps, 511. Remarks on the quality and arrangement of conserved fruits from Portugal, 632. Specimens exhibited, 521. Remarks on the contribution of the contr tions of cambric flowers and wax fruits, 643. Speci-mens exhibited, 644, 645. Inlaid ebony writing-case, 651. Parasols and umbrellas, 659.

Portugal, Itis Majesty the King of, 654.

Portugal, Itis Majesty the King of, 654.

Portugal and Hasperath, 563.

Portugal, The Archive of the Community of the Portugal Activation of the Portugal Activation of the Portugal Manuscratter of the Community of the Portugal Manuscratter of the Community of the Commun

effected in the manufacture described, ib. Names of the earliest great manufacturers, ib. Circumstances which first increased the demand and stimulated the improvement of the manufacture, ib. Its use in dycing wool, ib. Statement of the amount manufactured by our maker in Scotland from 1825 to 1810, with the price per pound, is. Samples of bichrumate of potash, 45, 47, 50.

POTASH, CARBONATE OF Sample of, 46. Price thereof in Germany, 42. Use thereof in glass-making, 524. Potasii, Chiomate of Samples of, 45, 49.
Potasii, Chiomate of Samples of, 45, 20.
Potasii, Nithate of Method of preparation, 46. Samples

thereof, &. See also Saitpetre. Porasii, Prussiarus or,—Great purity in which these im-portant salts were exhibited, 32. Considerable quantity of Prussian blue formerly exported by Messrs. Bramwe'll to China for colouring green teas, ib. Former and present price per lb. of Prussian blue, ib. Prussiate of sotash not known in commerce in a crystallized state potash not known in commerce in a viz-tiil 1825, ib. Improvement in the process of manufac-ture introduced by the late Charles Macintosh in produced by the late Charles Macintosh 1324, ib. Statement showing the quinquennial produc-tion from 1825 to 1830, 40. Number of Prussiate works in the I'nited Kingdom, ib. Amount and value of the product, ib. Attempt made a few years ago to introduce the air process into the menufacture; details thereof by Mr. F. II. Hughes, of Borrowstowaness, ib. thereof by Mr. F. II. Hughes, of Borrowstowaness, & Introduction of red prassiste of potash le calico-printing in 1842–83, 41. Successful employment of red and yellow prusiates in "de-lesine" printing and in wool-dyvling, & Hed prussiate is sent from Germany to England, whilst yellow pressiate is imported into Germany from England, 46. Price of the prussiate in Germany, 21. Samples of pressint of topology, 41.

Potasu, Salvis or -- Specimen of, 44.

Potasu, Stiffiate or -- Samples thereof, 44, 50. Price thereof in Germeny, 44.

Portass-Alex.—Process by which obtained, 42.

Portass-Alex.—Process by which obtained, 42.

Portassius, Comoning or — Preparation thereof from sensure by the process of M. Balard, 32. Samples of chloride of potassium, 44, 52. See also Josius.

Portassius, Canaire or — Specimens of, 42. Price thereof

in Gormany, 49 POTASSIUM, FERROCTANIOE OF - Specimens of, 45, 4

POTAWUM, FERROCTAVIOR OF "Specimens of, 45, 48, 19 POTAWUM, FERROCTAVIOR OF THE OFFICE OF THE OFFICE OF THE OFFICE OF THE OFFICE
POTATOES - Chemical products from, 45. Specimens of

FOTAVIS — Chemical products from alcohol procured from potatoes, & Potter, A., & S., Potter, A. de, 162. Potter, C. (Juroe), xxvli. Potter, C. (L. and E., 552. Potter, E. (Juror), xxix, xxxii. Potter, E. (Juror), xxix, xxxii. Potter, E. (Juror), xxix, xxxii.

Potter, H., 352.
Potter, Messrs, 547.
Potter, R. (Juror), xxvil.
Porrany.—See Earthenware and Pottery.

POTTERY CLAY.—See Clays. Potton, Rambaud, and Co., 366

Potton, Bambaud, and Co., 366. Potts., -428. Potts, T. II., 221. Potts, W., 36. Potts, W., 36. Poulton, S., 36. Poulton, C., 253. Poulton, C., 263.
Powers, II., 685, 706. Powers and Wightman,

Practice, Joseph, 152.

Pradice, Joseph, 152.

Pradice, Joseph, 152.

Prague, Glovers' Association of, 481.

Pragoe, Glovers' Association of Prat, A., and F. Agard, 33, 48. Pratt, F. and R., and Co., 541. Pratt, J., and Co., 592. Pratt, Major, 292. Pratt, Richmond, and Co., 272.

Pratt, Honourable Z., 320.

Prax and Lambin, 314.
Perceous Metals, Works in, Jewelley, &c. (Cl. XXIII.)

-Tebular Classification of objects into which this Class

is divided, xx. List of Jurors and Associates appointed for this Class, xxix. List of exhibitors to whom Council Modals have been awarded, clit. The like, of those to whom Prize Medals have been awarded, cili, civ. A of those of whom Honograble Mention is made, civ.

Considerable place occupied in the Exhibition by the works in all kinds of precious metals, 211. Difficulty of forming from them an exact idea of the relative eduction of different countries in the verious branches of this class of manufectures, on ac ount of the psucity of objects exhibited from several countries, and the hurried manner in which some of the collections exhibited have been formed, ib. General observations on the contributions from various countries, ib. The exhibitions of India, Turkey, Fgypt, and Tunis show that these nations have remained stationary from a very early period of manufacture, it. Mutual service which must be rendered by European nations by the means afforded by the Exhibition for comparing their produc-General remarks of the Jury on the objects exhibited by various individuals and firms; names of the exhibitors, general class of exhibits and awards, &c.,

511, et sep.

Critical remarks on the works in precious motals in the
Exhibition, 236, et sep. intinate union between the
ornamentist and the artist in such nonnafactures, 236, Their separation, however, marked with sufficient dis-tinctness for the purposes of description, 736, 237. Errors fallen into in consequence of such separation, 731. Sculptures in the precious metals misapplied; had taste displayed in testimonials end prizes, &c., ib. Superior artistic taste displayed by the Fronch horein, ió. Ample enconragement in Great Britain for the application of more skilled labour, ió. Defects in application of more skilled labour, ib. Defects in Linglish works on account of the separation of artist from workman, 132, 238. Lies of enamelling as an ornamental addition to the surface of the precious metals, 282, 733. Print pirs which should govern the construction and

rinciples when subtons govern the ornamentedition of domestic utensits in the preclous metals, 733. The like in regard to jewellery used for personal solorament, 5b. Remarks on various works, viz., the tenservice of Eck and Durand, ib.; centrepiece by Messys. Gerrard, 55.; Messys. Hunt and Roskell's plateau, 55.; other works, 759, 740. View intended to be enforced in these remarks that art gives value to the metal, not the metal to art, 740.

Iniald work and chasings; superior workmanship of the indian specimens, 740. Remarks on works in plated metal, ib.

Remarks on works in plated metal. 36.

Peactors Strongs, Autrincal—Specimens of, from France,
18.—Specimens in the British Department, 1801.

Previewerk, D., and Co., 368.

Preview, F., 221, 519.

Prelier, E. (Associate Juror), xxviii, xxxi.

Preodergast, J., 2 Presche, F., and Co., 635.
PRESSIRE GAUGE.—Model of machine for determining the pressure exerted by each wheel of a locomotive, from

rance, 252 reston. Preston, F., 199, 201. Pretot, L. H. E., 551. Pretoch, P., 279.

Price's Petent Candle Company, 604, 621, 622, 624, 629.

Price's I fetent unnute company.

Priseasa, J. S., 201.

Paise Movkss (for Steam Engines).—Apparatus by which any number of prime movers usey be connected or disconnected at pleasure, so as to work the same machine, 173 Prin, A.,

Prince Ringuet, Le. 544, 545.

Prince Ringuet, Le. 544, 545.

Poiscz or Walm' Island Collection of the woods of, 138 Poince of Wales Shield - Notices of, 514, 685, 697, 698. Prins, C. C., 78. Prinsep, W. (Juror), xxviii.

Painten Goods.—See Woven, Span, Irc., Fabrics (Printing or Dycing).
PRINTING. - Vest end important advantages which have

wring. — Vest end important advantages when have resulted from this discovery, 2022. Great continues of manuscripts is former periods, &. in ell countries printing denotes the state of civilization, &. Infuence of printing on social progress, i. History of the growth and catenion of the art, ib. Importements effected owing to the extrinous of Duarra in Spaio, Exakervitle and Businer in England, the Foulisses and

he Ruddmans in Scotland, Bodoni in Italy, and the Didot family in Paris, 527. Great improvements in the typographical art, invented by Charles, third Earl of typographieal art, invented by Charles, third Earl of Stanhope, 30g. Application of steam-power te printing by Mesers. Bauer and Kernig, 3b. Simplification of this machino in 1814, and rapid printing of the "Times" newspaper, 3b. Kernig's machines super-sected by Cowper's in 1816, 3b. Cowper's machine the cause of many pictorial illustrations which characterize solid by Couper's in 1815, 58, "Couper's mention by case of many picked liberarious waits characteristic some of many picked liberarious waits characteristic too of this mention by the 1 Delevation of the first solid liberarious waits of the first solid liberarious waits of the couper's couper's liberarious waits of the couper's liberarious waits of the solid liberarious waits of the couper's liberarious waits of the value of the value of the value of the picture of the couper's liberarious waits of the value of Craswick Press to celebrated, ib. Means of snifs/jing the present demand everywhere numerous and powerful, ib. Printing at Meser. Clower, b., ib. Great advantage of the large Lendon newspapers, ib., ib. Great advantage of the printers of England, that all persons should serves as even year a papersite cells ji. ib. Government patronage indispensable in must of the countries of Europe, ib. England a striking instance of the development of art without such support, ib. Printing of the Holy Scriptures in all languages by the Tract and Bible Societies, ib. Large number of important and popular publications issued in England proving and popular publications issued in England proving the immense resources of the country, \(\begin{align*}{c} \). High ment of the Clarendon Press and the Pitt Press in the Uni-versities of Oxford and Cambridge, \(\beta \). Numerous specimens of printed English books exhibited, \(\beta \). Great English publishers not represented, \(\beta \). Table showing the rate of wages and number of jeurneymen. and apprentices in seventy-nine towns in the U Kingdom, 401, 402. Statistics of the London daily newspapers, showing the number printed in each year from 1845 to 1850 inclusive, 402. Present state of the Londen book trade, ib.

History of printing in France, 404, 405. Remarks en the specimens of typography exhibited from France, 45. Regret expressed at the absence of specimens of the typographic productions of Spain and Partugal, et the typographic productions of spain and trittingal, 365. Observations as the state of printing in Bel-gium, ib. Spainerns exhibited, ib. Few specimens from the printers of the Setherlands, ib. Continuation of the veluminous publication of the "Lives of the Saints," commerced by Bollandas, Ab. Ingeniess maof the *vanamence by Bellindian, A. Ingenieus machine for composing types, on an entirely new system, from Deemark, A. Specimens of printing hash notes world combinations and the difficulty thrown in the way of forgery, A. Specimen of printing from Russia, B. Establishment of a printing-office at Athense, A. Establishment of a printing-office at Athense, and the state of the stat cimens of typographical productions of Greece, ib. Europe might inve possessed the art of printing ever since 1310 had she been acquainted with the wock by Richld-ed-din, descriptive of the process of printing as known to the Chinese, ib. Beautiful manuscripts from Persia, ib. Typographic press not unknown in that country, ib. Present state of printing in Egypt, ib.

Interesting display of specimous from that country 405, 402. Peculiar paper used, 407. Collection of newspapers from America, nothing remarkable either in the priming or lowness of price, ib. Specimen-back in the Canadian collection, containing a large number of beautiful types, also stereotype plates, rb. Ubserof beautiful types, also stereotype plates, th. Observations on the specimens of printing from Australia, ib. New process relating to galvanoplastic, galvanographic, galvanoglyphic, and chemitypic printing, the Description of these processes, ib. General remarks on paneleonography; nature of the process, 407, 403. History of music-printing from 1430 to the present History of music-printing from 1400 to the present time, (ilik. Speciations of music-appearable). Speciations of music-types ex-hibited, ib. Marked improvement in the types of M. Derries, of Paris, ib. Difficulties in be neverone before music printed by letter-press can equal that printed from engraved plates, ib. Good work produced by transfers of engraved music on lithographic stones, by transfer to regresses more on timegroups, some, and consider than its letter-press, the Printing in the Zollverein States keeps pace with paper-making, 435. Number of establishments in the various States, 436. Lithogroph blishments in the various States, 436. Lithogroph much more on the increase than the ather brauches of printing, ib. Table shewing the weight of books imprinting, 10. Laure snewing the weight of box ks im-ported into, and exported from, the Zollverin States in 1850, 440, 441. List of awards, exhibits, and ex-bibitors, 451-455. Notice of specimens of organical printing, including chromo-typography, 582. See also Galeosophyby. Littography. Printing in Colours. Printing in Gold. Types and Type-founding.

INSTING FOR THE BINN.—See Bland, Apparatus, 5c., for

Teaching.

Teaching. Calico, ke—See Calico Printing. De Laine
Pentrina, Calico, ke—See Calico Printing. De Laine
Printing. Designs for Printed and Ween Fabrics, &c.
Printing. Designs,—lingo di Carpi the original projector

Benerius in California—thina caura by surface block printing, of printing chiaro-oscuro, by surface block printing, 400. Jackson's essays on the Invention or engraving and printing in chiarco-serve, published in 12%, 3b. and printing in chiarco-serve, published in 12%, 4b. and printing in the chiarco-served in the first of the chiarco-served in the first of the chiarco-served in the first impulse given to coloured surface printing during the existence of the state lotteries, 3b. Great improving the chiarco-served in the printing during the existence of the state lotteries, 3b. Great improvement made in the rt. 4b. Neveline produced by J. Whiting, 3b. Establishment of the printing office of Boundon's Household Company of the printing office of Boundon's Household Company of the Printing of the coloured the control of the printing office of Boundon's Household Company of the Printing Office of Boundon's Household Company of the Printing Office of Boundon's Household Company of the Printing Office ernamental printing, and particularly for protection against forgery, ib. Compound plate printing by machinery, ib. Revival of ornamental printing by Mr. De is Rue in 1832, ib. Hapid and successive improve-De la Rue in 1832, il. Hapid and successive Improve-ments which have taken place since that period, il. Beauty and perfect execution of Baxter's process, il. Objects arbibited as specimens of this branch of inshistry, ilst of exhibitors, il. Nottee of specimens of printing in colours, 688, 696, 703.—nee also Chromo-Typegraphy. Lithesterms. Lithochromy.

RINTINO, EAUTHENWARE.-Process of Messrs. Prait for coloured printing under the gluze, 541.
Paistries is Gean. General remarks on Whittaker's pro-

cess of printing in gold, 403. Description of the pro-cess adopted, 403, 404. Process similar to that now used by bookbinders in block gilding, 404. Introducused by bookbanters in the second sensities to that now then their Englands, shown 200 galling, all: introduce of printing in gold from capper plates, do. Description of this process, A. Drinning in gold by letter-quest, of the process, A. Drinning in gold by letter-quest, this description executed by De la Rice and Cho. do. Printing of the "Yan" newspaper in gold on Concendion day, do. Gold printing new applied to numerous par-ticular and the printing and the printing do. List of the printing of the printing and the printing do. List of exhibitors of printing in gold and niver bronze, variety stream less. They desirable quality are research to.

of specimen contributed, A., quility presents by in-land in the other private what the fine them therein, 122. It is one the same with inter imprecision in the 122. It is one the same with inter imprecision in the A. Manufaccurs of link at the present time good, A., Grinding rendered more prefer by the application, of the contribution of the contribution of the contribution of D-1s Rus, S. Time to supple our product of decking property of the contribution of the contribution of the Partron Partons. Varian privating greens worked by Partron Partons. Varian privating greens worked by the contribution of the contribution of the contribution of the limiter privating metalines and Applepaths privating median. S. Pertring standation which is servery, as

pinte is curred to fit the circumference of a cylinder, st.

Paixriso Rolling. - History of the substitution of rollers for the usual printers' bails, 413. Introduction of com-position rollers, sb. Prejudice of the workmen sgninst the roller, sb. Effects of Mr. Harrild in conciliating manufactory, ib. Extensive nature of Messrs, Harrild's manufactory, ib. Greater part of the printers of England supplied with their inking-rollers, ib. Investion of inking-tables and hand-rollers due to Mr. Cow-

Specimens exhibited, ib. BISTING TVE -See Types, &c. Prior, Rev. II. E.

Paismatic Confesses. - See Compasses Primatic.
Paismat. - See Lenses and Prima. Optical Glasses.

Pritchard, A., 267.
Page Medals, Total number of Prize Medals awarded, II

List of Exhibitors to whom Prize Medals have been awarded, showing the Nation, the No. 1a the Catalogue, Name of Exhibitur, and Objects rewarded; vix.,

Class L-xxxv. Class XV.-lxxix. tt.- sssix. XVI.-IXXX XVII. -- lavaiil. III.-xli. xvttt,-lxxxvl v.-iiv. XtX .- Ixxxvii. VA--IV XX.-xc XXL-xely. vt.-- lv1 VIL-IVIII. XXII.-xcvl. VIII,-lix. file may tx -lsll XXV.-evl. X A .- IXVI. XXVI.-cvii X n. - Ixviii X c. - Ixix. XXVII.-cix Xt .- IXX XXIX,-cxiil

xtv.-lxxvii. Pazza.—Decisions come to by Her Majesty's Commissioners relative to Prizes, Iv., Note, Instructions from the Council of Chairmes to the Juries respecting awants, axiii, axiv. Misute of the Royal Commission, on the award of the Council Medal, axiii, axiv. List of Jury Awards, axav, exx. See also Council Medals, Homoroble Mestion, Prize Medals, Monog Awards.

Ladies' Jury .- exx.

Prosser and Hadley, 201-204.

XIII.-lxxly

Prosser, R., SD. Proser, R., 522.

Sept-24 Nove, — Variens artleles, such as door handles, finger plates, &c., Included under his head, £32. The degree plates, &c., fachuled under his head, £32. The eligible composed thereof, &c. Applicable for many purposes for which ivory and marble are at present used, &c. Description of this very ingenious manufacture, &c. Process by which these results are obtained, &c. Massacr in valid the colouring is effected, &c. Specimens exhibited, awards, and names of exhi-

bitors, ib. Proutat and Co., 48 Prouty and Mears, 226, 242

Protect and Co. 2022.

Protect and Co. 2022.

Protect 1, 2022.

The Protect 1, 2022.

The Protect 1, 2022.

The Protect 1, 2022.

The Protect 2, 2022.

Th

or snaws, 350-382.

State of printing is this country, specimens exhibited, 252. Examples of paper, 442. Collection of types and specimens, 452. Specimens of stationery paper, 452-456.

Printed goods, 458, 459. Varieties of dyed yaras, 459. Spec mens of needlework and embroidery, 479. Carpets and table covers, 475.

represents of eulery, edge. Look, Lo., 489-491. Hardware, Iron excitogs, and Iron manufestures, 452.

Articles of glass, 506, 532. Remarks on the contribution of Prosis in the Carmanie Papartners of the pietre figures, Eq. 503, 531. Specimens of manufactures in prophyr, 252. Chemical stressis and approach, 48, 189-189. Specimen of glassed fire-clay goods, 48, 189-189. Specimen of glassed fire-clay goods, 48, 189-189. Specimens of glassed fire-clay goods, 48, 18

Examples of painting and other brushes, 600.

East-de-Cologne and other perfumery, and soap, 614, 615.

Statistical account of the stearic candle manufactures

Salatical account of the stearic canalle manufactures in Pruesia, Eds. Collection exhibited, (22). Sample of participation, (23). Instalaton ineffer matches, (23). Annales, (25). (25). Specimens of walking strike and sword cames, (25). (26). Specimens of walking strike and sword cames, (25). (26). (Collection of pipes, chiefly sabber manufactures, (27). (23). (23). (19)

the Fine Arts department of the Exhibition, viz. - Works of sculpture on a large scale, 622. Works of sculpture on a small scale, 618. Designs for tapestry, ib. Litho-

chromy, ib. Architectural models, ib. Castings in bronze, 705. Castings in from 707. Prussia, H. M. the King of Remarks on the shield pre-scuted by, to H. R. H. the Prince of Wales, 514, 685.

Par salve Burn.—Considerable quantity thereof, formerly made and exported to China for colouring green tens; price formerly and at present, 22. Specimons of, 48. Prussian Royal Iron Foundry (Berlin), 5-33, 502, 517. Prussiance of Forsan — See Potash, Prussiante of.

Psychs, E. (Juror), xxx. Puckridge, F., 165. Puggard, H., 52. Pugh, J. W., 363.

Pugh. J. W., 363. Pogh. D., 552. Pugha, A. W. (Juror), xxxi, 502, 657, 656, 716, 718, 725. Pulban, J., 562. Pulban, J., 562. Pulban, J., 562. Pulban, R. W. and J., 553. Pulban, R. W. and J., 553.

PUMICE STONES- From the banks of the river Waikato, New Zealand, 15. Specimens of artificial pumice stone from Austria, 575.

Pt.MTs.—Inconvenionce resulting from the wearing out of the pistons of mising pumps, 12. Investion for adapt-ing the pistons of pumps in mines by J. Arthur, io. Model showing the arrangement of the apparatus, io. Notwithstanding the great antiquity of the pump, and its extensive use, considered in a mechanical sense it is one of our worst machines, as a means of producing a given result with the least possible expense of power a given result with the least possible expense of power, 12h. Amount of power lost in lifting and forcing pampa, th. Causes of this loss of power, 175, 12h, pumps exhibited, 12h. Common suction pump, the suction air chamber being made of glass, showing its action, id. Small pampa called fire syringes, id. Description of a pump for taking the surface water only of a well, and at the same time filtering it, id. only of a well, and at the same time filtering it, ib. Double pump, with large eyinders and six-inch valves from France, ib. Peculiar fountial pump, nature of its peculiarity, ib. Revolving pump, and various jets d'eau, lagesious in combination and arrangetont, ib. Deep-well force-pump, remarkable for the facility with which the valves can be removed to be repaired, ib.

Nee also Centriqual Prangs. Valees for Pangs.

Person-cutting.—See Types and Type-founding.

Penson-cutting.—See Types and Type-founding.

Penson bland.—Plastic clay nied in the manufacture of carthenware, obtained from Purbeck Island, 13, 14.

Pennick Stone.—Purbock stone and Purbock marble ex-bibited in a sculptured form by only one person, 557. Not much used at present, except for restorations, ib.— See also Marbles. Purceil, F., 472 Purdie, -, 59, 62 Purdy, C. W., 50

Purly and Fendl, 330, 334.
Pinger, J. B., 678.
Ponse Terminos - Specimens of, 507, 508. Pusey, L. (Juror), xxv, xxvil.

Putnam, G. P., 42 Puttealia, Rajah of, 378.

uzia, —, 410.

uzzrolana-Specimens of, from Santerin, Greece, 33 Modification of puzzuolans by a mixture of burut and unburnt stone, 524. Specimen of a very fine natural coment of the nature of puzzuolans from Greece, ib.

Prason, -, dil.
Prasvess Collection of marbles from the quarries at the,
21. Great variety and beauty of polish, 25. Numerous
series of small specimens of woods of the Upper

PURITES .- Separation of pyrites or schist from coal by Mr. Berard's purifying apparatus, 4. Description of the apparatus, 4, 5. Existence of pyrites in the island of

Berard's puritying apparatus, a. Description of the apparatus, § 2. Existence of pyrics in the biland of Trinidad in sufficient abundance, to be employed in the manufacture of sulphur, I.Z. Manufacture of all and copyerts from the pyritions achieve from the coal formation, Limber also per mod Copyer and Copyer offer. Pyrke and Sons, 302.

VROGALLIC ACID Samples of, 4

PYROMECONIC ACID- Specimens of, 47.

Prhomereas.-Use of this instrument, description of the construction of, Ericsson's pyrometer, 322. Description of a pyrometer exhibited in the Austrian Department, &. Preoxantitin - Specimens of, 10.

Qualn, —, 311. Quanonne, C. and J., 623, 630. Quanonne, Sec Missing, 5v.

QUARTE,-Specimens of pure quarte and other materials used in the manufacture of glass from Rome, 34. Num

used in the manufacture of glass from Rome, 31. Number of objects caused in quarts rock (rock crystal) from Isda and China, 266... See also Japes.

Queza, Han Marker Thr. Notice of a portrail of, by Duclareau, after Winterhalter, 657, 931, 202. Portrails of the Queen, the Prince of Wales, and H. H. H. H. Prince Marty, on a jewic case, 657, 262. Zine statue of Herman States, which was the configuration of the China and Chin

Queen Libusa, Statue of-notice thereof, 522

Quennessen, —, 296.

Quennessen, —, 296.

Quernervaox Baux—Specimens of, 87.

Dye stuffs exhibited, 86. Dyed samples shown, ib.

Quernil, G., 162.

Quesnel, —, 407.

Quesnel, —, 7012.
Quetelet, L. A. J. (Juror and Associate), xxvii, xxxi.
Quicassaver.—See Mercusy.
Quilliam and Creer, 555, 562.
Quilliam and Creer, 555 fee.

ture of brushes, possessing the qualities of cheapness and durability, soil. Their application also to the making of articles of dress and baskets, ib.—See also Porcupine Quills, OUTLITINGS.—See Cutton Manufactures

QUINIDINE.—Specimens of the alkaloid " quinidine," 50. QUININE.—Specimens of salts, sulphate and citrate of quinine, with other samples of quinine, 45, 46.

QUININE, HYDRIODATE OF Samples of, QUININE, SULPHATE OF Specimens of, 44, 4 Quinn, -, 148

QUINQUENOSONE (Normandy) - Bottle glass mannfactory at, established in 1234, 528.
Quinis, Sr., Glass Works (France)—Referred to, 527.

Rubourdia, --, 482, 596.

RACE CUPA.—Large ever, for a race cup, representing
Harcules combating the borses of Diomedes, 512.

Groups for racing prizes in good taste, and carefully executed, 513. Richid-ed-din, -, 40

RACKETS.—Small selection contributed, 677. The manufacture of such as are used in the game of Tennis better understood in France than in England, ib. Awards made, ib.

Radeliffe, Radeliffe, -, 173. Radice, A. (Juror), xxvill. Radmeister, Community of, 21. Raesner, C., 425, Raffles, Sir S., 82, Ragan, W., 552, Rarg, —, 488, Ragg, -,

Razg, J. (Associate Juror), xxix.

RAUS.—See P.yer, in:
RAUS.—See P.yer, in:
RAUS., RAUWAY.—Wrought-iron permanent way for railways; the rail made to form its own continuous bearing,
187. Sections of railway bors of all the forms used in

railways, 189. Rallway bars 10 feet in length, of

rannays, 122. Railway bars 20 feet in length, of skifful workmanship, ib.

Bailwax-Breaks.—Description of a carriage-break exhi-bited; n good example of what is termed the sledge-

Frenk, 187.
RAILWAY CARRIAGES.—Articulated railway carriages, 160 ID-AY CANDADES—Articulated railway carriages, 162. Fight-wheeled double railway carriage for first and second-class passeagers, 126. Bailway carriage constructed of Moulmein-test, varnished, 182. Patent covered railway waggen for the conveyance of merchandize by railway, ib. Excellent adaptation of corruptated iron to the coastruction of railway carriages, 128. Second-coastruction of railway carri

Application of papier mache to the construction of railway carriages, it.

RAILWAY-CARRIAGE AND Patent railway-carriage axies,

17.4. Hinstrations of their process of manufacture, ib.
Railway Slikeram, See Timber Scanning. RAILWAY-TRAIN ALARMS.—Electro-nasquetic, 28

plicity of the arrangement, ib. plicity of the saringciment, in.
hway Traversing Frame.—Description of the construction and application of a traversing frame to HALLWAY remove carriages from one line of rail to another, 18

RAILWAY WAAPPIRS.—Excellent specimens of railway wrappers and Windermere rugs, 250.

RAI GAGES—Different descriptions of, exhibited, 2022—See also Automotives. Atmospheric Recorder. RARES, House. - Utility and economy thereof, 231. Ralph, F., 418.

Ramay, ..., 700. Ramboulliet National Sheepfold, 159.

Rampendahi, H. F. C., 552 Rame Hrans, Ham's bend richly ornamented, exhibited by M. McGregor, of Perth, 520. Ram's head richly mounted, the ocuments being silver thistles, exhibited

by W. Baird, of Glasgow, it. Ramsay, G. 11, 559, 584. Ramsay, R., 403.

Ramsay, R., <u>863</u>, Ramsa, J. M., <u>685</u>, <u>701</u>, Rand, J., and Sous, <u>357</u>, <u>359</u>, <u>361</u>, Randall and Dicks, <u>333</u>, Randell and Sanders, <u>201</u>,

Randell and Fanders, 201.
Randell and Fanders, 201.
Randeng, J. (Brainbitor), 252.
Randen, I., 452.
Randen, I., 452.
Randen, I., 452.
Randen, R., 502.
Rankin, R. and J., 202.
Randeng, R. and Randeng, R. and Randeng, R. and Randeng, Rande

Ratshinsky, -, 55. Ratsersdorfer, H., 517. Rau, C. H. (Juror), xxvii. Rau and Co., 506.

Rau and Co., 506.
Rauch Brothers, 442, 453.
Rauch, C., 697, 707.
Raucher, L., jun, 166.
Ranh, —, 442.
Ravagli, P., 162.

RAW r Pasorce and Materials (Vegetable and Animal Klagdom). — List of classes of objects included in Group A. Raw materials, ill, v. Several collections of Group A. Raw materials, III, v. several collections of especial value assonget the numerous samples of raw produce from the animal and vegetable kingulous of various countries, 52. Importance of such selections in a statistical and scientific, as well as in a commercial point of view, ib. Valuable and important collection of the raw produce of the Indian empire, ib. Valuable and important collection of the raw produce of the Turkish empire, ib. Valuable and extensive collection of raw products, illustrating the natural resources of Spain, ib. Unrivalled excellence of the long staple cottons of the United States, ib. Peculiar value and excellence of the leiting wools exhibited in the Aus-tion. Description 1. important collection of the raw produce of the trian Department, ib. Complete and well-arranged collection of the vegetable productions of Scotland, ib. Large portion of the commerce of the country fairly represented by the Liverpool collection of imports, ib, Persevering and successful efforts of the Royal Society for the Improvement of the Cultivation of Flax in Iro-land, ib. Remarks on Mercer's process for modifying

the fibre of cotton, 60. Ingenuity of the invention of M. Popelin-Ducarre for preparing charcoal in cylindrical masses, called "Charbon do Paris," 70. Description of a new kind of wool, called "Manchamp-meriun," introduced by J. L. Granx, of Juvincourt, france, ib. Remarkable progress made in France in the economical extraction and preparation of pure gelatines and glues from the waste parts of animal bodies; specimens exhibited by its chief originator, L. F. Grenet, ib. Council Medials awarded for collec-L. r. Grenet, ib. Council Medials awarded for collections of raw produce, 69, 20. Various countries from which collections of raw produce have been exhibited, for which Prize Medals have been awarded; names of exhibitors, 70, 71.—See also Annual and Pepetoble Salvatanees, 55.

Rawlings, J., 683

Rawlings, T., 748 Rawson, Mrs., 10 RAI'S ITINERARY - Quoted, 325

Rayko, --, 162. Raymond and Schuyler, 55.

Raynbird, 11., 51, 54, Raynor, Eli, 25, Raynor, Mrs., 561,

Razons - Collections of, 489, 421. Res. E., 72 Reade, A., 25. Reade, C. W., 551.

Reode, C. W., 551.

Reode, Rev. J., 551.

Reode, Rev. J., 552.

Reode, Rev. J., 552.

Reode, Rev. J., 553.

Redde, Rev. J., 553.

Redd, Rev. J., 553.

Redde, Rev. J., 553.

Redde, Rev. J., 553.

Red machine in one of our cuionics, and failure thereof, ib.

macrine in one of our culonics, and radiure thereof, ib.
Invention of an implement in America, and success
thereof, ib. Detailed description of this reaping machine (M'Cormick's), ib. Remarks on Hussey's reaper,
222. Result of trials of M'Cormick's and Hussey's reaping machines, &. Prize awarded, 211.

resping minerance, vo.

Rebert, C., 202

Rebox, J. G., 159

Rebox, J. G., 159

Reckitt and Son, 34, 71.

Reckitt and Hilding, 462.

Relixing and Hilding, 462.

Relixing the Company of th

REU LARE (a calour) - Specimens of, 49.
RED LEAD. - Varieties of orange and bright red lead, 46.
REU PHOSPHORUS. - See Phosphorus, Red or Alberopic.

Redferra, G., . Redferave, R. (Juror and Associate), xxix, xxxi. Redferave, Richard, R.A. (Analysis of Supplementary Report by, on Design.)

port by, on Devign.)

forcummances which led to the preparation of this Report; objects embraced by it, max. Definition of maximal max ditional who superstitiously worship the past, and those ditional who superstitionally worship the past, and those who pay no deference to authority; results of the labours of each class, 709, 710. Governing principles in modern ornamentatis, 710. Incongratities and incompatible combinations, 55. Ancient and modern ornamentation compared, 55. The designer not appreciated by the manufacturer, 710, 711. Want of minim in motern ornamentus, 110. Incongruities and in-compatible combinations, & Ancient and modern ornamentation compared, ib. The designer not appre-ciated by the assunfacturer, 710, 211. Want of naion between the designer and the mechanic employed to carry out the design. 211. Taste for design title dif-fused in England, ib. The question of design nearly overlooked in the Exhibition itself; ib. Circumstances to be considered in comparing the progress of orna-ment and art-workmanship in this country with conti-

ment and across animap in the state of the considered in this Report into various heads, 712, viz.:—

1. Decoration of buildings; architectural decoration

generally, 712, 714. Stained glass decoration, 714, 716, Inlaid floors, mosaic pavements, inlaid tiles, &c., 716, Paper and other hangings, 717-719. Exterior and other metal work, 719, 720.
 Pomestic and other farmiture, 220, 721. Cabinet work and furniture of all kinds, 721-725. Hardware, comprising grates, feeders, fire-irons, stores, gas-fittings,

lamps, &c., 723-727. Carpets, 727-729. Curtains and langings, 223-731.

Domestic utensils and objects of personal use, 73 Porcelain and potters were, 731-734. Glass, 734-736. Works in the precious metals, 736-740. Bookbinding, and the "design" applied to that branch of industry,

740, 741.

4. Garment fabrics, 741-745. Shawis, 745-747. Ribbons, 747. Lace, 747, 748.

Concluding remarks: necessity for extension of educations of educati

tion for art-workmen; lustruction at Government schools of design, 748, 749. Expediency of a well-arranged distribution of the means of instruction for the whole kingdom, in accordance with local wants and manufactures, 749. Especial attention to the great public establishments of France essential as a means of gaining information as to the knowledge of art by work-

men ik Redier, A., 341, 342, Redmayne and Co., 353. Reed, -, 403. Reed and Cu., 197,

Reed and Meakins, Heed and Pardon, 401

Rees, -, 93 liceve, J., 1 Heeves, -, Reeves, Greaves, and Co., 221.

Reeves and Sons, 48, 450, Reeves, T. R. and J., 230, 242, Reffacili and Son, 154,

Report, II. J., and K.

Report, II. J., and K.

Report, II.

Report,

Reid, W., 254. Reidm, E., 162. Reifler, C., 356. Reigo de la Branchardiere, E., 462.

Reimann, L., 222 Rein, C., 303, 316

Reinbard, —, 4 Reinbard, G., Reinbold, W., Reinsch, Dr., 2 Reiz, Rieda, and Co., 159. Remacle, J., and Pérard, 22.

Rembuld, --, 401. Remnant, Edmands, and Remnant, 424, 453.

Remonde, A., 198, 204.
REWAISSANCE STILE,—Origin and character of the Ronaissance style in decoration, 709. Renard and Son, 53

Renault, --, 84, Rendail, J., 602, Rendel, J. M. (Juror), xxvii. Renemeuil-de, 22

Renkin Brothers, 2 Rennie, G. (Juror) xxvii, xxxi. Renny, Sons, and Co., 373.

Renny, Sona, and Co., 1988.
Remvick, T., 52
Remvick, T., 52
Rervick, T., 52
Rervick, T., 52
Rervick, T., 52
Rervick, T., 52
Revick, T., 52
Resplayed and Silvert, 366, 376, 470
See also Conter Pieces.

—See also Conter Pieces.

—See also Conter Pieces.

 Requillert, Roussel, and Co., 473, 475.

Results.—Products manufactured from resin, 45. Numerous series of resins from Sarawak, 24. List of the chief Indian guas and resins, 74-16.—See also Gwas and Resins.

```
Rigby, W. and J., 221.
Rigmalden, Lieut. J. 217.
Rigmalden, Lieut. J. 217.
Riley, E. 43.
Riley, E. 43.
Rimanel, E., 615.
Rimanel, E., 615.
Rimanel, E., 615.
Rimanel, E., 615.
             Retter, F., 341, 342,
Rettle and Sona, 503, 520, 565,
Rettig, C. A., 35,
             Reulas, A. J., 311.
             Reuss, -, 97.
Reuter, -, 447
         Reuter, —, 410, 454.

"Revirt" Wheat. See Wheat.

Rever, C., 332, 331, 502.

Rey Brothers, 455.

Rey and Co., 152.
                                                                                                                                                                                                                                                                                                                                                                                    Rinaldi, P. and D., 33.
Ringuet-Leprince, E., 551, 723, 724.
Ripa, L. D., 162.
                                                                                                                                                                                                                                                                                                                                                                                    Ripalda, Count, 99.
Ripley, P. W., 57.
             Reyder and Colin, 310, 312
             Reynier, Cousis
                                                                                                                                                                                                                                                                                                                                                                                    Ripley and Sons, 450
                                                                                                                                                                                                                                                                                                                                                                                Rippingham, -, 273
Risler, G. A., 195, 203
             Reynolds,
             Reynolds, Capt., 102
      Ricchie and M'Call, 64, 65.
                                                                                                                                                                                                                                                                                                                                                                                    Ritter, W., 491.
Ritzel, L., 509,
Rivart and Andrieux, 545, 551.
                                                                                                                                                                                                                                                                                                                                                                                    Rivand, G., Lin
                                                                                                                                                                                                                                                                                                                                                                                    Rives, Abbe, 445
                                                                                                                                                                                                                                                                                                                                                                                    RIVER AND MACHINE.—Machine for rivetting boller-plates
      Havar rhaposticus, ib.

Rimons. – Specimens exhibited in the British Department, and also from France, Switzerland, and Austria, 354, 365.

Rimons, Desows ron.—Inquiry into the essentials of ornamental deeps as applied to ribbon, 324. Tees, disposition, and artistic effects of ribbon as used in dros.
                                                                                                                                                                                                                                                                                                                                                                                by pressure, 262.
Riviere, Mare La, 442.
Riviere, R., 425, 463.
Road Drawing and Mappine Machine, 254.
                                                                                                                                                                                                                                                                                                                                                                                Roake, J. W., 13.
Robb, J., 54.
Robbins and Laurence, 221.
      stition, and artitule effects of rishon as used in draw, the Tenlewey to gamhens and over-decoration in the Company of the Com
                                                                                                                                                                                                                                                                                                                                                                                Robert, A., 480
Robert, A., and Co., 506.
Robert and Co., 63.
                                                                                                                                                                                                                                                                                                                                                                             Roberts, —, 297.
Roberts, E. W., 335.
Roberts, E. W., 335.
Roberts, H., 279.
Roberts, R., 315, 338, 340, 342.
Roberts, R., and H., 632.
Roberts, W., and Co., 333.
Polarizor and Co., 433.
                                                                                                                                                                                                                                                                                                                                                                                Robertson and Co.
                                cimen of Ris de Piemont, from Sardinia, ib. Samples of rice from Russia, ib.; from Egypt, ib.; from the
                                                                                                                                                                                                                                                                                                                                                                                    Robertson, Carr, and Co., 506.
                                                                                                                                                                                                                                                                                                                                                                                Robertson, J., 103
Robertson, J. and J., 375
   of rice from Russis, ib., from Egypt, ib., from the Lulied States, ib.

Rice, W., 202.

Rice, W., 202.

Rice Gautzy.—Sample of, ib.

Rice Faren.—Samples of shala from the vicinity of Calcutts, 102, 103.

Conservation Thuttrations of the uses to which applied to the control of                                                                                                                                                                                                                                                                                                                                                                           Robertson, J. van J., 420.
Robertson and Sons, 260.
Robertson and Sons, 260.
Robertson and Sons, 260.
Robertson, V. 2022.
Robertson, V. 2022.
Robertson, V. 2022.
Robertson, Aprilin, and Co., 260.
Robbinson, Aprilin, and Co., 260.
Robbinson, J. and T., 266.
Robbinson, J. and R., 260.
Robbinson, J. and R., 260.
Robbinson, T. 2022.
Robbins
      RICE STARCH. - See Starch.
   Rice STARCIL—See Shard,
Richard Cran no Law (Sculphare).—Referred to, 584, 704.
Richard, Lesis, 335, 342.
Richard, Lesis, 335, 342.
Richard, W. 32.
Richards, Westley (Jarve), xx1x, xxxii.
Richards, Westley (Jarve), xx1x, xxxii.
Richards, Westley, and Son, 321.
Richardson Breathers, 60.
Richardson Breathers, 60.
Richarhson Brothers and Co., 45.
Richarhson and Co., 373.
Richarhson, and Co., 373.
Richarhson, C. J., 551, 695, 713, 721, 734.
Richarhson, J. V., 372.
Richardson, J. V., and Co., 373.
Richardson, Dr. T., 42.
Richardson, Dr. T., 42.
Richardson, W. H. B. and J., 536, 735.
Richardson, W. H. B. and J., 536, 735.
                                                                                                                                                                                                                                                                                                                                                                             Robson, T. J. F., 335, 335.

Rochlgianl, A., 577, 687, 704.

Rochatz, Carner Prepared from lichens, 10.

Rochatz, C., 31, 48.

Rochetz, G., 31, 48.

Rochetz, G., 31, 48.
                                                                                                                                                                                                                                                                                                                                                                             ROCHELLE SALT Specimen of, 46.
                                                                                                                                                                                                                                                                                                                                                                             Rochert, -, 217, 318
Rochettl, -, 205,
Rock and Co., 442,
Richter and Co., 63.
Richter, J. M. S., 50
Richter, L., 365.
Rlekets, C., 365.
                                                                                                                                                                                                                                                                                                                                                                             Rock and Graner, 681
                                                                                                                                                                                                                                                                                                                                                                             Rock, M., 157.
Rock and Son, 193
                                                                                                                                                                                                                                                                                                                                                                             Roca-cayerata.-Specin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ns of brown rock-crystals cut,
   Rickman, —, 41
Riddle, W., 506
                                                                                                                                                                                                                                                                                                                                                                          from Warmbrunn, in Silesia, 220.
Rockhausen, W., 654.
Rockstroh, H., 376.
Ridel and Soc 65.
Rider, Messrs., 208.
Ridgway, A. P., 646.
Ridgway, J., and Co., 541.
Ridolfi, Professor Michel, 48.
                                                                                                                                                                                                                                                                                                                                                                          Rodel and Son, 63, 641,
Rodler, Lleut. W., 210, 218,
Rodler, P., 187,
Roe and Hasson, 182, 234.
   Riedl, —, 318.
Riedl, J. F. (Widow of), 331.
                                                                                                                                                                                                                                                                                                                                                                          Roeck, L., 162.
Roeg, S., 322.
Ried, J. F. (Widow of), 3
Rier, P. J. Van, 22
Riet, P. J. Van, 22
Rietschel, Ernut, 685, 692.
Rieussec, N., 340, 342.
Riylas, – See Cons. &c.
Rigant, –, jun., 62.
Rigby, E. R., 600.
                                                                                                                                                                                                                                                                                                                                                                          Roeller and Huste, 476
                                                                                                                                                                                                                                                                                                                                                                          Rocks and Co., 93.
                                                                                                                                                                                                                                                                                                                                                                       Roesier, H. (Juror), xxviii.
Roesner, Professor C. (Juror), xxv, xxx.
Roger, — (of Amsterdam), 735.
Roger Brothers, and Co., 359, 351.
```

Demonstrate Langelle

```
Roger and Son, 28, 20
                                                                                                                                                                                                                                                                            verting vibrating into rotatory motion by Demanet,
  Rogers and Dear, in
                                                                                                                                                                                                                                                          Rotch and Finzel, 203
  Rogers, E., 2.
Rogers, G., 357.
Rogers, J., 48.
                                                                                                                                                                                                                                                        Rotch and First, 265,
Roterman, C., 29,
Roth, C. W., 392,
Roth, W., 1910, 541,
Rotherham and Sons, 341, 342,
Rotsch and Reichel, 157,
Rotsch and Reichel, 157,
  Rogers, W. G., 516, 551, 686, 694, 721, 723.
Rogers, W. H., 305, 251, 686, 694, 721, 723.
Rogers, W. H., 315, 223.
  Robbik, R., 525.
Robbik, R., 525.
Robbik, R., 525.
Robbik, R., 525.
Robbik, R., 525.
Robbik, R., 525.
Robbik, R., 525.
Robbik, R., 525.
                    tributed by the Indian Government, 132, 133.
                                                                                                                                                                                                                                                          Roule, A. F., 552.
Roulz, -, De, 83.
  Riller, F., 48.
Robrig, C., 532.
Robrig, C., 532.
Robrid, Phart Glass ron Roors—Specimon of, 536.
                                                                                                                                                                                                                                                          Ronse, Captain, 13
                                                                                                                                                                                                                                                          Housstnoff, — , 45.
Rousscau, A. J., 18.
Rousscau Brothers, 63.
  Roller and Blanchet, 334,
Roller and (Agricultural).—Orlginal clumsy make; Impre
                  ments therein; reference to the roller exhibited by
P. Claes, of Belgium, 227. Roller supersoled by the
elod-crusher, ib.
                                                                                                                                                                                                                                                          Roussel, -, 410
                                                                                                                                                                                                                                                        Roused, —, 410.
Rousell, —, 732.
Rout, W., 163.
Rouvenst, L., 520.
Roux, Pr., (Juror), xxviii.
Rouxel, F., 22.
Row, W. J., 401.
Row, V. J., 401.
Rowlands, J., 502.
Rowley, C., 266.
    Rolph, J., 462
  Rolwegar, —, 426.
Romain, D., 517.
Romanengo, G., 610
  Rome.—Small number of productions of the mineral king-
dom of Rome, exhibited, 33. Specimens of pure quarta
and and other materials used in the manufacture of glass.
                                                                                                                                                                                                                                                          Howley, C.,
                    ib. Collection of native asphaltes and products of puri-
                    fication of this bituminous mineral, st. The mann-
                    facture of alum still maintains its ground in the Roman
                    Sintes, 48. Specimens of flax and being from Rome, 22.
Samples of raw silk from the Posterior Rome, 22.
                    Samples of raw silk from the Roman States,
Specimens of organzine, 367. Specimens of paper,
                                                                                                                                           Specimens of paper, 415
                    Statistics of the paper-manufacturers of the Roman
                    States, 414. Specimens of manufactures in manuscription. Bagnivola in hapis lazuli, 565. Beautiful specifical works
                                                                     Specimens of manufactures in slabsester,
                                                                                                                  Notices of the principal works
                             sculpture contributed by Rome, 704. Camcos, ib.
                                                                                                                                                                                                                                                          130, 650, 652.
Royston and Brown, 426, 454.
                             ANCIENT.—Works for the manufacture of glass est
                    blished in the neighbourhood of, in the reign of Tibe-
                                                                                                                                                                                                                                                          Runs and Co., Itil
blistee in the nerginocurnose or, in the ritus, Sig. Remersch, C., 153, 266. Remell, L., 576, 573. Remell, L., 576, 573. Remell, L., 576, 573. Remellion, J., 150. Remellion, J., 150. Remellion, J., 150. Remellion, J., 160. Remellion, J. (100 and Associate), xxx, 604. Readon, N. (100 are 200 associate).
                                                                                                                                                                                                                                                          Rudall, Rose, and Co , 314
                                                                                                                                                                                                                                                          Ruddimans, -, 397.
  Rood, G., and Co., 223.

Roors—Mole's of, for churches, &c., of Gmber, 208. Also of terra cotta, ib. Models of, from Saxony, ib. See also Rolled Plate Glass.
  Rooker, -, 311.
Roome, Ann, exx.
Root, -, 277.
  Rooysekers and Son, 526.
Rope.—See Cordage, Sc. Wire Rope.
  Roper, J., 509,
Roper, W., 315,
Ropp, Baron, 53
                                                                                                                                                                                                                                                          Bros - See Carpets
Ropp, Beron, 35.
Roart, -, 405.
Rose, J., and Co., 540, 734.
Rose, J. T., 298.
Rose, W. A., 83.
Rose, W. A., 84.
Rosen, Count A. E. (Juror), xxvii.
Rosenberg and Co., 32.
Rosen, Courterion or Samples of, 50,
22.
Rose, Courterion or Samples of, 50,
22.
Rose, Courterion or Samples of, 50,
22.
Rosen, Courterion or Samples of, 50,
23.
Rosen, Rosenberg and Co., 32.
Rosenberg and Co., 32.
Rosenberg and Co., 32.
Rosenberg and Co., 32.
Rosenberg and Co., 32.
Rosenberg and Co., 32.
Rosenberg and Co., 32.
Rosenberg and Co., 32.
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Rosenberg and Co., 32.
Rosenberg and Co., 32.
Rosenberg and Co., 32.
Rosenberg and Co., 32.
Rosenberg and Co., 32.
Rosenberg and Co., 32.
Rosenberg and Co., 32.
Rosenberg and Co., 32.
                                                                                                                                                                                                                                                          Ruhl and Sons, 448,
                                                                                                                                                                                                                                                          Ruhms, II., 33
Roys, Correction or - Samples of, 50, Reckell, J. all, 181 Juner), 333, (Exhibitor), 246, 248, Ress, A. (Associate Juner), 333, (Exhibitor), 246, 248, Ress, C. (Associate Juner), 246, 248, Ress, C. (Associate Juner), 257, Ress, (Lo., 192), Ress, (Lo., 192), Ress, (Roy, 193), Ress, 
                                                                                                                                                                                                                                                          Ruschi Brothers, Si
                                                                                                                                                                                                                                                          RISHLIGHTS. See Candles.
                                                                                                                                                                                                                                                          Russel, V., 645.
Russell and Robertson, 48.
                                                                                                                                                                                                                                                        Russet and Robertson, 48.

Russia,—Immense revenue yielded annually from the gold
mines of Russia, 23. Reasons for this important source
of riches to the country possessing little interest, id.
The working of fron and its manufacture, joined to the
working of copper, the principal part of the mineral
industry of Russia, id. Objects exhibited, id.
The collection of Russian secretal into feasing in the p-Sakar.
Ross, O Conney, nas. Carson, 257.
Ross and Thomson, 245. 278.
Rosselet, C. P., 11, 45.
Rossi, G. M., 365.
Rossi and Schlapparel, 620.
Rossius-Crban, C. de (Juror), xxvi, xxxi.
Rossler, J., 321.
Rossler, J., 421.
Rossler, J., 421.
```

ROTATION OF MACHINERY.—Peculiar method of reversing the direction of machinery as shown by Mr. R. Rosking's model of stamping machinery for crushing copper and tin ores. 2. Method of con-

Rowney and Co., 48, 450, Roxburgh, Dr., 100, 101, 122, 130, Roxburgh, J. and A., 380, Roy, C. F., 471. Roy, W. Von, 32, 673. Royal Society for Improving the Growth of Flax in Ireland. 63, 97, Royer, J. C. A., 165, Royle, Dr. J. F. (Juror), xxvi; (Exhibitor), 74, 75, 93, 94, Russ and Co., 161. Rübeland Ducal Foundry (Brunswick), 412, 453, 563. Rudenman, -, 109, Rudelphi, J. F., 513, 732, Rudelphi, J. F., 528, 732, Rudyard, -, 528, Ruc, De la, and Co., 198, 204, 314, 403, 404, 412, 426, 431, 4417, 448, 449, 449, 449, 449, 440, 440, 7, de la (Jurrel), xalurel), xalurel, xalur 447, 448, 419, 410, e, T. de la (Jurer), xxviii. REGS. SELECTORISM.—Number of exhibitions of dyed rugs, Res., manufactured from English sleep and Angora gout-skins, 223. The manufacture of recent origin in this country, though known to the Entern antions in the most remote times, ib. Mode of preparation, ib. Articles exhibited and awards, ib. Rumley, -, 564. Rundell, -, 250, 315. Rundz, - de, 574. Runmonn and Meckel, 376, 745.

The collection of Russian ecrealia the finest in the Exhibihe conjection of Russian cereatia the finest in the Exhibi-tion, forming a most attractive and prominent display, 52. Character and nature of the samples exhibited, 52, 53. Large quantities of rice of good quality culti-vated in the southern provinces, 52. Samples exhibited, (b). Beautiful samples of red and white millet, 54.

Samples of green sugar peas, 55. Proverbial goodness of the flours of this country, 55. Excellence of the collection exhibited, ib. Sample of unipoles; their high quality, 56. Samples of mutard, 62. Samples of starch and dextrine, 52.

Samples of the empyreumntle vegetable oil, obtained by the destructive distillation of birch bark, 84. Collection tion of colouring matters or dye stuffs from 20 91.
Collection of taoning materials 23. Samples of cotton,
25. Large and important series of flax and hemp, 29. 25. Large and important series of flax and nempy 22, Small comber of woods contributed, 123, Exomples of wood of a good and valuable quality, 158, 152, New slik, 125. Icosad sperimens of bed-feathers and down, 153. Isinglass, the product of Russia, holds the first make; specimens exhibited, 156.

maik; specimens exhibited, Hos.

Machine for spinning silk directly from the cocoon, 126.

Michine for spinning silk directly from the cocoon, 255. Michine for spinning silk directly from the cocoon, 255. Large sextaots, 252. Levelling instruments, 255. M. croscope from Russia; an indifferent lostrament, 26. Speciacles, 213. Apparatus for assaying precious metals, 217. Practical utility of the instrument, st., Drawing

mall quantity of woollen cloths, 351. Their good quality, ib. Specimens of worsted stuff goods, 356, quality, ib. Specimens of worsted stuff goods, 556, 317. Description of an article of a novel and unique character made from camels' hair span by hand, 358. Observations on the worsted yarns, 327. General remarks on the exhibition of the silk manufactures of

remarks on the exhibition of the ill manufactures of this country, 26.5. Specimens of manufactured silks, of the country of the country of the country of the Specimens of partial p. 25. Samples of fars, 25. 25. 25. Specimens of paper and printing, 455. 35.2. Specimens of god embradered basher, 425. Boots, Specimens of god embradered basher, 425. Boots, shoes, and allipsers, 450. Curlery, 420. Bronzes and mathebitic (26, 355.3.97.

Beautiful productions from Russia as regards the setting of precious stones, 511. Magnificent articles of jewelof previous stones, 911. Magnineous articles of general terry cabilities by Koemmer and Zeffigen of St. Petersburg, 615. Articles of allver from Mescow, id-benuthia cabilition of jesselery from St. Petersburg, rich, ami perfectly set, 512. Articles of glass, 525. Porcelain, 525. Collection of page-hastings, 548, 524. Orannestal furniture, 500, 524. Observations as to the objects in malacibilic and japon and lard

as to the objects in malachile and jasper nod lard porphyry, 52, 56:52.1. Interesting group of objects manufactured from the jasper and quartz works of Silveria, 56. Fine specimens of true Fiorcatioe Mosaic in petro dera, 56:, 563. India-rubber clops and waterproof pillow, 565. Collec-tion of bowls, dishes, plates, &c., formed of the hair of the rubbil, junc, &c., felted and afterwards varanished,

and resembling papier-maché, fixt. Specimens of scaps, fill. Samples of well-made brown Windsor and resembles of well-made brown resembles on ke, from Warsaw, & Account of the stearie candlen manufactured in Russia, £23. Excellent quality of those exhibited, 629. Wax-light produc-tious, 656. Excellent quality of those exhibited, 630. Remarks on a collection of fruits and marmalades, 632. Contribution of well-made but very expensive papier-

Vontrolated or west-made out very expensive paper-maché sunti boxe, 676.

No specimeo of sculpture on a large scale contributed by Russia, 716. Notices of works of art on a small scale, b. Specimens of lithodromy, ib.

Russia, Empress of, 562.

Russian Imperial Cabbert, 355.

Ryan, J., 350, 304.

Ryaer, W., 350, 304.

Ryaer, W. Ryffel and Co., 366

Ryhiner and Sons, 368 Ryles, -, 30

Hymer, A., 315

Saanto, A., 42. Sabatier, II., 278. Sabin, R., 350.

SACCHAROMETERS. - Description of Duborq-Soleil's saccharometer, 272.

SACKING.—Excellence of specimens exhibited, 370, 372, 373. Socks, W., 61. Sacré, E., 259. Sadd, W., 399.

SADDLERY AND HARNESS,-General character of the articles axhibited under the subdivision of saddlery, harness,

and portmanteaus highly creditable to the Exhibitors, 524. List of Exhibitors, Exhibits, and Awards, 334. 324. List of Exhibitors, 345. See also Leather, 345. Sannanosru (York)—Remarkable for the manufactore of Saxuoy flaonels, 358.

Sadler, Fenton, and Co., 98, 372

Sarrs (Iron).--Large number of Iron safes and tressure chests, Mt. Equal merit as far as chances of security offered, ib. Organization and expensive polished offered, ib. Ornamentation and expensive polished work might be dispensed with, 201. Expense neces-sarily considerable, ib. Specimens exhibited, awarda,

AFETT FLEES (for Mines) .- Description of the safety fuse

TET Exos (for Mines)— Description of the safety fase for mining purposes invented by Mears. Reichford, Smith, and Davey, 2. Great service of these fases, 3b. TET, LARS.—Advantages of M. Messer for safety lump, 22. Let be use thereof the description of the factor of the safety lump, 22. Let be use the factor of the safety lump, 23. Let be used to be a factor of the safety lump. The safety lump of the safety lump of M. Musceler, 3b. Experiments made with M. Eleh's hamp showing it value, 4b. Ingenious lamp from Funce, 25b. Extinguishes luted when the gas becomes explosive, 4b. He integrative, 2b. 8b. Esternious. France, 226. Extinguishes listed when the gas ne-comes explosive, ib. Is inexpensive, ib.

AFTLOWER.—Beauty of this colouring matter, 88. Exten-sively used in dyeing silk and cotton, ib. Various

specimens exhibited, 88-91. SAFFLOWER CAUMINE - Samples of, 46.

SAFFRON- Specimens of roots, flowers, &c., of, 49. Samples of saffron, 90, ib., 91.

Saoo.—Samples of sage made from potato flour, 54.
Samples of sage from Prussia, 55. Samples from Angola, the Eastern Archipelago, Berneo, and Ceylon, Sample of sago cake from the Moluceas, ib. ra, Ramon de la (Juror), xxvi, xxxi, (Exhibitor), 103, 154. Said Aga, 673

Salictorii.—Power-looms for making; peculiar arrange-ments thereof, 126. Specimens of cotton sail-cloth, from the United States, of great strength, 319. General excellence of the specimens of sail-cloth exhibited, 370,

St. Etienne, Madame, 54, 64. Sr. Helena, Contribution of willow-tree snuff-boxes from

St. Pelayo, The Nuonery of (Spaio), <u>641</u>.
Sainte and Co., <u>81</u>, <u>630</u>.
Sair-Amostac — Method of preparation, <u>46</u>. Samples

thereof, 48, 50. Sale, J. N., 450. Sales, Pollard, and Co., 60. NALICINE -- A new discovery, produced from willow bark, 47.
NALICILE ACID Samples of, 47.
Salivsky, Madame, 532.

Sallandrouxe de Lamoronix, 473

Salm, Prince, 466.
Salm, Prince, 466.
Salmon, Samples of fresh salmon, preserved in lin canisters, from New Brunswick and Nova Scotia, equal to the English salmon, 64

Saimoo, W. J., 264.

Solutions and Nove, 450.

Salar, Common.—Products from the sala miner of Circhire,
Salar, Common.—Products from the sala miner of Circhire,
Salar, Common.—Products from the expectation of salars applies in most of
the States dependent of salars applies in most of
the States dependent on the Zolliversin, 20. The works
are conducted by the Government, 6. Specimens extended to the Common of the States of the States of
the States of the States of the States of
the States of the States of the Excise day
and upon the monafacture of exclosure of sols, 41. Samples of common with States, Chemical, State of
the States of the States of the States of the States of
the States of the States of the States of the States of
the States of the States of the States of the States of
the States of the States of the States of the States of
the States of the States of the States of the States of
the States of the States of the States of the States of
the States of the States of the States of the States of the States of
the States of the States of the States of the States of the States of
the States of the States of the States of the States of the States of
the States of the States

purposes, 44, 45. See also Sults, Chemical, Sults of Sea- Water. Salt and Lloyd, 506 Salt and Mear, 586

Salt, T. (Juror), xxvili, xxxli; (Exhibitor), 357, 360, 361. Salt Britza Sample of, from Spain, 65. Salter, S., 208, 688, 696.

Salter and Co., 323.
SALTERTHE (Nitrate of Potesh) - Specimens of, 48, 42.
SALTER, CHEMICAL - Samples of various chemical salts, (in

Sairs, Curmical—Samples of various chemical sails, (imdescribed), 44, 46, 47, 49, 40—See also dismous, Sais of Piak Sail.

Sairs of Sail. Sail.

Sairs of Sail. Water—Various soils prepared from seamner by the process of M. Baiard; Council Metal awarded for the same, 21. Saline products of the seamner of the Meditarranean caumerated and described,

Saluce, --, 42, Sambuc, P., 162, Sambuc, E. (Juror), xxvIII, Samuels, D., 121, Samuelson, B., 208, 212, Sayrang Farrosis, -- Eartbenware for, 541,

Sanchaz Pescalor, 505.
Sanchaz Pescalor, 505.
Sancha (for what-making and other purposes,— Parity of the

sand at Stone, near Aylesbury, 12. Use thereof is the manufacture of glass, ib. Specimens of sand and glass, manunecure of giass, ie. Specimens of sand and glass, §6. Sands from Cornwall employed for building or agricultural purposes, §3. Advantageous nee of white quartizos sands in the manufacture of glass, §5. Spe-elmens from Canado, ib. Specimens of pure sand used in the manufacture of glass from Roune, §3.

Sandell, E., 63 Sanders, G , 41

Sanders, G. 3.21.
Sanders, G. 3.25.
Sanderson, R. maß. A., and Co., 382.
Sanderson and Reed, 366.
Sanderson and Reed, 366.
Sandford, Rev. J., 585. 686.
Sandford, Rev. and Watson, 192.
Sandord, De, and Co., 52.

stone of the Ardsley Oaks Quarry, near Barnsley, 11

Saxputes Islants. Species of paper made in these isl from vegetable substances, 432. Sang, J., 338.

Sangerhausen, Landwirthschaftlieber Verein, 29. Sangergio, A., 686, 703. Sangerer, W. and J., 561.

Sanin, -, 42. Sanlegane, -. 40

Sanlecque, -, 465.
Santa Clars, the Numery of (Madeirs), 643, 645.
SANTOSIS. - Specimens of, 44.
SANTOSIS. - Specimens of, 44.
Sapeglakof, Heirs of, 326.
SANAW Woods-Specimens of, from Slum, 87, 89. Dyes
Carracted, 27. Dyed samples, ib. Sapstord, P., 424 Saraclui, C. A., 8

Saragossa Agriculturel Beard, 71, 91, 93. Saragossa, Province of (Spain), 34.

arasia and Co., 355. Sanawasa. — Numerous secies of resins, gums, and gum resins from, 74.— See also Borseo.

SARDINES. - Samples of sardines preserved in oil from

Satistics.— Samples of saturates preserved no strong France, Exceptibilities of mineral produce from Sat-dials, small and unimpoctant, 34. Specimens of Iron ores and shires, 4b. Samples of rice, added Riz de Piedmont, 53. Samples of pières of various kinds, 35. Samples of olicake, 36. Specimens of oils, 8b. Speci-mens of raw silk, 152. Samples of wax, 153. Sam-ples of give, 152.

chinery, 34 Specimens of manufactured silks, velvets, plush, &c., 365-398. Collection of small punches and types, 410. Statistics of the paper manufacture of Sardinia, 444. Specimens of printing, 451

Specimens of printing, 451.
Remarks on the printed goods from Sardinia, 458. Specimens of embroidery, 472. Specimens of filigree work from Geson, 512. Inlaid tables, 541, 550, 51, 552. Slates of good quality from Chinvari, 522. Brushes of all kiuds made from bristles, 623. Brushes of all kiuds made from bristles, 623. Start of good quality from Chinvari, 522. condies, 621, 630. Specimens of paste blacking, 631. Preserved fruits and sugar conserves from Genon, 633,

640. Remarkable specimen of a stuffed elk from Turin, 647, 648. Collection of walking-sticks, 655, 656, Carved meerchaum-pipe bowls, 672, 673, Contributions from Sanlinia to the Fino Arts Department of the Exhibition, 204.

Sargeas, J. C., 161 Saris and Rengos, 472

Saris and Hengor, 42.2.
Sare, I₁₀, m., £12.
Sarestantia.—Extracts, or clizic of, 42, 45.
Sarestantia.—Extracts, or clizic of, 42, 45.
Sarestantia.—Extracts, or clizic of, 42, 45.
Sarestantia.—Model of machine for cutting, 201. Used the sash bare of the Exhibition Bullding, 3.

Line Saria bare of the Exhibition Bullding, 3. SATING Specimens of, from various countries exhibited,

SATINS—Specimens of, from various countries exhibited, 395-394.

"SATINS DE CHURE."—Specimens of this fahric from France, 356. Specimens, from Russis, 5b. From Prussis, 5b. Sauther, W., 42.
Sauther, W., 42.
Sauchen, M. A. Von, 158.
Sauchen, Y., 22L.

Saulini, T., 686, 701. Sannders and Gatchell, 59, 88. Saunders, J. B., 218, Saunders and Soa, 315

Saunders, T. H., 401, 431, 453. Saunders, W. W., 101. Saussure, J. P. de, 151.

Sauvage, R., and Co., 368 Savage, A., 202. Savage a "Hints for Decorative Printing," quoted, 463.

Saverd, A., 518. Savary and Mosbach, 518. Savi, P., 162.

Savigny, -, 315.
Savory and Moore, 42.
Savory Machine. - For executing ornamental cabinet work, 201

Saws. Specimens of various descriptions, 488-491.
Sax, A., 331-333.
Sax-hours and Sax-Tempers. Remarks on Mr. Adolpha

Sax's horns and trumpets, 332.
Saxe-Gorna, Decay or Specimen of painting on chius from, 62 SAXONE. Specimens of the common flexible sponge from

coar. Specimens of the common flexible sponge from Saxony, 154. Gelatiase of the Dutch and Givet kinus, of the ordinary qualities, 156. Liectric telegruph, 2.4. Samples of wedlen and worsted yarm, 366. Specimens of damask cloths and napkins, 371, 372. Mixed fabrics, 375. Excellent specimens of printing, 339, 341. Satalities of the paper manufacture of Saxony.

Self-Section of reprinter of typel yarse, (25. Enlithtine of There and embridge, multi and of a monefacture per-cular to the country, and of limited sale is England, 25. Sperimens of embridger, 25. Five credit as of First-tocal bell, 26.1. India-raiber masufacture, 255. First-tocal bell, 26.1. India-raiber masufacture, 255. Contribution of inclosular degree (26.1. Ren ark on since papier-maché and other sund-borre, 15.6. Toys and touin in powers [25]. Noilees of the principles works the Exhibition, vir.1 works of genigence on a large scale, (25. Ennace to spreach, 36. Sec size in Fernan-

Saxony Royal China Manufactory, Meissen, 48, 543. Saxony Royal Smalt Works, Schueeberg, 48.

Saxony Hoyal Smalt Works, Schueeberg, §2.
Sayer, J., and C.O., §22.
Sayer, and Son., §25.
Sayer and Son., §25.
Sayer and Son., §25.
Sayer and Son., §25.
Sayer and Son., Specimens of, exhibited: remarks thereon, nwards, &e., §25.
Sayer for the sayer say

Cement Rowan, &c. SCALES. See Weighing Machines. Weights and Mea SCANDINAVIA. - Remarkable works in jasper and hard por-

SCANDSAYA—Remarkable works in jusper and hard per-plyty from, 50, on. CVEXTVOND—Thill serviceshing SCAMITE, GUIR min, son of 15'et understood, though the forms thereof are numerous, 22'. Desirable statement showing the great utility and advantage of this imple-ment of two days nayiver, 27', 22. Description of perspective of the perspective of the perspective of Description of Celeman's scarffer, ab. Reference to Bentul's scarffer, and to Killy's desipa paring plough, st. Arricles withirds, prizes owarded, 22's. 64. Arricles withirds, prizes owarded, 22's.

Schnefec, Otto, and Scheibe, 404, 431. Schnerff, R., 469.

Schneuffelen, G., 432, 443, 413. Schnfigotsch, Count, 528, 536. Schaffpatich, Count, 028, 536. Scharenberg, A., 49, 40.

Schedl, C., 21 Scheill, C., 21, 369. Scheibler and Co., 162, 364, 366.

Schelter, G., 410. Schenck, R. B., 95, 97, Schendel, Van, 314. Scheppers, F., 358. Scherer, A. (Juroc), xxvili

Schiedmayer and Sons, 314. Schiertz, J. G., 275. Schilling and Sutton, 42

Schwarz, F., sen., 500.

IND
Sabilt - (of Paris) 687 700
Schilt, —, (of Paria), 687, 709, Schilt, V., 311, Schinkel, —, 698, Schipper, C., 323. Schipper, C., 323. Schipper, C. 325.
Schinkel, -, 618.
Schipper, C., 3/48.
Schlaufer Schlatter and Co. 171
Schlaepfer, Schlatter, and Co., 471. Schleicher, C., 505. Schleinger and Co., 198, 426, 449, 450.
Schlesinger and Co., 198, 426, 449, 450,
Seniesinger and Co., 155, 260, 449, 431. Schleuss, H., 25, 24, 26. Schliuss-Frikerto, 153. Schlous, Widow, and Brother, 449, 450, 453. Schlumberger and Co., 357, 452.
Schlippe, C., 39, 49.
Schloss-Frikaten, LN.
Schlumberger and Co. 357, 459
Rebinninger and Us. 202, alg.
Schmerbauch, II., 449,
Schmerber, S., 322.
Schinervahl, A. E., 42, 42,
Schmidt C 506 687
Schmidt, F., 680.
Schmidt, G. F., 471.
Schmidt, H. D., 173, 191.
Schmidt, I., 221.
Schmieger, A., 361, 361,
Schmolz, W., and Co., 221, 482.
Seimapper, H. L., 417.
Schneider and Co., 24.
Schneider and Legrand, 196, 204.
Schulter 538
Schnitzler and Kirschbaum, 221.
Schneider, -, 215, 217.
Schultzer, — 388. Schultzler and Kirschbaum, 221. Schuelter, — 215, 211. Schnorr and Steinhauser, 471.
School, Schiess, and Co., act.
Schening, H., 426, 449.
Schofield, J., 376.
Schnoff and Stevinaeuwer, 2.1. Schoel, Schless, and Co., 21. Schoell, C. A., 322. Schoell, G. M., 325. Schoeld, J., 325. Schoffeld, J., 325. Schoffeld, J., 325.
Schöll, A., 353.
Scholler P (furor) varili vari
Schomhargk, Sir R., 62, 71, 78, 84, 156. Schönberg Flax Spinning Mills, 96.
Schönberg Flax Spinning Mills, 16.
Scholler, J., and Sons, 353, Scholler, P. (Jurov), avvill, xxxi, Schomhargk, Nir R., 62, 71, 73, 84, 156, Schomberg Flax Spinning Mills, 36, Schomered and Westerban, 75,
Schonseveld and Westerban, 28. Schonbfer, N., 298. School of Design, London.—Creditable character of the designs intended for manufacturers exhibited by this school, 632. Prize Medal awarded to the institution; Honours hie Mention made of certain pupils, i8. Other
designs intended for manufacturers exhibited by this
school, 682. Prize Medal awarded to the institution; Honours his Mention made of certain pupils, ib. Other remarks referring to the forepoing, 625, 728, 748. See also Spitalfields 8-bool of Design.
Honourshie Mention made of certain pupils, ib. Other
also Systatistis N-bad of Design, Schooling and Hough, S. Schooling and Hough, S. Schopper, M. A., 266, Schopper, M. A., 266, Schopp
Schooling, H., 637, 641.
Schopper, M. A., 366.
Schramm, J. L. P., 81.
Schreger, B., 520.
Schreiber, P. A. 471
Schreiber, J. C. G., 449, 453.
Schröder, C. H., 335.
Schröder, N., 602.
Schooler, F., 201
Schroeder, J., 305. Schropp and Simon, 32.
Schrötter, Professor, 633.
Schrötter, Professor, 533. Schruek and Uhlich, 42.
Schubarth, Professor (Juror), xxvii.
Schubert, Mrs., 441
Schill, L., 442, 454.
Schuls, C., 626.
Schnize, D., 373.
Schulze and Sons, 372.
Schumann O (Inter) vvv
Schur and Köhring, 49.
Schruek and Uhlich, 29. Schruek and Uhlich, 29. Schubarth, Price (Javer), xx vil. Schubarth, Price (Javer), xx vil. Schubarth, Price (Javer), xx xx. Schull, I., a 19. Alexandra, 19. Alex
Schutz, L. N., 546. Schwabe and Co., 459. Schwan, F. (Juror), xxvill, xxxli; (Exhibitor), 373. Schwann, Kell, and Co., 357.
Schwann E (forest) verill veril: (Exhibitor) 375
Schwann, Kell, and Co. 357.
Schwanthaler, -, 698.
Schwarte, J. D., 421.
Schwartz and Hugustain, 122.
Schwann, Kell, and Co. 3517. Schwanniaer. —, 628. Schwantaer. — 628. Schwarts J. D., 491. Schwarts and Hugastain, 452, Schwartsenbach, F. J., 366. Schwart, G., 589.

Schwarz, J., 501, 630. Schwarz, Dr. W. (Juror), xxix. Schwarzenberg, Prince, 21. Schwerber, J., 200, 204. Schweren, Count von, Lis. Schweren, Count von, Lis. Schstors—Specimens of various descriptions of, 482, 491. Scola, A., 162 Sconce, A., 52 Scoren Sona - A salt of commerce, origin of the term, 41. Scortan Noia – A salt of commerce, origin of the term, 4L SCOTANO – Valuable collection illustrating the native vegetable dyes of, 88. List of the timber, ornamental and fruit trees of, 2L. Inferior description of perals from the River Valua (Aberdeenshire), 161. Variety of woollen clotta from, 5M. Fing grained granite rocks in some parts of, 250. New also Coal. Race Produce, 8c. Coat Resolutes, 193. la some parts of, 386. — S Scott Brothers, Iniz. Scott, —, (of Schemlan), 162. Scott, E., and Co., 121. Scott, E. and Co., 121. Scott, G. C., 68 l. Scott and Glasford, 421.

Scott, L., 43. Scott, P., 482. Scott, S. T., 480. Scott, Sir W., 318

Serage, T., 230, 212. Senae Books - Large variety thereof exhibited, 442. New Schar Books Large variety thereof exhibited, 422, News mode of fastening the leaves therein, ib. Awards to exhibitors, 431, 432 Sereen, T., 463

Scarw Paorsaarns - Model of a gun-metal screw propeller, 162. Pair of 30-horse power patent direct-acting engines, called trunk-engines, for driving a screw pro-peller, 172. Description thereof, ib. Models Illus-trating the gradual advance and improvement of tha screw propeller, &. Direct-acting engine for driving screw projecter, so. Direct-acting engine for driving a screw propeller, of good workmanship, <u>173.—See</u> also Marine Engines. Steam Femals.

Serew Company (Patent), 506,

Seriew Company (Patent), 505.

Sexiew Specimens of various descriptions of, 505, 500.

Serive Brothers, 199, 204, 325.

Securities, Montes, Ann Plastric Art (Class XXX.)—

Tabular classification of objects into which this Class is divided, xxii. List of Jurors appointed for this Class, xxii. List of Exhibitors in the Class to whom Council Medals have been awarded, exvil. The like, of those to whom Prize Medais have been awarded, exvii, exviii. Of those of whom Honourable Mention exvii, exviii. Of those of whom Honourable Mention is made, exviii, exix. And of those in whose favour

is made, exvili, exis. And of those in whose favour money awards have been made, exis.

Date of the first meeting of the Jury of this Class; elec-tion of Depay Chairmas; nomination of Sub-Com-tended to the Company of the Company of the the distribution of their awards; principles by which they have been guiled, 682, 684. Growing taste for objects of art; increasing eviluation in which they are held, 684.

Works recommended for the Council Medal, 681 Works to which Prize Medals have been swarded, or to the Exhibitors of which Honourable Meution is made. vis.:

(1): "ere as a Fine Att —In metals simple, as poly, seprence, perfect from, sine, beath, e. [95], [95]. In metals compound, as bronze, electrom, &c., (25). In miscrating from the perfect fr

Impressions struck from dies for ornamental purposes, ib. Genn, either in cameo, or in intaglio, shell cameos, ib. Seals, &c., ib.

Architectural Decorations. - Integral, in relief, colour, 685. Adventitious, as stained glass, tapestry, &c., 686

Mossics and Inhid Works.—In stone, 687. In tiles, ib.
In vitrified materials, ib. In wood, ib. In metal, ib.
Examels.—On matals, 657. On china, 67, 688. On

Essandz.—On matals, 652. On chins, 87, 658. On glass, 658.
Material and Processes applicable to the Fine Arts generally, including Fine Art Printing in Colour, 82.— Racaustic painting and freeco, 658. Ornamental print-ing, chromo-ty-page-play, gold-liminized vity pography, typography combined or uncombined with endowed and B. Littography (black), derinon-littography, gold-by. Littography (black), etrono-littography, gold-

illuminated lithography, lithography combined or un-combined, with embossing, ib. Zincography or other modes of printing, ib. Other processes applicable to the fine arts generally, ib. Models. - In architecture, 688, 683. In typography, 689.

In anatomy, ib Designs. Special Committee of the members of this Jary appointed to examine and report on the various designs for decoration, tapestry, embroidery, mixed fabrics, &c. ; Medals and Honourable Mentions awarded, 683.

60. 1 Melika and Honograpie mentions awariest, 1921.
60. 1 Melika in a Jury that a permanent industrial misseum should be established, 683, 629. And that a statue be rerected to Prince Alberto on the site of the Exhibition Building, 620.
82 papermentery Report by Dr. Haugen.—Comprehensive-Supplementery Reports on 6th N. Need College and College and College College of the Need College of the Nee ss of the Exhibition of the Works of all Nations, 691. The productions of the fine arts not precluded, painting alme excepted, ib. Close comexion of the fine arts with manufactures, ib. A fuller revival of the alliance that subsisted between them in the middle ages much to be desired, ib. Great value of the processes of M. Collas and of Mr. Cheverton for reproducing works of sculpture, ib. Under in which it is proposed to notice the productions of each nation in this Report, ib.

the productions of the automation in the prior, a. b. the forest-most to the fine arts, \$\tilde{\text{B}}_{1}\$ (\$\text{A}_{1}\$), Nextlew of the forest-most to the fine arts, \$\tilde{\text{B}}_{1}\$ (\$\text{A}_{1}\$), Nextlew of the series, contained in the Fathbillion, \$\tilde{\text{B}}_{1}\$ (\$\text{B}_{2}\$), Nextlew of which policy are to a smaller art, as what is contained in the Fathbillion, \$\tilde{\text{B}}_{2}\$ (\$\text{B}_{2}\$), Nextlew is color, \$\text{C}_{2}\$ (\$\text{B}_{2}\$), the representation of the prior of th by successive monarchs and administrations to encourage the fine arts, 627. Happy results to which these efforts have led, ib. Remarks on the principal works of sculphave led, ib. Remarks on the principal works of sculp-ture and of plastic art on a large scale exhibited by Prussia, ib. Sculpture on a small scale, 697, 698, Medals, 698, Graphic representations on plane sur-faces, designs for tapestry, ib. Lithochromy, ib. Archi-

tecture, models, ib. tecture, models, ib.
Bavaria.—Worksof sculpture on a large scale, 628. And
on a small scale, 622. New processes of painting, ib.
Keamels on porcelain and on metal, ib. Painting on
glass, ib. Various processes of printing, ib.
Scaony.—Sculpture and works of plantie art on a large
scale, 120. La Painting on oblina, 522.

La Painting on oblina, 522.

La Painting on oblina, 522.

La Painting on oblina, 522.

Saxet-Gotha.—F-Sainting on obtain, 2022.
Wartemberg.—Sculpture on a large scale, 509,
Hesse Carsel.—Choss-board and pieces, 2022.
Hesse Darmstadt.—Ivory earving, 2022.
Oldenburg.—Architectural models, 2023.
Once.—Great oncouragement ever bestowed by the

Force—Oriest measurements ever belowed by the Freedy personnel and anion on the fine arts, [10]. Freedy personnel and anion on the fine arts, [10], works of esplayer and of platel art on a large scale, contributed by Frence to the Exhibition, [20], [20]. In large, the process of the Exhibition, [20], [20]. In large, the process of McGallas free experiences are all the process of the process of the Conference of the Confere

the present day, 703.
Sardissis. - Works of sculpture on a large scale, 704 Coins, 6. Works of sculpture on a large scale, 704. On a small scale, ib. Inlaid works up letra dura, ib.

Rose—Sculpture on a large scale, 704. Cameos, ib.

Mosilca, ib.

Belgium .- General diffusion of talent and feeling for the Helgium.—General diffusion of talent and feeling for the fine arts in this country; their consequently free de-velopment; characteristics of the Belgie school of sculpture, 20th. Remarks on the works of sculpture on a large scale, ib. Medals, ib. Indaid works in metal, ib. Scalteriand.—A rebitectural models, 725. Spain.—Indaid works in wood, 705.

Denmark. Works of sculpture on a large scale, 106. On a small scale, ib.

Russia .- No specimen of scalpture on a large scale exhibited by Russia, 706. Plaster casts of medallions, ib. Painting on porcelain, ib. Lithochromy, ib. United States of America.—Sculpture on a large scale,

FINE ART CASTING.—High Importance of the art of casting sculpture in metals, 716. Notices of the prin-cipal works in this section from the different countries, viz., Castings in bronze, 706, 707. Castings in zinc, And in iron, ih

SCITIUS—Specimens of, 489, 421.

SEA-LADS.—See Sounding Instruments.

SEA-WAYER—Products of, 48.—See also Sitts of Sur-B'ater.

SEA-WELD—Preparations of, 44.—See also Kirlp.

St. over 22. Preparations of J. L., Swe also Kejs.

Assisted, W., 20.

Assisted to have been furently as Preparation to History, and the second to the preparation of History, the Jones or Janes, the first manufactures of History, the Jones or Janes, the first manufactures of the Janes of History, and the Janes of Janes of History, and the Janes of History, and Assisted History, and Assisted History, and the Janes of History, and Janes of Hist

Sealy, J., 581 Seamer, T.,

Searight, J., 166. Searle, C., 160. SEAWERDS, DRIED-Specimens of, 157.

Sechl, F., 162. Sechass, A. R., 502.

Seeger, E., 574. Seel, -, jun., 207 Seel, G., 472.

Seeley, J., 574. Seeling and Becker.

Scera, C. and H., 37 Seer, Messrs, L., 16.

Seef, Messirs, 11, 202 Segalla, -, 28 Segales, B. 165, Seguier, Baron A. (Juror and Associate), xxvii, 350, 261, Seguin, A., 29, 502, Seguin, A., 201, Seguin, J., 201, Seguin, Segui

Seigl, J., and Co., 373, SEIGNETTE SALE.—Price thereof in Germany, 42, Selby and Johns, 2.

SELENIFE-Specimens of, exhibited, 43.

Seleuka, J., 449. Self, II., 179. Selivanoff, —, 53 Sellers, J., 421. Selopis Brothers, 49

Semmens, J. and T. W., SENOLA Sample of, 54.

Semovilla, R., 91, Senechai, -, 98, 202. Senignglia and Carminati, 162. Sentre, Mount (Switzerland) - Model in relief of, 200.

Sentis, Son, and Co., 360, 261

Seatis. Son, and Co., 250, 261.
Sepignary. — 128.
Seatis. Son, and Co., 250, 261.
Seating the seatest of large minimized seatest of
SERAMORAE (East Indices)—Collection of woods from con-tributed by the Indian Government, 122. SERAFRINES.—Observations on this class of musical in-struments, exhibited, 322. Seraphine exhibited by Deutschmann, of Austria. ib. Sericleuiture, Central Society of (France), 69, 160, 161. Sericionan, L. da, and Co., 261.

Seriny, C. G. de, 432, 454. SERPENTINE, AND

From the Lizard Rock, Cornwall, 13. The serpentine of England not harder than the commoner marbles, and worked in the same way, 565. Froe and well-selected group of objects, manufactured in the serpentine of the Lizard, ib. Vase and group of figures in Italian serpentine, 566.

Serret, Hamoir, and Co., 63 Serzedello and Co., 49. SISAMUM - Samples of, M

Setzer, J., 42.

Seville, Province of, 84.
SEVERS PORCELAIN MANUTACTORY—Is supported by national funds, and carried on as a school of national design; eircumstances qualifying the grounds on which a Coun-ell Medal is awarded for its productions, 531, 442. Remarks on the articles exhibited for this manufactory, remarks on the articles extended for this manufactory, 542. General good taste displayed in the painting of china in the manufactory of Sevres, 587. Great per-fection to which the art of painting in enamel has been carried at Sevres; notices of the principal works concarried at Sevres; notices of the principal works con-tributed to the Exhibition, 702. See also Cerassic

Manufacture well, Evans, and Co., 353

Sewell, Evans, and Co., 263.
Sewell, T. R. (Juror), xvvii, xxvi; (Exhibitor), 127.
SEVENO MACHINEL.—Large machino for sewine sacks, from France, 194.
Effective and improvious machines for sewing with two threads, exhibited in the American and in the English Department, i6. Sawing Silas -- Specimens of, exhibited in the British Depart-

ment, 364. SEXTANTS-Specimens of, 252.

Seyd Omar, 83. Seymour, E. and J., 520.

Seyrig, -, 2001. Seyssei Asphalte Company, 577.

Neyses Asphatte Company, 211.
Sezgo., 21.
Shabelsky, Colonel, 52.
Shadbelt, G., 257.
Shaft and Axletree (Patent) Company, 174.
Shalters, W., 172.
Shakes-Specimens of, 50.

Shand and Mason, 179. Shand and Muckart, 2 Shanghae, Her Majesty's Consul at, 83, 90, 95, 665.

Shanks, A., 200. Sharino Machines Description of, 200. Specimens exhi-

bited, 16. Sharp Brothers and Co., 195, 199, 200, 203, 489, 541.

Sharp Brothers and Co., 195, 199, 200, 203, 489, 541.

Sharp, B. 207, 350,

Sharp, S. 207, 562, 683, 693.

Sharw, W. J., 566.

Shaw, —, 425. Shaw, C., 522. Shaw, G. (Juror), xxix. Shaw, J., 472. Shaw, J., W. and H., 333. Shaw, S., 421.

Shaw and Son, 280.
Shaw, W., 198.
Shaw.E.—General remarks on the Kashmir shawls from the East, and imitations thereof, 377, et seq. History of the shawl manufacture, 377, 378. Number of contributors of the descriptions called woven, printed, embroidered, of the descriptions called worm, printed, embrodered, and tartans, 228. Collection of wnven shawls exhibited, 378, 379. Excellence of the collection of Kahmir shawls exhibited from India, 328. Awards of Conneil and Prize Medals for woven shawls, 379, 388. Honourable Medials for woven shawls, 379, 388. Honourable of this section of the class, 339. Observa-Mentions for this section of the class, 322. Observa-tions on the shawls of barrier, ernor, gauze, slik, and other descriptions, ib. Rapid progress in the mana-facture, ib. Increasing taste and demand for this styl-of garment, ib. Introduction of many kinds of lighter fabrics, ib. Denominations under which these descriplabrics, as. Denominations under which these descrip-tions are generally traided in, &. Baperlance of the trade, &. France has taken the lead in the perfection of these goods, &. Work more expensive in France than in Eugland, &. Austria shows evidences of an active endeavour to produce imitations of the designs of France, ib. Foundation of a future trade in these fabrics with the States of the Zeilverein, ib. Prize Modals and Honourable Mentions awarded for this division of the class of shawls, 380, 381. General re-marks on the shawls embroidered with wool, silk, thread,

gold, silver, &c., 321. Origin of this description of manufacture traceable to Eastern nations, ib. Most perfect workmanship and greatest variety of design still existing in the Last, ib. Evidences of the antiquity of embroidery, ib. Specimens of embroidery from China unsurpassed by that of any other nation, ib. Regret expressed that no embroidery is exhibited from Japan, ib. Russia most probably derived her excellence in embroidery from Tartary, ib. India stands pre-emiorat in the exhibition of embroidered shawls, ib. not fairly represented, \$6. Handsome display Furkcy, \$6. Embroidered gauze shawis from from Turkey, &. Embroidered gauze shaw's from Greece, &. This country does not appear to maintain the character she formerly held for this kind of work, No originality in this fabric from Egypt, ib. broidery of shawls and sourise armiel to great perfection in Paris, Paisley, and Vicnos, ib. Demand for such goods not very great, ib. Process naturally expensive, ib. Valuable collection of embroidered searfs and handkerchiefs, illustrating the progress of manufactures in Turkey, & Special notice of the East India Com-pany's collection of embroidered shawls, ib. Prize Medals and Hononrable Mentions awarded for this description of shawls, ib. Observations on the tartan sinwls, and warfs, 582. Ancient date of this acture, ib. Endeavours made to trace its intromanufacture, ib. Eudeavours made to trace its intro-duction into the British isles and Scotland, ib. Great difficulty found in the derivation of the word tartan, ib. A woollen fabric of this description appears to be elearly traced from the northern tribes of Europe, very far east, ib. Scottish manuscript of 1570 gives a list of the colours of the plaids of the different class, &. The wearing of this distinctive dress prohibited by Act in wearing of this distinctive dress prohibited by Act in 1747; Act reposted in 1724, M. Estvial of the traic on the visit of ticerge IV. to Scotland in 1822, b. Turtan showly very popular in 1824, b. Turtan sive minufacturies operach I Tailety, b. This example followed by most foreign countries, i.b. Specimens from Consiln and North America, b. In this artificit is will Consults and North America, ib. In this article it will probably be long before Scotland can be surpassed in design, fabrie, or cheapness, ib. Prize Medals and Hononrable Mentions awarded for tartans, ib. SHAWLS, DESIGNS FOR .- Notice of objects in this section

wit. Dissays ron.—Notice of objects in this section, 629. Disapproval ut the introduction of landscapes in such designs, ib. Principles by which such designs should be guided, 223. Itiph character of the designs on india slawls, ib. Notice of the principal contri-butions in this section of the French Department, 202. Critical remarks on the exhibited designs for shawls. Critical remarks on the extinated designs for slawis, 243, et so. Success which has attended the efforts of the Frunch designers, 245, 246. Principles of excellence in the designs of slawis from India and the Fast; the form called the Indian pine a distinguishing characteristic of Cashmere patterns, 246. Other forms and colours in Cashmere and Indian slawis, ib. Success that would attend the use of geometrical leading forms. Perfect flatness essential, but utterly disregarded In European shawls, ib. Circumstances connected with

floral ornament deserving of attention, ib. Mistakes committed by designers of shawi patterns, 746, 727.
SHAWLS, LAVE. Specimens of, 488, 470, 471.
Shea, Captain, 662, 473.
SHEARINA MACHINIS.—See Woollen Manufacturing Ma chinery

Chairry,
Cha

SHEET-BON. See JUN.
SHEET-BON.—See also Ceton Manufactures.
SHEET-RAN.—Beautiful industry still exhibited in the steel
manufactures of Sheffield, notwithstanding the increase of these manufactures on the Continent, 1

Sheffield School of Design, 723. SHELL-CAMES.— Nature of the shells adapted for cameo-cutting, Ifil. Specimens exhibited, Iot. 686. eutting, 161. Specimens exh SHELL-LAC. See Lar. Lac Due.

Sugara. - Collection of fresh-water shells from America, 18. Various kinds of work in shells from different coun-

tries; prizes awarded, 622. Shelley, J. V. (Juror), xxvii, 225. Shemakha, Government of (Russia), 53.

Shenk and Co., 419.

Shepard and Perfect, 358

Shepard, J., 537. Shepherd, C., 339, 312. Shepherd, Hift, and Spluk, 199, 205. Sheppard, A., 55

Sherwin, Cope, and Co., 198. Sherwin, J., 566, 508. Sherwin, J., 566, 508. Surano or Farra" (belonging to the Prince of Wales)— Notice thereof, 514, 685, 697, 738. Shier, D., 78, 92.
Shier, D., 28, 92.
Shier, D., 28, 92.
Shir-Biscurs.—Samples of French ship-hiscuits, prepared

by baking the dough in high-pressure steam, 55.
Shir-millorse—List of the chief woods employed in, 104.
Models of various contrivances connected with the construction and moving of ships, 217. Model descritive of a novel arrangement of the frame timbers Model descrip-

ship-building, 218. Increase of the strength of the fabric thereby, th. See also Naval Architecture. Snirs' Liours—Apparatus for shutting and seruring, 208. Snirs' Locs—Patent perpetual, for indicating the speed and

leeway of ships, 217.
SHIPS SOUNDING-LEARS.—See Sounding Instruments.
SHIPS SOUNDING-LEARS.—See Sounding Instruments.
SHIPWHEEES, APPARATUS FOR SAVING LIFE FROM.—Appa-

ratus for saving life by effecting e communication to and from a ship in peril and the shore, 219. Smar Fronts - Produced by the loom, in imitation of needlework, 318.

Smirrans-Specimens of printed cotton, 450. See also Cotton Manufactures. Sumra. - Specimens of drawers and shirts of excellent

quality, 428. Specimens of shir:s exhibited, 482.—See also Wearing Apparel. inogx.—See Boots and Stors. Suoza. Close resemblance of this substance to rice-pap

103, 104. Obtained from the vicinity of Calcutta, ib Uses to which epplied in India, ib. Specimens exhibited

Shönborn, Couni F. Von Erwein, 21.

Shoulbred and Co., 506, Shore, Messrs., 21 Sistange and Verfel, 506.

Shuldham, Harriett, exx.

Sluddham, Harriett, exx.
Slante, J. H., 315.
SHUTTAR, METALLE: Specimens of, 228.
SHUTTAR, METALLE: Specimens of, 228.
SHUELA: Albachite chiefly found in an available state for inlaid work in a very few localities in Siberia, 320.
Most important locality at present known, ib.

Not important locality at present known, so.

Sibboy, S., 13.

Sibbore, F. L., exx.

Sibthore, F. L., exx.

Sictur—Samples of raw silk from, 162. Statistics of the paper manufactures of, 441.

Sickles—Specimens of, from various countries, 489, 401. SIDE-ARMS.—See Swords, &c.

Sine-Assas—See Secorda, §c. Bine-Assas—See Secorda, §c. Binenacabas—Various descriptions of, exhibited, §56, §52. Remarks on the "Kenilworth Buffet," by Cooke and Sons, of Warwick, §62, Notice of a large sideboard, carved in wood by Fourdinois, [0], 722.
Sidi Mahmoud Benyad, 1.

Sidh Mahmoud Benyad, 7. Siebert, F., 331. Siegle, H., 42. Siegnand, W., 353. Siemens, C. W., 173. Siemens and Halske, 293.

Second L., 502.
Sieveking, Dr., 625.
Sayaat Laurs- Specimens of, 509.
Sayaat Laurs- Specimens of signals for merchant ships,

Signoret-Rochas, P., 333 Silbermann, G., 257, 463, 466, 453, 688, 703 Silex.—Use thereof, in the manufacture of glass, 523.

Sources of supply in England, 524. Silk and Brown, 123. Sila-Corron.—Specimens of silk-cotton obtained from the Bowler ceile from George Town, Demerara, 102. Sila-Dring.—Specimens of skoin dyed silk in various

colours, 88, 459.

Silk, Raw. Introduction of the silkworm into Europe in

C. LLW.—Introduction or the sultworm into Turbye in the reign of the Emperor Justinian, 16th. The breed-ing of silkworms in Europe confined for six centuries to the Greeks of the lower empire, ib.—Its subsequent introduction into Selly, Italy, Spain, France, England, and most of the colonies with a suitable climate, ib. Observations on the different species of worm and the character of the silk produced by them, 160, 161,

Modes and processes of management and culture, 161 Degrees of excellence realized in the specimens transmitted from France, ib. Detailed remarks on the specimens of unbleached silk end silk encoons exhlspecimens of universities with end sink encounts exhibited by Major Count Bronski, of the Chateau de St. Selves, near Bordeaux, ib. Other French exhibitors and prizes awarded, 161, 162. Bemarks on the samples of slik transmitted from other foreign countries: ples of silk transmitted from other foreign countries; exhibitors and awards, 182, 183, Good camples of silk from Spain, 162, Kaw silks exhibited from Bei-gium, 16. Samples of silk from Tuscasy, 162. Speci-mens of raw silk from Switzerland, 16. Silks from Saržinis, 16. Fine examples of lialian silks from Austria, 18. Specimens of raw white and spinning silk, produced in Berlin, by means of a hanging spinning line, on the principle of bee-hives, ib. Samples of all transmitted from Russla, ib. Silks of a very fine character exhibited in the Turkish Department, ib. Specimens of raw siik from Bavaria, ob Specimens from Sicily, ib. Fine examples of raw silk exhibited from Sicilly, ib. Fine examples of raw silk exhibited by Her Majesty the Queen of Sweden, 1858. Fine samples of silk shown in the Indian Department, ib. Samples from Chins, ib. The enlivistion of the silk-worm greatly promoted in the Mauritius, ib. Speci-mens of raw silk from the Roman States, ib. Specimens from Malts, ib. Specimens of silk from silkworms areard on the leaves of the white mulberry st Golsti-rared on the leaves of the white mulberry st Golstiming. In Surrey, ib. Raw silk exhibited in the Cansdian Department, ib.

SPINNING, &c., MACHINERY.-Well exemplified in the British Department by a series of beautifully finished machines, 26. Machine for silk winding in the Zoll-verein Department, ib. Machine for spinning silk directly from the cocoon, in the Prussian Depart-

ment, ib.
Sila and Velvet Manufactures (Class XIII.)—Tabular classification of objects into which this Class is divided, constitution to oppose more than the task task is extract, xiv. xv. List of Jurors appointed for this Class, xxviii, List of exhibitors in this Class to whom Prize Medals have been awarded, lxxiv, lxxv. And of those of whom Honourable Mention is made, lxxvi. General remarks on the duties and labours of the Jury in this Class, and the principles by which they have been guided in making the awards, 362. Observation of the Jury that with respect to the staple of the silk manufacture, the several samples in the Exhibition afford but a faint evidence of the great perfection to which the cultiva-tion of the raw material has arrived in many countries. tion of the raw material has arrived in many countries, it. Frazes close has reponded hearily to the avisation to exhibit encount as with a recled and thrown silks, S. Nik prohierloss of Austria, as shown in the Zahish. S. Nik prohierloss of Austria, as shown in the Carloss and the Carloss of Austria, as shown in the Carloss and the Carloss of Austria, as the Carloss of Austria, as the Carloss of Austria, as the Carloss of Austria, and Austria, and Carloss of Austria, and Austria, and Carloss of Austria, and Carloss of Austria, and Austria London, ib. France, long the cradle and chief sea the silk manufacture, amply sustains its position in the Exhibition, ib. Few articles of comparatively small importance exhibited by Greece, ib. Small assortment from Holland, ib. Manufactured sliks from India inconsiderable in quantity and not very novel in character, ib. Reputation of Italy as the chief producer of the raw and thrown material well sustained by the articles exhibited, ib. Exhibits in this Class from Portugal not embleted it. Families in time Come from social mover worthy of especial notice, ib. Fair samples of manufactured slike from Russia, ib. Specimens of good raw slik and some ribbons and broad slike of considerable manufacturing merit from Spain, ib. No particular feature in the articles exhibited from Sweden and Norway, 364. Character of the silk manufactures of Switzer-land, 36. Observations on the silk fabrics of Turkey, Great variety of silk goods from the Zollvereia States exhibited, ib. List of exhibitors to whom Prize Medals were awarded, 265, 367. Exhibitors who re-ceived Hosourable Meaticos, 367, 368.

LEWORN GUT-Specimens of, from the province of Murcla In Spain, 601.
Silva, M. A. da, 31.
Silva, M. A. da, 31.
Silven.—Native silver from the island of St. Ignatius

rra.—Native silver from the laland of St. Ignation (Camada), E. Specimens of native silver from America, 15. Magnificent specimen of native silver weighing 13d Hs. from Chill, 2d. Cake of silver obtained at the foundries of litkenyang and Binsfeldhammer, near Stilberg, 3d. Specimens of silver ore from Sweden, 35.

845

Specimens of silver in different states, 35. Also specimens of the rocks in which the veins occur, ib. See also Lead. Morrals.

SILVER, NITRATE OF - Specimens of, 45

Silver, S. W., 213. Silver, S. W., 213. Silver, Works iv — Specimens of carefully executed, elegant v.in. Wome's ve—Specimens of carefully executed, elegant and novel silver-mitch's work, M.E. Sample of works in silver from Leipzig, 517. Specimens of silver plate adapted to table services from France, 518. Specimens of silver plate for table services in the British Departure. or saver plate for table services in the British Department, (29). Notices of works of art in silver, 683, 655, 657, 701, 85c, also Church Plate. Previous Medals. Silverfork, II, 343, 85m, (C. J., 192). Sim, W., 255.

Simard, -, 700. Simeox, G. P., 475. Sincox, Pemberton, and Sons, 506.

Simier, J., 425, 454, 741. Simmonds, J. N., 12 Simmonds and Woodron,

Nameosas and weceron, 351.
Simmons, D., and Cu., 452.
Simmons, J., 554.
Simmons, J., 554.
Simmons, J., 254.
Simmon, W., 254.
Simon, H., 365.
Simon, H., 365.
Simon and Hearty, 353, 353.

Simon, J., 564. Simonie, A. (Juror), xxviii, xxxi.

Simunis, E., 352, 685, 705. Simonite, J., 50E.

Simons, —, 102. Simons, J., Heirs of, 367. Simons and Sous, 707. Simpson and Co., 34.

Simpson, G., 315, 316. Simpson, H., 315, 346. Simpson and Shipton, 173.

Simpson, W., 48, Simpson, W. B., 552 Simpson and Young, 452. Sinclair, Duncan, and Son, 408, 410, 453.

Sinclair, J., 555

Sinelair, J., 555.
Sinchair, J., 565.
Sincaroar. Beels nuts from 57.
Samples of arrowroot, 62.
Fine specimens of shells yielding mother-of-pearl, 164.
Singer, A., and Co., 578, 566.
Singer, A., and Co., 578, 566.
Singer, J., 482.
Singer, Brothers, 169.

Sirot, P., sen., 301. Sith, Kemp, and Co., 505 Situff Brothers, 568

Sixtus V., Pope, 32 Sizr, Parsenven. - Samples of, sultable for any climate, 44.

SKATE-LIVER OIL—Specimens of, 45, 48.
SKATES.—Specimens of gutta percha skates of various colours and combinations, 508. Skeltons, S. and R., 509. SEPHENVORE LIGHTHOUSE - Particulars relating to, 53

Skeren Books.—Variety of specimens exhibited, 450. Skinner and Whalley, 487

Saiss. See Furs and Skins.

Slack, Sellers, and Co., 482.
Slack, Sellers, and Co., 482.
Slack, El. W., 491.
SLATE.—Superior quality of the slates from the quarries at

NX.—Superior quality of the sistes from the quarrier at Festining (North Morei), a. Improve to which applica-tion of the property of the property of the property into rough state, a. Nation of the Old Dicholos Nation (1) and the property of the North National Company, the International Com SLATE, FRANCELED.-Imitation of marbles by means of

enamelled slate, 571. Simple and inexpensive process, computed to be about four times that of ordinary stone, 571. For decorative purposes it is preferable to any kind of cement, ib. Objects exhibited, 571, 572.
Awards to the exhibitors, 572.

SLATE FLAGS.— Beautiful specimens of slate flags from the quarries of Festining (North Wales), 555.
SLATE, MANUACTURES IN. Collection of split, sawn, and

SLATT, MANUACTURES IN. Collection of a other manufactured slates, displaying much care in collection and arrangement, and Remarks on the various manufactures in slate exhibited; names of exhibitors, objects exhibited by them; rewards, &c., 150s, 150s. 50s. 552. Manufactures in state from the island of Valentia, county of Kerry, Ireland, 538. Valentia slate extremely useful for various purposes, ib. Peculiar application of state in the manufacture of coffins for variety and the state of good quality from Chiavari (Sardinia), ib. See also Marble, Imitations of.

SLATE PENCIES-Specimens of, from Bertrix, Luxembourg,

Slater and Wright, 13, 539. SLIPTER WEAVING MACHINE.-Frame to enable poor work-

men or cottagers to weave slippers easily and rapidly. 197, 198, SLIPPERS .- Specimens of embreidered slippers from Turkey, 4%4

Stars (for Ships) .- Models of slips for hauling up ships, 207. Successful working of these slips, sb.

Slocombe, C. P., 689, 748.

SLOTTISM MACHINES.—Description of, 200. Number exhibited, ib.

Smal-Werpin, A., 585. Small Anns. See Gans, &c.

SMALTS Samples of, 45, 46, 48, Smart, Sir G. (Juror), xxvii. Smeaton, —, 321

SMELLING-BOTTLES. - Specimens of smelling-bottles, and ing-bottles, from France, 520. mountings for sme Smleton, J., and Son, 372.

Smelton, J., and ron, 312.
Smith, —, 401, 450.
Smith, Ashbel (Juror), xxvl.
Smith, Apastus, 500.
Smith, A. W., and Co., 232.
Smith, A. W., and Co., 232.
Smith and Baber, 475, 722.
Smith and Baber, 476, 722.
Smith and Baber, 476, 722.

Smith and Beck, 266

Smith Boyle, and Co., 415.
Smith, Laptelo, and Co., 415.
Smith, Captelo, 89, 92, 200, 261.
Smith, Captelo, 89, 92, 200, 261.
Smith and Co. (Stamford), 238, 242.
Smith and Co. (Stamford), 238, 242.
Smith, E. (Jurer), xxix; (Exhibitor), 451.
Smith, E. F., 122.

Smith, E. (Jurer), xxix; (Exhl smith, F. P., 122, 8mith, G. A., 692, 8mith, G. R., 628, 8mith, G. R., 628, 8mith, G., and 28m, 287, 8mith, J. and 28m, 349, 8mith, J. A., 15, 99, 610, 8mith, J. A., 43, 90, 610, 8mith, J. C., 43, 8mith, J. C., 526, 8mith, J. C., 526, 8mith, J. C., 526, 8mith, J. C., 526, 8mith, J. S., 526, 8mith, J. C., 526, 8

Smith, M., 197, 205. Smith and Meynier, 453. Smith, M. A., 680. Smith, Nicholson, and Co., 520.

Smith, O., 509, 622. Smith, S. (Assorinto Juror), xxix; (Exhibitor), 218. Smith and Son, 88.

Smith, T., 574, 692, Smith, T., and H., 42, Smith, T. and W., 217, Smith, W. and A., 676, Smith, W. H., 248, Smith, W. B. (Juror), xxx.

Smithers. J., 610. Smiths - ad Co. (Edinburgh), 502.

Smits, P., 166. Smua ing Piers.—See Pipes, Smoking. Syattaatii Mixes (Salop) .- Specimens of lead ores from, 12.

SNAILBATH MINES (Salop).—8 Sneider, P., 48. Sneil, E. (Juror), xxx, xxxii. Sneil, J., 353. Sneil, Messrs., 546. Snider, J., 417.

Showten, R., and Brutt. Samples of Irish sanff, called Lundy Foot, (4). Samples of sanff from Portugal, (4). Saurr Boxes. Beautiful sanff-lox of green jasper from

Oberatein, Prussia, 517. Sauff-boxes in dark tortidee-shell, infald with gold "de burges" and "pique," 520. snett, initial with gold "de burgo" and "pique" (23). Smill-box of silver, waved and engraved, from Por-tugal, ib. Ornamenial turned anuti-boxes in ivory, and fancy foreign woods, fizz. Boxes equally the extremes of coarseness and of elegance, 6;14. Remarks relative to smill-taking by English, Irish, &c., in the seventeenth coarter, ib. Very little formation. century, ib. Very little information extant concerning the older receptacles for snutf, ib. Fashionable boxes probably reached the highest degree of variety and probably reached the highest degree of variety and hugup in the early part of last century, & Gold and silver smift-boxes of that period, & Impossibility of describing the manufacture of the smift-hox in all its ramifications, & Great variety of examples exhibited, 674, 673. Papler-march's smift-boxes, 673. This de-scription chiefly manufactured in Germany and France, & Ingentions manufactured of Social hox. Ingenious manufacture of Scotch boxes, perfection

of hinge and cover, ib. Description of the process of manufacture, ib. Usual style of ornamentation of these boxes, & Extensive scale of the manufactory of Mesers. Smith, of Mauchline, ib. Beautiful specimens of smift-boxes from Austria, ib. Chinese smift-boxes, Collections of snuff-bences contributed from the io. Collections of shuff-bases contributed from the British Colonies, Bavaria, France, Grand Duchy of Hesse, 63, 656, Also from Prussia, Russia, Saxony, Turkey, United Kingdom, and Wurtemburg, 636. Classification of exhibitors and countries, ib. List of awards, exhibits, and names of exhibitors, ib. Soars. - Magnitude of the manufacture and importance of

rs.— Magattude of the manufacture and importance of the trade, 20%. Remarks of Professor Liebig on the consumption, ib. Early history of the seap trade, ib. Various elecumstances which have contributed to the development of this branch of trade, ib. Valuable researches of Chevrent, ib. Manufacture of soda proved a most powerful stimula to soap-making, it.
Statistics respecting the imports of palm and coros-nut
oil for soap-making, iii. Theory of the formation of
soap-materials employed, 606, 607. Processes chiefly Statistic respecting the Imports of palm and excess and off or non-making, 262. Theory of the formation of non-materials employed, 162, 262. Processes chiefly compared to the properties of the process Make of preparation, d. Extensivo manufacture of soap in Austria, d. Seceletar quality thereof, d., Belgium In Austria, d. Seceletar quality thereof, d., Belgium the Birlith Colonies, Ella. Marseilles the chief centre of the soap manufacture in Prance, db. High reparation enjoyed by the offereoil soap there made, d. properties of the preparation of the properties of the soap manufacture of Germany, d. Process of manufacture employed, diff. commun. A. Same of the supp association of the Coll. Number of architecture for the Coll. Number of architecture for the Coll. Number of architecture for the Collecture for the Collect used in British scap-making, ib. English toilet scaps used in British reap-making, ib. English foliet soaps in no respect infector to those of other countries, ib. High reputation of Windster soap, ib. Preparation of billion of the countries of th

Society Islands-Fine sample of cotton from, 26. Sona. — Lise thereof in glass-making, 524.
Sona, Acctare or — Samples of, 46.
Sona-Asu. — The sodn-ash trade originated at Liverpool by

SOLA-ASIL.—The soun-uni trace originates as an originate of the manufacture, 41. Samples of soda-ash, 40. Sola, Bicasnosatz or-Samples of, 45, 48, 49. Sola, Bicasnosatz or-Samples of, 45, 40.

Sona, Bosate of .- See Boraz.
Sona, Carbonate of .- Process of preparation of carbonate

2.5. CARONATE OF.—Process of preparation in carmonate of roda as Inverted by Lebbano, described, il. Insofton of the property of the property of the Charles Tennant, at St. Rollon, ib. And by Kentner, of Thun, and Gay-Luszee, ib. Former and persent price, ib. Process of Mr. Longmaid for decomposing common salt by means of rose pyrives; Council Media awarded, ib. The carbonate is adapted for securing word, as it removes greene willhout signing the animal. fibre, 43. Use made of carbounts of sods in glass-making, 524. Price of the earbounts in Germany, 42.

making, 224. Price of the carbonate in Germany, 42.

Specimens of carbonate of soda, 44, 46, 47, 49, 20.

DIFF, CHLOSIOE OF, Preparation of carbonate of soda therefrom, 41.

Sona, Ily resultmate or .- Price thereof in Germany, 49.

Sona, Phinefeate of.—Samples thereof, 46, Sona Salt.—Price thereof in Germany, 42. Sona, Seltzen, and other Waters.—Samples of, 42. Sona, Suscication are of.—Price thereof in Germany, 42.

Scenes, F., 471.
Soctens, C., 574.
Soras, Michasical.—Specimen of a mechanical sofa, 551. Sofinlington's Daughter, 434

Senike, G., init.
Soura.—Collection of seils from Newbury, 13. Nature of the soil greatly varied by the mixture of London elay, plastic clay, and sand, ib. Agricultural importance of the collection of J. W. Roake, ib.

Sokou, -, 28 Sokou, --, an. Solaini, --, <u>1655</u>. Solbrig, C. F., <u>350</u>, <u>361</u>. Solbrig, F., <u>479</u>. Soldi, J. B. (Associate Juror), xxix.

Soler, J., SS Solesi, S. Soley, B., 367. Soller and Co.,

Solly and Co., Solly, Professor E. (Juror), xxvi. Solomon, J., 273. Solomon, Sarah, 482

Sommivico and Co., 300, SOMERSET HOUSE SCHOOL OF DESIGN. See School of Design, London.

Loudon.
Sommer, C., 22.
Sommer, F., 331, 335.
Sommerfeld, B., 422.
Sommermeyer and Co., 500, 506.
Somzé-Mahey, H., 160, 500.
Sondermann, W., 324.

Soper, H., 468, Sophia, Province of (Turkey), 491, Sopwith, T., 10.

Sorbenne La (Paris), printing introduced into Paris by the Influence of, 404. Sorhy, R., and Sons, 489.

Sorei, —, 49. Sörensen, C., 198. Sorokin, Catherine, 59

Soubeyrand, L., 161, 364. Souche Joint Stock Company (Vosges), 432

Souffeto, -, 335.
Soulies, Madame H., 483.
Southern APPARATES (Marlne).—Instruments for measuring the depth of the sea, 219. Description, ib. Modification of one known in the British navy as

Sobradil, Count of, 84.

Eriesson's sounding-lead, 219. Former use of Sir Ericason's Sounding-resul 2122 Accessed and Humphry Davy's water-bottle in polar expeditions, ib. Sea-lead, for making soundings at sea, 2.02. Facility with which soundings can be taken, ib. Description the instrument, ib. Well adapted for the measurement of deep soundings, ib.

Geep soundings, ib.

Sores, Pourvalar.— Observations on the samples of portable soups, concentrated meats, &e, exhibited, £c. Valuable properties and cheap price of the Anseriean meatbewaits of sample of hiscuit-beef from Francs, ib.

Souter, W., 253.

SOUTH AUSTRALIA-Copper ores from, 15. Samples of oliveoil, S. Specimens of woollen manufactores, 322 colonies might soon be made to produce many of their absolute necessaries of this description, ib. Malachite lately found in South Australia, [60]. Specimens of absolute necessaries of this description, it.
lately found in South Australia, 269, 89
yellow soap from South Australia, 610, 613,
Southery, W., and Co., 541,
Southern, W., 334.

Sower, C., 410. Insignificance of the mineral collections sent to the Exhibition from Spain, although one of the countries most favoured by nature lu regard to the sources of mineral wealth, 31. Specimens of steel, cast and wrought iron, and a fine series of marbles, exhibited, wrought fron, and a nee series of marcies, examines, ib. Spanish wheats, though generally dirty, unusually fine in quality, 22. Samples of rice from Valencia, 53. Samples of samples of markets absolute from the series of Alexander species, ib. Samples of peas, bean, pulses, ke, 52. Samples of flour, 52. Collection of dried fruits, 52. Magnificent samples of olives, ib. Chorodates, 52. Samples of must samples of olives, ib. Chorodates, 52. Samples of must samples of olives, ib. Chorodates, 52.

four, 25. Collection of dried fruits, 52. Maguilierat samples of olives, & Checolactes, 26. Samples of mustaris and mutaris-seed, 52. Valuable and extensive collection of raw produce, 50. Samples of turpentine and apprits of turpeatine, 75. Samples of starch, 72. Fins samples of olis, 25. Considerable number of specifications of dycing materials, 31.
Sample of raw cottan from Spain, the growth of the prompted from the cotton from Spain, the growth of the pro-

Sample of raw cotton from Spain, the growth of the province of Seviling, if, Various amples of fine and berny-vince of Seviling, if, Various amples of fine and berny-cether vegetable fibres, ib. Good samples of core, is, No woods of Spain contributed, Lib., Collections of No woods of Spain contributed, Lib., Collections of Numerous samples of wood of good quality, Lib. first province of the bar of the rabbit and bare, resting examples of the bar of the rabbit and bare, examples of raw silk. Lig. Samples of ecobiancy, Lic. Collections of fire careas and awoods, Lib. "Guittarn harps,"

or harp-guitar, 330. Small variety of woollens, 351. Superiority of those made from the fleece of German sheep, io. Specimens of silks, relvets, &c., 363, 366. Specimen of canvas, 371, cellent coviage, 372. Samples of leather, 392. ties of the paper manufacture of Spain, 411. The exhibition of lace and embroidery from Spain limited,

ties on the processing of the individual distriction of the control of the contro

manufactured for the Queen of Spain by G. Lemonnier,

of Paris, 515.

Spalinger, J., 441.

Spanish Straiges—Specimens of, 352. Spanna, J., and Co., 574. parkes, J., 🚧

SPATUIC IRON ORE. - See Iron Ores. Spear and Jackson, 486, 488, Spear Action.—Exhibitors of spectacles have done little more

In the British Department, than exhibit a collection of shop goods, 273. Pleasing contrast to this afforded in the Foreign section, ib. Observations on the various specimens exhibited, ib.

Specio or Versees-Instrument for measuring, 218, scription, 218. Speede, Messrs., 77. Speich, P., 552.

Speiman, J., 42 Speluzzi,

Spence, P., 42. Spence and Dixon, Messre., 42. Spencer, J. A., 42. Spencer, J., and Son, 186. Spengler, K., 353. Spengler, K., 353. Spengler, Ult.—See Oils,

SPERMACETI, AND SPERMACETI CANDLES. - Chemical proper-EMACET, ANI SPERMACET CANDES.—Chemical proper-tice of spermaceti closely allied to was, 256. Descrip-tion of the process of spermaceti refining at Messra, Ogleby and Co.'s works at Lamboth, 595, 627. Price of spermaceti, 627. Manner in which spermaceti candles are made, ab. Hemarkably fine specimens in the English Department, ib. Specimens from the United States and New South Wales of less important character, ib. Very ittle spermaceti imported into the United Kingdom, it

Major part obtained by refining sperm oil, ib. List of Awards, Exhibits, and Exhibitors, 528, 629,
SPHERICAL TRIGONOMETRAS.—Discription of this apparatus;
for the mechanical solution of trigonometrical pro-

for the mechanical sometime we have been all the being 31 st. 31, 453.

Spicer Brothers, 431, 453.

Spicers - Observations on the spices and condiments, and vinegars and pickles exhibited, 61, 62.

Spiers and Son, 448, 549, 552. Spiglazoff, A., 61. Spiller, J., 212. Spiller, J., 212. Spiller, J., 212.

SPRINT-LEVELS.—Pocket-sight and field-sight levels used by mechanics, 254. Purposes for which adapted, ib. Low-ness of price, ib. Angular spirit-level, ib. Adapted for agricultural purposes, ib. Spirit-level applicable for levelling machinery, ib.

Spitaels, P. (Joror), xxix, 288.
Spitalields School of Design, 256.
Spottlined Zimmermans, 718.
Srowur.—Numerous varieties of the common flexible sponge, Large and fine specimens exhibited, ib. Awards

164. Large and fine specimens exhibited, ib. Awards to exhibitors, ib. Spoxino-pilaye—invention of a substance for medical, surgical, and veterinary purposes, called, 165. Specimena exhibited, ib. Sporlin and Zimmermann, 548, 551, 213.
Sporlin and Zimmermann the United States, 153.

Spratt, J., 312.
SPRINGS, CARMIAGE.—Specimens of Buillie's patent volots springs, applicable as bearing springs, huffer springs, and draw-bar springs, 186.

Spurgis, T., 49. Spurin, E. C., 681. Spurr, G., 56. Squair, R., 54.

SQUARING THE CIRCLE, INSTRUMENTS FOR .- Principle thereof,

Squire, P., 49, Squire, R., 502, Squire, R., 502, Squires and Sons, 584.

Squires and Sons, 584.

Stadler, -, 28.

Stachell-Wild, C., 471.

Staffel, J. A., 297, 310.

Staight, D., and Sons, 599, 632.

Staight, T., 529. Staight, T., 529.
STAINEO (LASS.—See Painted or Stained Glass.
BTAINE OF WOOD—Samples thereof, 44, 48, 42.
Specimens of a new link for staining oak and mañogamy, 43.
STAINCASE BANETERS AND HANDALLS—Admphilion of earthenware to the purposes of; doubts whether the mechanical difficulty of preserving accuracy of untilne.

can be successfully overcome, 541.

Staffen, J., 552. Stamin and Co., 195, 20 Stampfer, Professor, 235. Stancomh, W. and J., 333. See Rarometers

STANDARD BAROMETERS.—See Barometers.
STANDARD MEASURES—Of length, 256.
STANDARD THERMOMETERS.—See Thermometers.

STANDAUD THEOROGETERS.— Standring and Brother, 470. Standring and Brother, 470. Standrope, Earl, 398, 411, 412. Standforth, T., 481. Standey, W. P., 233, 239, 242.

Stanley, W. P., 238, 239, 242. STANNATE BY SODA. See Sada, Stanuate of.

Stanton Institute for the Blind (Virginia), #23

Mantion listitute for the Blind (Virginia), 223.
Sraucit.—Samples of starch, 64. Curious species of starch washed it toon a species of zamia, found wild in St. Domingo, 63. Sample of starch from a West Australian zamia, 36 oceans from the Australian zamia, 36 oceans from the so at the various realization. symples of starch exhibited; names of the exhibitors to whom awards have been granted, 77-79. Various samples of rice-starch exhibited; remarks thereon, Samples of starch from various of our colonies and from foreign countries, 77-79.

Troin foreign countries, 11-4 Stark, R. M., 267. Starke and Co., 403, 454. Starr, C., 200, 412, 422, 423, 454. Scatham, W. C., 246.

STATIONERY. See Paper and Stationery, Sec.

STATINEAY, FANCY.—Various description of articles be-longing to this class of goods, 448. Numerous English and fereign contributors, ib. Division of this class intu and refuge contributors, i.e. Division of this class into several heads, & General remarks, and oljectic exhi-bited; Ince papers, ib. Faney papers, ib. Plaio-surface colmard papers, ib. Faney lepton, ib. Metallic memorandum-books, ib. Scrap-books, ib. Portfolios, ib. Album, ib. Porket-books, 449, 450. Cartoniage-paper boxes, 420. Black-lend penelli, ib. Sealing-wax, 430, 431. List of Awards, 451,452. wax, 450, 451, List STATLES. See Neulpture.

STATISTICS (Silver).—Elegant statuettes in east silver, from Moscow, 515. Statuettes in oxidised silver, 520. Staub Brothers, 35

Staunton, Sir G., 62 Stavely Coal Works (Derbyshire), 11. Stavropol, Government of (Russia), 2

STAYS, Specimens of, exhibited, 483.—See also Wenring

STEAN-BOILER FIRMING APPARATUS.—Self-acting, 316. Intended as a substitute for the common force-pump and regulating-float, ib.

Fregulating-float, & Frank Evanses—Steam engine driving Hibbert and Plat's matchinery, 162. Six-horse power atenua-engine, & Stateen-horse power dualbe cylinder direct-acting hipporessure engine, & Useillating direct-acting three-horse power portable engine and builer, from Beiglum, 122. New and simple method of reversing the silide of the property of the prope an engine, whereby the direction of its motion may be an engine, whereasy the direction of its motion flash be more easily changed, ib. Nix-horse power oscillating cylinder direct-acting portable stems-engine, ib. High-pressure direct-acting five-horse power stems-engine, ib. Five-horse power oscillating cylinder direct-acting stems-engine, ib. Small portable direct-acting engine, Short-stroke reciprorating high-pressure engine, Pair of elliptic revolving steam-engines, ib. ib. Pair of elliptic revolving steam-engines, ib. Description thereof, ib. Vertical cylinder direct-netting engine, ib. Five-horse power engine on Penn's patent truth principle, ib. Eight-horse power oscillating steam-engine, ib. Six-horse power high-pressure easiliating steam-engine, is made in construction, and of good workmamble, ib. Sectional models of steamgood workmanship, ib. Sectional models of steam-engines; excellent models for educational purposes, ib. Working model of a double-cylinder engine, ib. STEAM-ENGINES, Admir: LTURAL.—Proof given in the Exhi-

bition that agriculture has not kept aleof from the spreading dominion of steam, 233. Reference to the numerous little steam-engines in the Agricultural Department applicable to agricultural machinery. Fixed steam-engines long been in use in Northumberland and East Lothlan, ib. Movemble steam-engines land and East Lothian, ib. Moveable steam-engines been called forth by the Royal Agricultural Society within the last ten years, 253, 254. Reasons why moveable engines appear preferable in general to the fixed engines. ib. Report of Mr. Carr on the varieus engines exhibited, and description of some of these engines; revalue of the trial of these different engines; with remarks of Mr. J. Locke thereon, 231. Engines exhibited, and prizes awarded, 242.

Stran-Exone Indicator for ascertaining the

power of steam-engines, 315.
STEAM GAPOPS. — Various panges, 315.
STEAM HAMMER. — Steam hammer of Messrs. Nosmyth and

STEAN HANNER—TO-CO. 201.

CO. 201.

STEAN VISSUE.—Invention of propelling boats by steam claimed by many persons in various countries, 211.

The hencur of having produced this revolution due to the proper and exertions of the American Pulton, the countries and exertions of the American Pulton. the perseverance and exertions of the American Fulton, ib. Not a single steam-ship in the ports of England when the general peace took place in 1814, ib. Steamboats of small size employed in rivers, and along the

coasts for several subsequent years, 211. Voyage made seross the Atlantic in 1818 by an American captain, it. aerosa the Atlantic in 1818 by an American captain, ib. Important attempts made to extend the power of steam to long voyages by see, ib. Steam noon applied very generally both in the commercial navy and to ships of war, ib. Means taken to procure velocity, ib. Successful state of steam communication at the present time, ib. Steam navy of Great Britain, ib. Exertions of private speculators and of the English Government during the hast fifteen years, ib. Models of excellent stram ships lately designed and constructed, ib. United States cannot compete with Great Britain in the number of their great and regular communications by steamers, 215. Recklessness of the Americans; little care taken to avoid evident perii; frequency of dread-ful accidents, ib. Much has been done in the British navy, experimentally, for the best application of steam-power to naval architecture, ib. Recent introduction of serew-propellers, ib. Advantages of the screw nves paddle-wheels, ib. Model of iron steamers from France, is. Successful application of the screw-propeller to ships of-war, is. Expectation that the screw will be sups of-war, ib. Expectation that the screw will be generally applied to ships in the navy, ib. Average speed of serve wessle, ib. Principal dimensions and calculated elements of ships-of-war fitted with screw-propellers in the Royal Navy, 215, 216. Awards and objects exhibited, 211. objects exhibited, 217.
STEARIN AND STEARIN CANDLES.—Mode of preparation of

stearin for eandie-making, 618. Fusing points of stearic and margario acids, ib. Transition of the tallow candle to the stearic candle affected, ib. General introduction of stearic candles impeded by their price, io, Observations on the manufacture of stearie candles, 619. Difficulties originally encountered in the manufacture, ib. Improved wicks invented, 620. manufacture, th. Improved wicks invented, 620. Sketch of the main features of the development of the steario manufacture, th. Sulphurio saponification, experiments and discoveries, 621, 621. Improvements effected in the manufacture of stearin candles, 621. Description of the lime noncess as worstless at Manufacture at Manufacture of stearin candles, 621. Description of the lime process, as practised at Mesers. Ogleby and Cn.'s works at Lambeth, ib. Description of the sulphuric seponification and distillation process emloyed at the works of Price's Patent Candle Company 622. Statistics of the stearle candle manufacture of Austria, 622, 623. Manufacture of these candles in Relgium, Canada, and Demnark, 623. Statistics of this trude in France, 3. Stearle productions of lioi-iand, India, Prussis, Russia, Sardinia, Sweden and Norway, Spain, and Turkey, 923, 623. Details of the British stearic candle trude, 624. Prices of steatic candles, 3b. List of wards and exhibitors, 622-633. Statistics of the stearie candle manufacture "AROPTENS - Prepared from oil of peppermint and other essential oils, 42.

STEATUR. Samples of steatite (the scapstone, or French claik of commerce), from Milo, Greece, 33. Steatite though little used in this country, is well worthy of attention as possessing valuable properties, and capable of being supplied from America and elewhere in blocks of large size, 559. Articles manufactured thereia exhibited by the Maryland Soap Stone Company, il.

pany, 16.
ggmann, H., and Co., 460.

12.—Superior quality of the cast steel of F. Krupp, of
Fssen, 5. 29. Large dimensions of the objects produced, 5. Objects specified, 5. Great strength and

take the case of the steel. 6. European regulation leng ducet, 5. Objects specified, 6. Great strength and clasticity of this steel, id. European reputation leng enjoyed by the steel of Sheffield, id. Superior industry still exhibited by Sheffield in this sricke, notwith-standing tha manufactures which have risen up in different parts of the continent, ib. Objects exhibited, ib. Models of steel works exhibited, ib. Buttons of cast steel from India, the material being Woota, celecast afeel from india, the material being wood; cele-brated in india for the preparation of Damescus blades, 1d. Cast steel from the works of B. Fischer, of Trisien, Lower Austria, 2L. Products sent into all parts of Ger-many, ib. Products of the steel works of J. Pfeiffer, at Spitzenback, Styria, 7b. Products of the steel works of Count Von Thurn, in Carinthia, ib. Steel from Athis Mous Works (France), 26. Mode of manufacture, ib. cutlery made from, ib. Forged and cast steel from th Bona Mines, Algiers, 22. The products of Messrs Glenanth, of Horhelcim, much valued in Germany, th steels being especially in demand, 31. Steel of various qualities from Horheleim, in Rhanish Bavarla, ib. ylinders of cast steel of great hardness from the werks of the Royal Iron Foundry at Malapana, in Upper

Silesia, 31. Specimens of natural and forged steel from Siegen, ib. Specimens of forged and refined steel from Crombach (near Siegen), ib. Manufacture of steel actively carried on in the States of the Zollverein, ib. Ingots of east steel and forged steel of various kinds Ingots of cast steel and torged steel of various kinds from Hagen, ib. Low price of the steel of Messrs. Leinkind and Co., of Haspé (near Siegen), compared with other German steels, ib. Specimens of malleable from and steel directly from the pig. ib. Samples of steel of excellent quality from the works of the Lencuse-Asturian Company, Spain, 34. Specimens of steel from Sweden, 35. Products of steel from Switzerland, ib. Sweden, 32. Products of steel from Switzerland, ib. Good quality thereof, ib. Steel for springs, especially remarkable for its clasticity, ib. Injots of steel called "meteoric steel," from Schauffhausen (Switzerland), ib. See also Iron and Strel

STELL PLNS.—See Pens, Metallic, Steele, W. and P., 506.

STREEVARDS-Varieties of, from France, 259. See also Wrighing Machines, Steer and Webster, 482.

Steere, E., 631.
STEERING-WHEELS (Ships')—Plans of, of simple construction, 218. Perfect control given to the helmsman over the rudder, &.

the rudder, & Steevens, A., 726. Stefani, W., 472. Stehle, J., 335. Stein and Schröder, 56. Steinbach, J. J., 78. Steinbeis, Dr. F. (Juror), xxix.

Steinböck, A., S Steiner, C., 45

Steiner, C., 222.
Steiner, G., and Sons, 162, 368.
Steiner, H., 42.
Steiner, T., and Co., 459.
Steiner, T., and Co., 277.

Steinbeit, Professor, 2H.
Steinbeit, A., 25.
Stephens, K. B., 663.
Stephens, M. and H., 401.
Stephenson, Halke, and Co., 410, 453.
Stephenson, Halke, and Co., 410, 453. tages over freeco, 688, 699, STERROTTPING—One of the means of making fac-similes in

type-metal of types, wood-cuts, &c., for surface print-lng, 411. History and origin of the invention, 411, 412. Its gradual adoption by English printers, 412. Previous processes superseded by that invented by Lord Stanhope in 1840, ib. Numerous attempts made to substitute for plaster-moulds the employment of sheets of paper with whiting placed between them, ib. sheets of paper with whiting placed between turn, to, Pailure thereof, ib. Steerotype plates of bitumen give good results, ib. Various specimens exhibited, ib. Specimens of casts from wood nontrice produced by a most ingenious process of foreign invention, ib. Mode of obtaining these casts, ib. List of awards and ex-

hibitors, 451, 453, 455.
STEREOTIFE PLATES Of gutta percha, with specimen impressions, 138.

Stovens, A., 422. Stevens, G. II., 578. Stevens, H. (Juror), xxviil.; (Exhibitor), 49, 327. Stevens, H. R., 502. Stevens and Son, 5

Stovens and Thomson, 159. Stevens, W., 157. Stevenson, J. C., 4

Stevenson, J. and J., 600. Stevenson, R., 530. Stevenson, T., 531. Stevenson, W., 42.

Stewart and Co., 201, 205, 421. Stewart, J. (Associate Juror), xxvil. Stewart, Jane, 482. Stewart, W., 395, 568. Stieff and Harrass, 368, 376.

Stier, fl., 615. Stille, A., 491. Stilwell and Son, 368 STINK-TRAPS, 200

Stinnes, H. A., 32.
Stirling, M. J. D., 506.
Stirling, T., jun., 13, 538
Stirling, T., sen., 555, 57
Stivens and Sons, 576.

Stobwasser, C. 11., and Co., 106.

Stockil, W., 321.

Stockil, W., 321.

Stockil, W., 321.

Stockild Gallesiery Frames.—Several of these machines, both English and Foreign, well worthy of remark, 122. Description of four or five of these machines, and the statement of the periods the French, and the machines, exhibited in the British, the French, and the

Belgian Departments, ib.

Belgian Departments, ib.

Belgian Departments, ib. STOCRIMIS, See Hosiery. STOCKINGS, ELASTIC .- Machine-made caoutchour stockings and belts, 297. Caoutehoue knit stockings for Inva-

lida, ib.
Stocks, Dr., 131, 650.
Stocquart Brothers, 471.
Stodart, Messrs., 328, 339, 334.
Stobmann and Wistenfeld, 42.

Stohrer, T. F., 294, 506 Stocker Brothers, 506. Stoker, J., 308, Stokes, J. C., 502, Stokes, S. cxx.

Stoll, C., 669. Stollberg, Wernigerode Count, 506.

Stoltz and Son, 201 Stone and Kemp, 362

STONE, SPECIMENS OF, AND WORKS IN.—Specimens of Irish stones for decorative sculpture, 12. Cornices and other objects manufactured therefrom, ib. Important speci-

mens of carved stone from Multa, 154. mens or currect stone (rom sinits, 1994).

Number of exhibitors of manufactures in unpollshed stone, countries from which exhibits have been sent, 2004. Many of the most interesting objects of very greed, almost national, importance, ib. Classification of this group into various sections; 1st. Fing stones, this group jato various sections; 1st. Fing stones, paying stones, &c. olderic schildred, remarks thereon, paying stones, &c. olderic schildred, remarks thereon carved, and sculptured atone-work, not polished general remarks, names of exhibitors, awords, &c. 565.552, and the schildred, particular remarks, names of exhibitors, awords, &c. 565.552, and the schildred particular remarks thereon, exhibitors, awords granted, &c., 565.552, doi: 10.1016/j.j. Manufacture in various kinds of stone and other minerals to legicle exhibitor, fermarks of stone and other minerals to legic exhibitor, fermarks

thereon, and awards, 559, 560.
All kinds of earthy mineral substances, as stone, marble,

31 kinds of earshy mineral substances, as stone, marble, substances, from the popular size, standard standar atabaster: general remarks thereon; objects exhibited, particular remarks thereon, awards, &c., 569-565. 2ndly, Works in ornamental stone, granite, and spar-remarks on the objects exhibited; exhibitors and awards, 565, 566. Notices of the principal works of art in stone, 685, 686.

-See also Both Stone. Granite. Marble, Quartz, Sculp-

Models, ire. Serpentine. STONE, ARTHUGA SET, AUPTICIAL—Number of exhibitors not large, nor the objects exhibited numerous; countries from which contributions have been sent, 572. Remarks on certain specimens of an artificial stone, luverated by Mr. Furso-in 1829 for flooring damp phores, key, 52d. Specimens of artificial stone from Austria, 522. Remarks on a species of artificial stone recently latroduced by Messra. Hunsome and Parson, of I purish, 525. Nature of this Ransome and Parsons, of Ipswich, 575. Nature of this stone and materials of which compounded, ib. Purposes to which applicable, ib. See also Cenent, Ronan,

poses to which applicable, th.—See also Cement, Roman, &c. Murbh, Indiation.

STON-PUBLISH, Delimens of, 2011.

STON-PUBLISH Specimens of, 2012.

STON-PUBLISH Specimens of stone-ware for breveries, dis-tillateries, &c., 221. Small collection of stone-ware ex-libited, 262.—262 also Cramic Manufactures.

Stork, Rev. M., 102.

STONE SINGENERS—See Typhodeictor.

Stothert, Slaughter, and Co., 173. Stotzer, F., STOTERBINGE-CLAY. - See Fire-Clay.

STOYER.—See Perf-Copy.
Stoyer.—General remarks on the collection of steel and iron grates, fenders, ond fire-places, 329. Ornamental grates and fenders, ib. Kitchen ranges, their material, &c., ib. Gas-stoves recently invented, 498, 500. Objects exhibited and awards, 503. See also Iron and Seed Manufoctures.

Poncelain.-Atmopyre boods and gas-stove of D. O. Edwards, 568. Porcelain stove exhibited from Frankfort, 387. 3 :

```
Stowell and Sugden, 360, 361.
Strahl, Otto, 512.
Straker, S., 172.
```

Strange, —, 51. Strange, —, 52. Strangorag Cathedral, Model of, 208, 689, 710. Stratingh and Co., 42, 42. Stratton, Messra, 232

Strauss, J. 673.

Strauss, Manuactures in.—Specimens of straw-plait ex-

Straw, Manufactures in.—Specimens of mean partial hibited, 483. Objects exhibited in Indian corn. atraw, and straw-works; names of exhibitors, awards, &c.,

and straw-works; names of exhibitors, awards, &c., 902.—See aloo W cories of papers.

Strazza, G., 985, 203.

Strakani, Maria, 645, 615.

Strakani bevertusarys. - Hemarks on the violins, violon-cello, and other string or low instruments exhibited, 202.—See also Horps. I icline, 3v.

Strole, W., 626.

Stromeyer, Improvements effected by, in the manufacture of bichromate of potash, 32

Strubbe and Bacy, 53, Strube and Seu, 517, Strudwick, J., 655, Struthers, W. S., 559, Struva and Co., 42,

STRYCHNINE - Samples of, 47

Stuart and Smith, 499, 502, 72 Stuart, W., 208, 563, 689, 696. Stubs, P., 486, 483, Stackhart, J., 421.

STUTTED ANIMALS AND BIDDS. — See Taxiderny (Specimens of) Stüler, Privy Councillor, 628, 738.

Sturges, J., 50. Sturges, J. and E., 38, 42. Sturmy, Maria, exx

Sturs, -, 401. Stutchburg, J. S., 76, 83, 140.

Styles, T., 54. STrnia .-- Iron and steel from the works of the Austrian Government in Styria, 20. Superior quality of the manufactures, ib.

SUB-MARINE TELLGRAPH. See Electric Telegrophs.

Successe Acto-Specimens of, 41. Sudeley, Lord (Juror), xxz. Suermondt, Y. D. C. (Juror), xxxi.

Scuan -- Limited number of samples exhibited, 62. Defi-Aa.—I.mited number of samples exhibited, §2. Defi-ciency most marked in the contributions from the principal sugar-growing countries, §3. In refined sugar the British manufactories wholly surrepresented, ib. Specimen of sugar from cane grown in Eugland deserving of notice as a curiosity, ib. Samples of sugar from our East India possessions, ib. From Java. From Demorara, ib. From France, ib. From n,ib. From Austria, ib. From Belgium, ib. From iia, ib. From Prussin, ib. From the United Spain, ib. F Russia, ib. States, ib.

Segan-canny-Fine sample of, from Belgium, 63 Sepan-or-LEAD - Specialens of, 47.

SECAN-MARING APPARATUS.—Centrifugal machines for separating molasses, 263. Sugar-cano mill, a magnificent specimen of mill work, on the largest scale, ib. Three superb sets of vacuum apparatus, &.

Sugalon, Bornas, and Co., 645, Sugalon, Bornas, and Co., 645, Sugalon, Jonas, Brothers, 317, 390, 381, Sulger and Stuckelberger, 355,

Scarnwnic Acm .- Manufacture of this acid in earthenway THERE ACID.—Manufacture in this acid in carrierwater everels, included of the leadent chamber, as tollowed in the works of Javel, near Pairs, 35. Material of these vessels, ib. The process described, 35. 32. Its introduction into England recommended, ib. Samples of this acid, 3d. Price of sulphuric acid in Germany, 32.

umbelliferous plant of Central Asia, 42 umuer, G., 336.

Sux Diats.—Magnetle sun dials, 231. Adapted to every degree of latitude, ib. Various other sun dials exist-

therree of Institute, by a narrown was tree called the sun picture, 243, 262.

Sex Pirewans.—Remarks on what are called the sun pictures exhibited by Messy, Cells, and also by several Prench exhibitions, 275, 275, 275, 275 and a little by Section Construction of Subsequent Section Construction Section Construction of Objects into which this Class is divided, ai-xiii.

exhibitors in this Class to whom Prize Medals Lave exhibitors in this these to whom frize Medials Lave been awarded, laxis. Observations on the preventatise of the art of manufacturing surgical instruments, 3:3. Great variety required for use, ib. Necessity for in-strument makers bring able mechanists, ib. Progress of improvement in construction necessarily stands in intimate relation to the advance of surgical science, ib.
Complex character of the instruments formerly in use,
ib. Many instruments altogether useless from the imib. Many instruments altogether useless from the Improvements of the leading art, ib. Cauterising trous provements of the leading art, ib. Cauterising trous simple expedient of ving the bleeding end of the divided artery, ib. Hopes held out that amputation may be dispensed with, ib. Instance in which the genius of John Hunter has enabled surgeons to dispense of John Hunter has enabled surgeons to dispense. genue of John Human's and Campus and Angeles of the principal lithotrity, for stone in the bladder, 313. The principal merit of which necorded to the Freuch surgeons, id-Improvements made in the last half century, ib. Improvements made in the last man section, a valu-vention of the stethoscope, ib. Stomach pump, a valu-vention of the stethoscope, ib. Stomach pump, a valuable auxiliary in the treatment of poisons, & dilator of the female urethra, & Water-b dilator of the female urcthrs, in. Waser-wear at Araott, ib. Appartus for facilitating and improving the treatment of fractures, ib. Bed invented by Mr. Har, old, ib. Instruments for the eure of ancurism, ib. Instruments for the eure of ancurism, ib. in old of arthonoxile processes, ib. Usa of esoutchour for bandages and similar surrical apof évouteboure for handages and similar surgical ag-piances, à Ristoment of the intermental deserving notice, à. Collection of artificial limbs, &c., of greet produces and a surgical limbs, &c., of greet of long translation reputation, 3th. Messay, Buly and Whicker, the present representatives of that house, his three produces are produced as the surgical Mr. Pilitp being a Juror, &. Choice assortment of all intermmental aside schilbriet, Br. Geograf excellence in the contrivance and execution, ib. Beautiful models of anatomy exhibited, ib. In human anatomy, models can never supply the place of actual dissection, ib. Awards, 316. Application of gutta percha to the manufacture of surgical instruments and apparatus, by J. M. Cabirel,

of surgical instruments ama approximately affects for Park, Scaverya Instruments in the British Department, and those for the most part of as ordinary kind, 253. Beautiful instruments from Belgium and Germany, & Improvements introduced in the German instruments, ib. Levelling instruments from the Market Market Scarlet Scale of Victors, with many improve the Polytechnic Institute of Vienns, with many improvements, ib. Objects exhibited, 23-255.

Suser, H., 391, 480. Suserssion Bausers.—Patent links for suspension bridges rolled at a single heat, 174.

Susse Brothers, Mi

Susa, W., 282. Sutcliffe, R., 195. Sutherland, Her Grace the Duchess of, 647.

Sutherland, Janet, exx. Sutorius, C. F., 636, Sutter, J. J., 467, 471, Sutten and Sons, 52

Sutton and Soin, as.
Swaal, S. L., 22.
Swaine and Adency, 374.
Swaine and Adency, 374.
Swailand, C. (Juror), xxix; (Exhibitor), 350.
Swattows' Nixrs-Specimens of, of very high quality, 66.

Used extensively for soup by the Chinese, Eff. Model of the misle of attachment to the sea chitis, adopted by the birds for their nests, ob.

But birds for their nests, so.

Swan and Edgar, 28:3.

Swan Kivra Cotoav - Samples of good wheat from, 32.

Swanes Local Committee, 12.

Swelee, Il. M. the King of, 26:3.

Swelee, Il. M. the Queen of, 16:3.

Swenes ann Noaway .- The working of mines and the REEK ANN NORWAY.—I fin working of mines and or production of metals an active branch of industry in bweden and Nursay, 35. Natural causes giving a great preponderance to mineral industry, 6. Dres of copper generally poor, but much valued in commercy, from not containing either arealed or animony, 8. Annual supply, 86. Mines of lend of no value, except for the diviet the ores contain, 8. Considerable profiles vielded by the Cobalt mines of Skuterad and Tunsberg, ib. Iron mines, both in Sweden and Norway, a properous branch of industry, from their intimate bearing on the cultivation of the forests, ib. Extraonlinary reputation of Swedish iron for the manufacture of steel, 31, 33. Objects exhibited by Sweden and Norway,

Good specimens of linseed and rape-seed oil from Sweden,

today personnel of materiated flat, 101. Fine campter of raw silk calibility by III. Me thereof of weeks, 162l. Inferior obserigition of pearls, 163. Number calls observations on the Scalin campus, 22l. Estamples of various construction, 262. Training to the construction of various construction, 262. Training to the Specimens of printing bank most, 262. Examples of various construction, 262. Training to the construction of
bookursesses, making trade of Sweden, and parameters, 472, 447. Specimens of embroidery, 472, Locks, 488. Fine specimens of embroy, 489, 481. Locks, 488. Works in por-541. Specimens of embroolery, 5.22 Specimens of cutlery, 452, 342. Locks, 68. Fine specimen of the granifes of Sweden, 526. Works in porphyry, 552. Collection of wood carvings, 552. Stenic manufactures in Stockholm, 624. Specimens of candless. Artificial Rosers, 523. Stearic

Swift, J. H. (Juror), xxvlii.

Swinborne and Co , 165. Swinburne, R. W., and Co., 597, 536. Swinburne, W. (Associate Juror), xxx.

Swindells, Mesers., 31

Swirches, Kallway. - Description of an improved railway switch, 183

switch, is:

STITZBLAND.—Mannfacture of steel developed for some
years past in Switzerland, 35. Good quality of the
products subblied, 45. Steel for springs remarkable
for its elasticity, 46. Preducts exhibited, 45.
Samples of piece of various kinds, 55. Chorelates, 52.
Kamples of raw silk, life.

Samples of rar silk, 162. Press for cutting out watch-hands, 201. Collection of rides, 221. Diers of finit-glass from applicable to optical purposes, 221. Planimeter, 202. Disciplinary of the property of the pression of Mount Sentis, 302. Calculating machine, 311. Chromometers, witches, and watch movements, 332-342.

Surgical apparatus, 346.

Susina, 347. Cotton manufactures, 348. Small and indifferent lot of woollen productions, 322. Observations Muslims, 34 on the silk manufactures of Switzerland, 314. Speci-

mena of ribbons, 353. Specimens of manufactured silks 363-365. Specimens of danosks and drills, 372. mens of Publishing, and the control of market of the State of State of the Control of the State of the State of the State of the State of Publishing of Publ elbums, 449.

woums, 480. Interesting contributions of printed and dyed fabrics, 438. Specially worthy of notice, ib. No duties on imported prints until within the last twelve months, ib. Small fixed duty now imposed, ib. Successful competition of these goods with those of France and England, ib. Objects exhibited, 430. General remarks on the ib. Objects exhibited, 4.9. General remarks on the exhibition of lace and embroilery from Switzerland.

exhibition of lace and embeddery from Switzerland, ddf. Specimens of lace and embrodery at 121 hypechemic of braces, strawplatt, lasts, hometic, and clarker articles of wearing appered, 400, 500. Cylinder of collection of the control of the collection of the colle articles of wood carving, ib.

Specimens of straw work, 602. Contribution of tooth-Specimens of straw wors, max. Commonword or possible and lair-oil, 6.10. Chocolate-lozenges, 6.10. A gold stick head with internal mechanism, 663. Variety of bows and arrows, 677. Collection of toys, 670, 680. Notices of the works contributed, by Switzerland to the

Fine Arts Department of the Exhibition, 705 Swond-mars. - Patterns of sword-hilts and me France, 520 Swons, &c. Collection of swords, side-arms, and swerd-

blades, 221 Syel, Omar, 81.

Synnyrs-Great variety of, in the Vesges, 27.

Sykes, Colonel, 563. Sykes, D., and Co., 353. Sykes, J., and Son, 383.

SUNCHRONOMETER. - Construction and purposes thereof, 315, Synington, H. H., and Co., 318. Syrnon Vasta. – Patent syphon vases for containing neraled mineral waters, a useful and ingenious contrivance.

Synene,-Accustle instrument for demonstrating the production of a musical sound by a succession of musical impulses, 2.3.

Seather, Serve of.

Santrak, J. F., 21.

TABACH. - Samples of this substance, 21. Dyes a rich violet colour, sb.

ABARCA (Tunis)—Specimens of limber from, 136.

ABLE-CLOTHS .- See Cotton Monafactures. TABLE-Covers-Specimens of, 422. Specimens of printed and painted moleskin table-covers, 472. See also

Painted Cloths for Farnitare, &c.

TABLE CUTLERY.—See Cutlery and Edge Tools Tables Various descriptions of, exhibited, 550-552.
Tables and Table-rops, Market, Mosaic, and Island.
Two fine Councinara marble tables, exhibited by Mr.

Two fine Connemara marble tables, exhibited by Mr. Lambert, of the Ballynahinch quarry, 563. Marble table sent from Canada, b. Table exhibited smongst the East India productions, b. Number of tables of various kinds of marble from Taxony, b. Collection of marbics, cut into slabs and table-tops, sent from of marbles, cut into slabs and table-tops, sent from Portugal, remarkable for the beauty and great variety of many of the specimens, §63, §64. Very beautiful and well-executed inble-top of yellow marble from the United States, §64. Specimens of mosale marble tables from Derbyslire, §68. Notices of tables in messic and pietra dura, §87. Tables in inhild weed, ib.

Taboria, P. F., 491 Tabourdeau, P., 42

Tabourdeau, P., 491.
Tabouret, -, 593.
Tacchis, P. A., and Cn., 564.
Tachy, A., and Cn., 569.

TATTETAS - Semples of, from various countries, 361-368. Tahan, A., Sil

Tabir, -, 489.
Taillefer, A., and Co., 509.
Talliet, V., 391.
Talabot and Co., 482.

Tsiabot and Co., 452.
TALAYERA WHAT.—See Wheat.
Telbot, —, 273, 276.—See also Tailbotypes.
Talbot Brothers, 295, 242.
TALBOTYPES.—Description of the process for producing acgaint atlantypes, on glass, 245. Collection of tailbotypes amply attesting the superierity of the method of Messra. Rose and Thomson, & Observations on tha various talkotype pletures exhibited, 278, 279. Method adopted by Messrs. Hoss and Thomson for producing these pictures, 278.—See also Colotypes. San Pictures, Tallermann, Mrs., 596.

TALLOW.—Quantity of tallew imported into Grest Britain annually, 72. Specimens of tallow from New South Wales, 163.

TALLOW CANDLES .- See Condice

Tamer, —, 425.

Tamer, —, 426.

Tamer, —, 426. Tan Kim Seng. \$2. Tandler, S., 163, 60

Tann nod Sons.

Tanner, B., 471, Tanner, J. U., 467 Tanner, J. U., 467, 471. Tanner and Koller, 318, 471. Tannic Acto.—Samples of, 4

TANKEN -- Samples of, 16 312 Tanning Materials.—Number of different substances from time to time introduced for the use of tanners, 21. Nothing superior, or even equal to good oak bark, ib. All attempts to hurry the process by the use of concentrated solutions of tan, &c., have proved failures, & Oak bark by no means the only astringent bark suited to the use of the tanner, ib. Other similar substances used with great success in various parts of the world, used with great success in various parts or tre works.

These materials may be employed in conjunction with oak bark, ib. The existence of such substances tends to keep down and equalize the price of bark, ib. Quantities of the chief taming materials imported in 1843; countries from which obtained, ib. Valuable and instructive series of the various tauning meterials Imported into England or used by tanners, 21, 22 lustrations of the process of tanning generally, 92.

I seful series of these substances shown in the collections of Livergood and Hall investors. tions of Liverpool and Hull imports, sh. Fine sample of pure l'alermo sumach as ground for the use of tanners, ib. Tannings materials in the East Indian coltanners, to. Xononics materials in the raiss considerable number of those substances new or but little known, ib. Samples of tanning barks from several English colonics, viz., Cape tanning barks from several Engliss cosonics, VLL, vage of Good Hope, & Cansula, & British Giman, &; Australia, 23; Avez Realand, & Bright Giman, &; Australia, 23; Avez Realand, & Specimens of oak bark from Elegleum, &; Trom Hesse Darmstad, & Samples of Foringuese sumach, & Collection of taning materials from the Bussion Engice, & Speciment from Tunk, & Samples of several important taning and the second of the Collection of

Tenterstein and Cordel, 408.

Tan Nul, 93, 101, 103, 149 TAPERS, - See Candles.

TAPESTRY, INCLUDING CARPETS AND FLOOR-CLOTHS, LACE. EMBROIDERY, &c. (Class XtX.) - Tebular classification of objects into which this Class is divided, avil., xix, of objects into wincen this Class is divided, XXII., XXI., ALX. Left of Jurous appointed for this Class, xxix. List of exhibitors in this Class, to whom Conneil Media's have been awarded, ixxxvii. The like, of those to whom Prize Media's have been awarded, ixxxvii., ixxxix. Anni of those of whom Ilmonurable Mention is minle,

annin., ne. Preliminary observations of the Jury on the subject of reliminary observations of the Jury an the subject of their inquiries, 4dd. Hernrick in detail, viz., Britist lace: holden net unerlinery, 4dd-4ds. Lace made by the subject of the subject of the subject of the Bertish potential, and "tered" or pillon lace; also Bertish potential, and Scotch sewel modeln embroidery, 4dd, 4dd. France: lace and caleboddery, 4dd-4ds. Switzerland, 4dd. Scotony, 6s. Spain, 6s. Hondon, 6s. Austria, 4d. Minta, ib. Loce of Belgland, 4dd.

1008. List of awards made in the various departments of lace, embroidery, trimmings, upholstery, frieges, and conchactes in cach country, 468-472. Remarks as to rarpets, 472-474. Awards made for the same and for loor-cloths,

Awards made by the Jury of Class XXX, for works in which made by the sury of class XXX, for worse in tapestry, 686, 687. Notices of the principal contribu-tions from the Government manufactory of Gobelius and Beauvais tapestry (1 reach Department), 702.—See also Designs for Decoration, 5c. Tapioca—Sample of, from Angola, 62.

TAPIOCA —Sample of, from Angola, 52.
Taplin, R., 173.
Tanavie s., Juice or —Samples of, 43.
Tarilif, E., 431, 448.
Tarnot, A., 474.
Tarnot, A., 474.

TARTABLE QUARBURS (France). - Importance of these millstone quarries at La Ferte, France, 28. Number of workmee employed, ib.

TARTABIC ACID-Samples thereof, 46, 48, 42. Tasker, II., 491.
Tasker, I., 491.
Taskinsk Munufactory of Arms (Russia), 53.
Taskinsk Munufactory of Arms (Russia), 53.
Taskerhurg Works (Carniola)—Iron and steel from, 20.
Excellence of the manufactures, 46.

Taurines, -, 301.

Tayor (East Indies) - Collection of the woods of, 133-135.

Tawton, Mary, exx.
Taxtoramy (Specimens of).—The art of stuffing animals,

Acc, a very ancient art, though generally supposed to be an invection of modern date; still the methods anciently employed differed much from those now practised, 635. Antique processes for preserving

animal remaios, 615, 646. Comparison between the Great Exhibition, with the old specimens of the art Great Exhibition, with the old specimens or the air of animal stuffing to be met with bere not there in the museoms of natural bistory, 646. Undoubted superiority of the present processes, ib. The works in this claus exhibited prove that minual stuffing has been nurks on the specimens exhibited from various countries; objects exhibited; exhibitors and awards,

Taylor, B., 601. Taylor Brubers, 491. Taylor and Co. (Rochdale), 479.

Taylor and Co. (Recreater), 322. Taylor, H., 483. Taylor, H. P. and W. C., 615. Taylor, J., 15. Taylor, J. (Leeds), 100, 205. Taylor, J. (Medverlampton), 516. Taylor, J. (Wedverlampton), 516. Taylor, J., and Son (Huidlersfeld), 326.

Taylor, J., and Son (Huddersfeld), 376, Taylor, J., and Son (Loughborsugh), 565, 510, Taylor, J., and Sons (Hallifax), 338, Taylor, Janet, 272, Taylor, Rev. Mr. (of York), 416, Taylor, R. (Juror), xxvi., xxxi.; (Exhibitor), 12, Taylor, R. (Juror), xxvi., xxxi.; (Exhibitor), 12,

Taylor, S., [415. Toylor and Son (Bishop Stortford), 52

Taylor and Son (Chelsen), 615. Taylor and Son (Halifax), 197. Taylor T., 296, 440. Taylor, T., 296, 440. Taylor, W., 198, 205. Tazzas Specimens of 542.

Teletverikoff, -, 353.
The Exhibitors of this article few, and the samples L. The Exhibitors of this article few, and the samples exhibited confined to the productions of the Eastern World which are, however, admirably Illustrated, 52. China tea exhibited in abusiance and of fine quality, 75. Observations of the Jury on the samples exhibited, 52, 53. Samples of China teas, 52. Of Java teas, 58. Of Kemann reas, 56. Of Assam teas, 60 of brick tess. 65.

Of Triblet, ib. Few examples of substitutes for tra, ib.

Specimen of Nuttor "Paraguay tea" exhibited as a
cricolty, 28. See also Green Few. Pression Blue
Tra Straviers.—Complete tea service of silver in the Persim style, of very fice workmanship, in reposses work, 512. Curious and elaborately worked tea service

work, 512. Curious and elaboratety we exhibited by F. Durmad, of Paris, 518. TEA TEAYS Specimens of, in earthenware, 54 TEA Unit Made of stoneware, 541.

Tesgle, R. and W., 574.
Tesgle, R. and W., 574.
Teas Truers Specimens of, 137, 140. Value of this timber for ship-building, 140.

Tenslel, W., 218. TEARLY. - Specimen of selected tearles for the use of wool dressers, from Austria, 157. Fechnological Institute, Tuscany, 563.

Tee, C. (Juror), xxviii., xxxi.
Tee, C., and Son, 371, 375.
Term. Agrirus A.—Observations on the collection of, 345.

Teillard, C. E., 367 Trillard, C. E., 367.
Trissier de Cros, L. and E., 161, 364.
Trissier de Cros, L. and E., 261, 364.
Trissie vis, Davistic—Designed to superside the use of bells in mansions, tec., 224. Details of construction and working, ds. Not unskiptly, ds. Less expensive than the ordinary fitting up with bells, ib. Bell tele-

than the ornauary niting up with beins, io. Bell trie-graphic from the United States, for domestic purposes, 2.5. Readily nitrohed to the usual arrangement for bells, 26. Croamental, but little space required, 26. TELEGRAPHS, ELECTRIC.—See Electric Telegraphs and

Apparatus.
Tatavorras.—Insportance of the Identipa, 252. For exApparatus to be used in Gregorian telescopes, di.
Description theorete, di. Pertale Gregorian telescopes, di.
Description theorete, di. Pertale Gregorian telescopes, di.
Description theorete, di. Pertale Gregorian telescopes, di.
Control and Control and Control and Control and Control and Light and reflecting telescope, di. Observations on the various operations of dark-instead collections of architecture delections of architecture delections of solid eye pieces for telescopes, chillied; descriptions of solid eye pieces for telescopes, chillied; descriptions theoretical descriptions theoretical descriptions theoretical descriptions theoretical descriptions theoretical descriptions theoretical descriptions thereof. do.

Telescore Stand.- Elegant wooden stend from France.

Less convenient than cast-iron stands, ib. 264. Less convenient than cast-Telford, W. (Associate Juror), xxvil.

TEMPEST PROUSE-TECATOR- Description of, constructed by Merry weather, 3Hz.
Templeton, J. and Co., 473, 473.
Temsonnet and Dartet, Messry, 23.
Texassans (East Indies)—Collection of the woods of, contributed by the Indian Government, 136.

contributed by the union of the property of th tilation, ib. Improvement proposed in the construc-tion of military tents, ib. Pertable stove and cooklur

apparatus attached, så

paperatus straeses, so.
Termo, Bishop of, 1925.
Termson de Montean, J. A., 122.
Termson de Montean, J. A., 123.
Termson de Montean, J. A., 124.
Termson de Montean, J. A., 124.
Termson de Montean, J. A., 125.
Termson de Mon that and intercent measurement of control to what is called stone-ware, the fusion of the materials not being effected, ib. Objects exhibited, awards, &c., 502, 403.

Terra-cotte figures from Spaio, representing the costumes of that country, 600 - See siso Clay, Manufac-

TERRO-METALLIC CLAY, ARTICLES IN.—Large and interest-ing series of articles manufactured in a peculiar prepa-ration of clay, and with a peculiar burning, called by the loventor Terro-metallic, all.

Terzy's Wife, 484

Tessada, F., 472. Tessler, C. L., 673. Tessler, D. F., 32, 670. Testa, F., M

Testa, S.

Testa, S., 5,55.
Testley, G. (Associate Juror), xxviii.
Testley, Mrs., c.x.
Testley, Mrs., c.x.
Textler, C., 5,50.
Textler, T., jun., 2,5.
Textler, T., jun., 2,5.
Textler, T., jun., 2,5. Territe Finnis-I-lit of Classes of objects included in Group C, Territe Manufacture, Scher Designs for Printed and Heren Fabrice, Sec. Designs for Printed and Heren Fabrice, Sec. Designs for Printed and Heren Fabrice, Sec. Theorem C, Territe C, Lance C, Territe C, Lance C, Territe C, Lance C, Territe C, Lance C, Lanc

by Mr. Jebst, 46. THEODOLITES .- Transit theodolite invented by Mr. Simms, rosourers.—Trunsit thresholds in twented by Mr. Shunn, 223. Extremely portable, ib. Range of the telescope unlimited, ib. Description of the latterwards. In the control of the latterwards of the control of the latterwards of the control of the co used by Gambey, 50. Description of the restaurant, 5b. Divisions very good, as also the whole of the workmanship, 5b. Theodelite with covering, for the graduations Invented by M. Breithaupt, Prussia, 5b. Usefulness of the covering, 5b. Mining theodelite from Prussia, of improved construction, ib. Description thereof, ib. Six-inch theodolite, of good workmanship, from Prussis, 255.

Theodoraballe Kreuznach Sait-werks (Hesse Darmstadt),

Theret, J., 551, 569.
THERMO-ELECTRICAL INSTRUMENTS.—Harris's thermo-elecib. Discovery of thermo-electricity by Luleck, o Berlin, ib. Large thermo-electric battery from Prussin; description thereof, ib. Apparatus for showing the action of the earth's magnetism on electric currents,

THE CONTROL OF THE PROPERTY OF

thermometers from France, 302. Thermometers from Prussia, Austria, and Denmark, ib.

Thesen, A. P., ut. The-cn, N. P., 252.
The art, A., improvements effected by, in the manufacture of plate-glass, dar.
Therence and Co., 252.
Thirdualt Boilewe, H., 202.
Thirdualt Boilewe, H., 202.
Thirdualt Boilewe, H., 202.

HIRT-Borax imported from ; very Impure, 524.

Thibierge, --, 388. Thieme-Willmarkter, and Co., 164.

Thier, -, 316. Thierry, C. A., 489. Thierry, J., 278. Thirrey, Mieg, 381.

Thirsk, -, jun., 36. Thistlethwayte, H. F., 11.

Thom and Co., 538 Titelion, -, 613

Thomas, --, 75, 101. Thomas Brothers, 368 Thomas, C., 491, 472. Thomas and Co., 61.

Themas and Co., 61.
Themas H., 196, 225.
Thomas, J., 585.
Thomas, James, 61.
Thomas, Jehn, 546, 562.
Thomas, J., 366.
Thomas and Son, 480.

Thomas and Sons, 426, 453. Thomas and Sons, 426, 453. Thomas, W., 329. Thompson, F., 528. Thompson, II., 682. Thompson, II. S. (Juror), xxvii. Thompson, J., 163.

Thompson, Messrs, 102

Thompson, Messrs, 102. Thompson, R., 311. Thompson, T. H., 556. Thompson, Lieut-Col, T. P., 326, 335. Thompson, Rev. Z., 150. Thompson, Rev. Z., 150. Thomson, A., 315.

Thomson, A., 315.
Thomson Brothers, 459.
Thomson, J. B., 672.
Thomson, J. T., 183.
Thomson, R. J., 183.
Thomson, R., 580.
Thoseon, P. ounger, and Co., 263.
Thonet, J., 221.
Thonet, J., 184.
Thonet, Michael, 346, 551.
Thorn and Co., 268.
Thomeyer, G. B., and Co., 186.

Thornbill, J., Thornbill, W., Thornbill, W., 489, Thornbill, W., 489, Thornton, Firth, Ramsden, and Co., 333, 352, Thornton, S., and Sons, 184, Thornycroft, Mr. and Mrs. T., 686, 663,

Thorond-lsen, -, 205. Thousain, A., 519. Thouset, F. A., 518.

THREAD, - Few specimens exhibited from foreign countries,

Tanaan. - Few speciment exhibited from foreign countries, 3.17. Specimens exhibited, 315, 332.
Tanaan Countries, - Account of a registering thread counter, 3.13. Purpose for which designed, ib.
Thresher and Glenny, 3.12.
Thusassin Marainess. - The most complicated agricultural machine in general see, 2.33. Their great imperfection not discovered illi the Norwich meeting in 1849, ib. Enermone waste of power discovered at that time by Mr. Amos, ib. Improvements have since taken place, but they are still far from perfect, ib. Report of Mr. Thomson in detail on the result of trials at different periods with various threshing muchines, 235, 236. Statement in detail of the comparative cost of thresh-

Statement in detail of the comparative cost of integring by flail, by horse, nod by steam, shewing the great saving resulting from the use of the steam threshing-machine, 202, 227. Lead taken by Moses. Clayton and Co. in the improvement of threshing-machines, Prizes nwarded, 241, 242 237. Prizes nws Thrupp, E., 685, 693. Thum, A., 320.

Thumer and Töpfler, 3.8.
Thumer and Töpfler, 3.8.
Thumarsans Ponist (Prussia) - Crucibles, &c., made of white clay frem, 202. Resembles Wedgwood ware, used for

Theruschelz, Count G., 🍇 Thury, Viscount Hericart de (Jurer), xxx

Tickings, - Observations on the excellence of the specimens,

Theorie, C., 118.
Ther Gavans, Description of Hewitson's self-acting and self-registering tide gauge, 342. Description of Newman's self-registering tide gauge, 343. Appearans for showing the chb and flow of tides, MIL

Tick, F., 6.7. Tickels, C. and Co., 543.

Title, A., 527.
Title, Government of 154.
The Machine, Great benefit and economy which bus

The Menutace—Great Benefit and executes which has revalled turn the invention of machine for making turn the invention of machine for facilities and the state of
Tilloncourt, E. de, 161.

Tilley, Licut., 157.

Tilman, 645.
Timere and Ornamental Woods -- Remerkoble, complete, and interesting collection of timber and other w Itis. Specimens arranged so as to form, as near as possible, a catologue of the chief woods of different countries, ib. Attention drawn to the most valuable series of specimens exhibited, ib. Total annual importation of timber into Great Britain, i6. Table showing the countries from which wood was chiefy imported in (1s), d. List of the chief woods employed in dispelability, d. Culercton of woods from all para the control of the control of the control of the list of the control of the control of the control list, Weeks of Europe, [16], [10]. Woods of Aul; [10]-112. Woods of Arity, [12]. Woods of North America, [16]. Woods of Arity, [12]. Woods of Australia, [16]. [2]. Woods of New Zeoland, [2]. Resultiful series of south America, [16], [12]. Woods of Australia, [17]. [2]. Woods of New Zeoland, [2]. Resultiful series of commencial woods estiliated, [22]. Collection of South woods, [3]. Builting series of 8. I busings malogany, &. Handsome oak veneers, &. Picture frame formed of various common English woods, ib. Framio normed o vivrous common Lugissis weest, &s. Specimens of bog wood of different kinds and from vorious lorofities, &s. Different processes for seasoning and preserving timber from dry ros, &c., 120. Pive schemes in particular have attracted especial attention, 124, 122. Mode adopted by Sir W. Burnett for pre-serving wood, &. Specimens show a bigbly satisfactory, ib. Process employed by J. Belbelli, &. This process as. Process employed by J. Betliell, fo. This process extensively employed in the preparation of railway electron, fo. Seasoning wood considerably diminishes the artifician to decay, fo. Valoe of any process for seasoning wood depends on the time required for its completion, d. Vuluable series of specimens shown in illustration of Davison and Symington's patent process for seasoning timber, b. Various specimens of season-ed timber, ib. Collection of East Indion woods by far est imber, ib. Cultection of East Inkion woods by far the most extensive in the Enkilstion, ib. Remarkable for the large number of speciment and their excellence, the contraction of the contraction of the contraction of their cumbin state, ib. Importance of Dr. Vallett, cellection, ib. Awards made to the collectors of these woods, ib. Nature and properties of many Indian woods very little known, ib. Importance annually increasing from the lacressing demand, ib. Description of timber heat adapted for all practical parposes, ib. Probability that some of the ornamental and other woods of India that some of the orisanceal and other woods of India will become articles of import when their properties will become articles of import when their properties of properties of the properties of the properties of contributed by the Indian Government; woods of from Calcatta, 127. Secoletan Spanish makapany may present the properties of the properties of the properties present the properties of the properties of the properties of present properties of the properties of the properties of the large properties of the properties of the properties of the 17 (12). The Stand the most valuable and cremited properties of the 17 (12). The Stand the most valuable and cremited properties of the propert ord of all the timber trees of India, 124 Woods from

Madras, 123. Woods of Travancore, 128-130.

of Hindostan, 120. Specimens of the Indian cedar and express, & Woods of Palam-cottah, & Woods of Palam-cottah, & Woods of Ediam-cottah, & Woods of Camara, 132. Woods of Camara, 132. Woods of Camara, 132. Woods of Camara, 132. On the Camara, 132. Dr. Gibson, as Conservator of Forests, ib. Regulations now adopted for the preservation and maintenance of the forcets, ib. Government and mercantile yards of Bonday chiefly supplied with timber from the Concan, Bonias elicify supplied with timber from the concas, 8. Supply of tudes ever financial in the Decoma, 62, 8. Supply of tudes ever financial in the Decoma, 62, a few years afford a large and regular supply of finan-rate timber, 64, Weeder [ficht]hung, 123, 134. Woods of Assun, 153, Woods of Tavey, 138, 133. Woods of Assun, 153, Woods of Tavey, 138, 133. Woods of Chittapour, 62, Woods of Marrayan, 132. Woods of Chittapour, 62, Woods of Mirrayan, 132. Woods of of the first binancia and the woods of Monleyer, 62, 67 of the first binancia and the woods of Monleyer, 62, 68 of the first binancia and the woods of Monleyer, 62, 68 of the first binancia and the woods of Monleyer, 62, 69 of the first binancia and the woods of Monleyer, 62, 69 of the first binancia and the woods of Monleyer, 62, 60 of the first binancia and the woods of Monleyer, 62, 60 of the first binancia and 60 of Mirrayan, 61, 61 of the first binancia and 61 of the first binancia a of teak from Itaneous and the woods of Anontonens, or Collections of the woods of Malay, 132, 138. Woods of Prince of Waley's bland, 138. Woods of Penang, 28. Ex-tensive collection of weeds from the Indian Architecture, the woods from the Indian Architecture, who was the penalty of the Penalty Collection of weeds from the Indian Architecture, who was the penalty of the Penalty Collection of weeds from the Indian Architecture, who was the penalty of the Penalty of the Penalty Collection of the Penalty Colle tensive collection of woods from the Indian Archipelago, is. List of the woods from Labun, (38, 13). Woods of Ceylon, [33, 140]. Interesting specimens of timber and other woods from South Africa and the Yapo of Good Hope, 140. Specimen of red chony from Natal, ib. This wood appears to be new, and is unquestloushly a valuable saldition to the bard organization woods afready known, b., List of woods from the Cappe of tood Hopp, III, ILL, Sections of vest from the Western III, ILL, Sections of Vest from the Western III, ILL, Sections of Vest from the Western shell vested in the Cappe of Vest of the Cappe shell vested in the Cappe of Vest of Vest of Vest of Vest shall amplied of the woods from New Homework, it is shall inspired the woods from New Homework, it is and interesting collection of timber and other woods and interesting collection of the New Medical Cappe woods, ILL, First engine of Western of Hadama, A. Little woods, ILL, First engine of Western of Hadama, A. Colle-tion of Australian and Vest Demost Land woods of commental and other woods of Trindala, a. Colle-tion of Australian and Vest Demost Land woods known, ib. List of woods from the Cape of Good Hope, tim of Australian and Van Diemark Land woods centure, and very interesting, 5. He positioner for the control of the positioner of the control Numerous series of smont precursors or to the control of the Upper Pyrenees, 133. Woods from France, ib. Interesting specimens of preserved woods from France, ib. Illustration of the process of Dr. Boucherie for protecting timber from decay, dry rot, &e., ib. Specimens of wood for sounding-boards of musical instrumens of wood for sounding-boards of musical instru-ments from Bavais, is. Small collection of woods admirably selected by Professor Nördlinger, ib. Com-poratively small number of Portuguese woods, ib. None of them of very great importance, ib. Small number of woods contributed from Russia, 183, 124. No Spanish woods are exhibited, 154. Interesting and sectionize adjustions of the woods of Columbia. No spanish woods are extensived, 123. Interesting and extensive collections of the woods of Cuba and the Philippine Islands, 15. List of the woods of Cuba, 154-Philippine Islands, id. List of the woods of Cuba, 154-155. Series of woods of the Philippine Islands, 156. Specimens of St. Douingo mahogany and satin wood, id. Pew specimens of thuber from Tabarra shown in the Tunis collection, id. Voluable series of some of the chief woods of Turkey, 1 ist thereof, id. Excellent and valuable collection of Iralian woods exhibited from Tureary. id. The collection comprises mand and variation collection of Italian woods exhibited from Tuccany, ib. The collection comprises panel and block specimens, ib. List thereo, 186, 197. Excellest veners of walnut wood, cut in a peculiar manner, lovented and shown by A. Dneet, of Florence, 162.

-Different processes for seasonlog and piece Na. Account of the Company of

word considerably diminishes its tend-ney to decay, 122 Volume of any process for, depends on the 1 me required for its conclusion, ib. Anisonic series of specimens shown in ultration of Davison and Syndragion's patent process, ib. Various specimens calibrate, and awar is to the exhibitors, it.
"Time," Time, Newspaper Statistical particulars as to

Timmins and Sons, 344

TIMOTHY GRASS-Specimens of, from Canada, 54. From Tiv, Buentompr or Samples of, 50.

Tiv, Unionity or Samples of, it. IN TOIL-Roll of, 506, 405

Tis MANIFECTURE, General remarks on the articles ex-ladated, 4.07. Specimens of tin ware from France, 501. Tis time. Specimens of tin and copper over from the primcipel Cernish mines, 12. Pro incts obtained by the to chanted preparation and fusion of the ores, it.
Ingot of tin found in the mure of Laduck, near Tiure,
ib. Probability of its laying been east by the Placuithe probability that the mining operations in that country are confined to steam works, H. Extensive deposits of such ores in this part of India, d. See also

Tis, Oxide or, - Great improvement in the preparation of the ores of tin, resulting from Mr. Robert totands method of reparating wolfram from the oxide of tin, 2. Collection Illus rating the successive operations of the strm,

TIN PRATE. Locellent workmann in of the specimens of PLATE. In the price of the price of the configuration of the configuration, and first place at the Cwn Avon Works (Glamor, nothire). Ex. Eveness of the the conting, superior inste, and good quality of the sheet from basis, ib. Hemarkable hemity of the manufacture of normalization of the manufacture of the plate by Messrs, Philipp, Smoth, and Co., ib. Sheet iron manufactured with wood tuel, specially intended for this purpose, ib. Observations on the Wollersdorf for this purpose, or conservations and its reverse triangles works. Lower Austria, 2L. All recent mechanical improvements have been adopted, at Products not inferior to the best manufactures in Kingband and Belgium, 16. Largest establishment of

Tis, Pan recutioning nr - Samples nf, 45.
Tis, Satry or - Samples of, 43.-See also Sola, Stannate of,

Tinlot, J. M., 221 TENNEX ELEY (East Indies).—Collection of the woods of, con-tributed by the Indian Government, 131. ng and Lawden, 221.

Tite, W. (Juror), xxvi

Titley, Tathan, and Walker, 370, 373.

Titley, Tathan, and Walker, 370, 373.

Transed, W. L., 203, 203.

Tonacco.—The exhibition of raw and manufactured to-bace one of the most ratisfactory of the class on which the Jury were called upon to decide, 60. The import trade fully represented, both as regards tolorcos and souffs, ib Samples exhibited in the British Department of the Exhibition de Samples from the British Colonies, 60, 61, From Spain, 61, From Porngal, id. From Algiers, 30, From Turkey, id. From Persia, ib. From Egypt, id. From Russla, id. From the United

Tobacco Contractors, Hoyal (Portugal), 33. Thearco Piers.—See Pipes, Sanding Tobacco and Suuf Company (Poringal), 61.

States, ib

Tobit, T, 411.
Todt, A., 472.
"Totte Victoria."—Specimens of this fabric from France,

TOILET BOXES. See Dressing conv.

TOILLY BOXES.—Cov International Toilly Ground, the frame en-tirely of massive silver, richly decorated with various ernaments, and of elaborate and elasice worksumship,

Tollet-Soaps. -- See Soops. TOILET-TABLE (SILVER). - Remarks on the toilet-table of H.R.H. the Duchess of Pariss, manufacture Fromest-Menrice, of Paris, in reposes work, at L. Toledo, Royal Ordnauce Manufactory, 221, 687, 706. the Duchess of Partna, manufactured by

Tollet, G., 387, Tollpott, W. B., 311, Tolson and Sons, 348, 353, 376, Tolstoy, Count T., 686, 788,

Tomassin, L., 622 io. List of awar Tumbac (Durch Metal.) Specimen of, from the works of Transari, A. A., 660.

Messrs. Estivant, of Givet (France), 5.

Tombalia-Lomba, E., 23, Tomba and Co., 4, 0, Temlinson, J., Tompson, L., 1911 Tome and Co., 201

Toms and Luscombe, 534 Tonisk Manufactory of Arms (Russin), 33

Tonna J., 359, 345.

Tonna J., 350, 245.

Tonna J., 350, 245.

Tonna J., 350, 245.

Tonna J., 350, 245.

Tonna Sport.

Tonna Spo

ment of the Youne, ass. Tout, L., 665.
Tours. Observations on the specimens of engineers' look

338. Observations on the specimens of engineers' looks for metal, wood, and other materials, 199. Specimens of machine tooks for metals, 202. Machines for workling in wood (excepting latthes), 201. Better represented in the Foreign Hum in the British Department, it. Specimens exhibited, it. Machines for working in stone.

Cinemi extinsicts, to. Machines in rwerking in stone, coal, clay, tenter, f.c., d. Sperlmens of virinus decrease, the coal, clay, tenter, f.c., d. Sperlmens of virinus decrease. The coal, Messes, St. Sperlmens Machines and Toots. Tooth, U., di. Tooth, U., f. Tooth, U., Sperlmens of fine topages from New York, 18.

TOP-Duessen, on Manuel-distribution - Observations on, and description of 1:olmes's top-dresser, or manure distributor; economy resulting from the use of it; likely to superscale the drill, 230. Prize awarded, 242.

Spfer, Professor, 345. Topping, C. M., 268. Toucurs. See Caudies,

Tordeux, --, 166

Tordenz, —, 166, Treatrup, —, 1614.
Toarrost-smil...—How obtained, and uses and purposes for which employed, 161, 202. Way in which prepared for use, 522. Names of the exhibitors, prizes awarded, 161, 523.
Tortison, D. V., 55.
Tortishod, V. and

Torois, 11, V., 225.
Toroillon, V., 252, 205.
Toroillon, C., 28, 202, 205.
Touche-Giller, E., Lib.
Toro or Conceas (a lighthouse).—When founded and complete 1; introduction of the dioptric apparatus, 530.

Tourey, H., 221.
TOURNALINE.—Specimens of crystals of tuurmailine from the bile of Lilia, remarkable for the purity of their farms and the variety of their colours, 35.

Tots the Mois Flore.—Samples of Tous les Mois flour, of excellent quality, from the root of Canna, from Algeria

and Barbadoes, 62 Tonssaint, E. N., 470.

Tun LLLING. See Cotton Manufactures. Towier, Campin, and Co., 380, 381. ожи, А., 🚳

Town, A., Ed.

Long Chanco-Specimen of a, Ed.

Long Chanco-Specimen of a, Ed.

Long Chanco-Specimen of a, Ed.

Townsend Forthers, 200, 261.

Townsend Forthe maton toys, ib. Bohemia famous for toys, ib matto toys, is. Bourma ramous ro bys, is. Some-russ examples contributed, is. Carred white wood toys from the Tytel, is. Mechanical and magnetic toys from Bayeria, is. Large collections of toys in the Indian Court, chirdly from Bengal and Madras, 67s. 1 Indian (court, chirdly from Hengal and Madens, 673, 14-geniuses drawing-room enuments, countring automa-ton hirds from France, ib. Wax figures for hair-dress-ers, ib. Nature of the eyt meth in Paris do. Quantif-ty, ib. Nature of the eyt meth in Paris do. Quantif-ty of the experiments of the experiments of the eye from Frankfort, Hamburg, Prusis, Stewey, and Satterdand, ib. Toy trade of the Palled Kingdon searcely represented, (20), Objects calabited, ib. Large quantities of two of all deterplients manually imported, ib. James quantities of boys' matrides annually imported, ib. Values of two of 1852 d. I. Immere essentiations. Kingdom in the year 1850, ib. Immense quantities of toys manufactured in Wurtemburg, ib. Excellence of the contributions therefrom, ib. Classification of the number of exhibitors and the ensutries contributing, ib. List of awards, exhibits, and exhibiture, 680 682.

Than it Instrument for calculating the sum

of the errors of a transit instrument, 312. Construction, ib. Accuracy, ib. Addition required for different latitudes, ib. See also Astronomical Instruments.

That Rock, Manufactures or.— Objects manufactured from trap neek found near Edinburgh, this trap being

TRAVANCORE (East Indies) .- Collection of the wasts of,

128, 122.
Travancore, H. H. the Rajah of, 74, 75.
Travalling Cysts.—Specimens of benefiful fittings for

traveiling cases, in silver and silver gilt, from France, 518. Travers, P. L., 207. Travers, Mesers., 62. Treadwin, C. E., 469.

TREASURE URESTS. - See Sufer. Tredwin, Mrs., 748. Tree and Co., 300.

November 34. 25.

November 34. 25.

The National Problems of putent conspressed treenable, 15.

The National Problems of National Probl

Transmissa sub Finnans—Specimens of, 469.
Transmissa sub Finnans—Specimens of, 469.
Transmiss.—Enumeration of the series of useful minerals
found in the island of Trinidad, 12. Brazil nuts, 56.

round in the island of Trimidael, 12. Brazil nats, 56. Samples of coffee from Trimidael, very poor, 59. Samples of even, truly magnificent, 56. Fine collection of Fast and West India spaces, 62. Arrowroot, 56. Samples of and West India spaces, 62. Arrowrest, & Samples of each or variant city, so considered, and furnieric, 20. Samples of such locked, and furnieric, 20. Sentified specimens of the ornamental and other woods of Trinishid, Jal., Fine specimens of tortokeschell, 1924. Specimen of a walking-stick, 624. Kamples of fasse for Indies, 563.

TRINKITY. See Jewiley.

TRINKITY. See Jewiley.

TRITOLI-Specimes of a kind of, from the mines of Mnynune, Diverse.

Triquel, Baron de, 200.

Triquel, Baron de, 200.

Trix, J., 45.

Troccon, A., 558.

Troglen, G., 641. Trollops and Sous, 546, 351.

Troiloge and Sons, 505, 505, 505.
Troutien, N., 505,
Troutier, Capt. II. D., 25,
Troughton, E., 222, 252,
Trough Brothers, 195, 205, 450,
Trubia, Royal Ordination of (Spain), 500, 506.

Truc, — 500. Trucky, E., 513. Truckit, G., 689, 695. Truckit, W., 525. Truckit, W., 525.

Trulock, E., and Son, 221

Truinea, "528.
Truesaa, Habbury, Buxton, and Cu., 59.
Truesaa, Habbury, Buxton, and Cu., 59.
Trues Local Committee, 12, 53, 53.
Tuberville, Saith, and Cu., 72.
Teawa (Hase as as Corres)—Specimens of, 503, 504. TURVEAR BRIVES. -- See Bricks,

Tewara Barras, "See Bricks, Tuck, J. H., 2008.
Tucker, F. and Co., 605.
Tucker, F. and Co., 605.
Tucker, Brick, Tucker, Brick, Tucker, Bricker, Bricker, Bricker, Bricker, Bricker, Bricker, Bricker, Bricker, Bricker, Brick, Brick, Bricker, Brick, Brick, Bricker, Brick, Bricker, Brick, Brick, Bricker, Brick, Bricker, Bricker, Brick, Bricker, Bric

hot-water springs of Carlobad, 550,

Tulloch, A. T., 50. Tulloch, Licut.-Col., 122.

Tulon, -, 335

Tunaberg Cobalt Warks (Swedeu), 35. unner, Professor P., xxvi

Trustre Arth-Samples of, 45, 47.
Trustre Arth-Samples of, 45, 47.
Trustre Arthur Correls from Tunis resemble those of Egypt in kind, 43. Wheats and barley exhibited, 48. Samples in kind, (3). Wheets and harley exhibited, & Samplies of hay-seed, 3). Samples of post, hema, &c., & Samples of dates, great variety thereof, 52. Common olds materials, 91. Tanning materials, 93. Specimens of timber from Tabarca, Life. Specimens for timber from Tabarca, Life. Specimens for general lands were and from monifectures, 25. Company of the post of the po 522. Specimen of Inda's maribe-work, 265. Composi-tion of the Tunisian soaps and perfumery, 311. Spe-cimens of perfumed waters, Ed. Ungainly character of the camble, 626. Graps perserve, called Kelta, £69. Slik and leather parasols, £69. Collection of richy-embroidered fans, 569. A contribution of weeks for pipes and pipe guards, £72. II.11. the Bey of, 484, 552, £6.

Topper and Carr, 546.
Topper, M. F., 301.
Topper, M. F., 301.
Tomarvas.— Dauble turbine from France, a hydraulic machine in frequent use to that country, 122. Description

thereof, sh.
Turgan, Molame, 688, 202.
Turk, P. C., 522.
Turk, P. C., 522.
Turk, P. C., 523.
Turkar, S., 523.
Turkar, S., 524.
Turkar, S., 524 so inte, and the sperimens being labelled only in the so lute, and the specimens being labelled only in the Turkish language, ib. Apparent importance of the collection from the variety of metalliferous area in-cluded, ib. The principal of these are red hematics, lend ores, and rich copper pyrites, ib. Presence of 20 or 23 specimens of very good coal; localities, whence

or El specimento el very good coal; localitate, whence obtalest. 32, servais, librariagh the agriculture of Turkey, 25. Samples of militat, 34. Samples of hearts, 35. Samples of militat, 34. Samples of flexible, and legunes of all descriptions, 45. Series af direct ferits, in insignificant quantities, 45. Series af direct ferits, in insignificant quantities, 45. Series af direct ferits, in transport of amounts of the contract labels. 25. Large collection of amounts acade, used as condiments, 52. Valuable and important collection of raw produce, 59.

anamore and important concernm or raw promee, \$\frac{1}{2}\$. List of the nothinary guins and resius of commerce, 1. Atmerous and interesting series of sile, \$\frac{1}{2}\$, \$\frac{1}{2}\$. Valuable series of dye atuffs, \$\frac{1}{2}\$. Excellent *amples of important tunning materials, \$\frac{1}{2}\$. Samples of cotton; general character of these entions, \$\frac{1}{2}\$. Samples of fix and hemp, \$\frac{1}{2}\$. Series of the chief woods of Turkey,

Silks of a very fine character exhibited in the Turkish Department, 162. Cotton yarms, 317. Small assort-ment of woollen cloths, 352. Of a tolerably good quality for a first attempt, ib. Remarks on the silk fabrics, 331. Specimens of velvet and erape, 356. Large and interesting collection of skins, 387.

Large and interesting collection of skins, Siff.
Statistics of the paper manufacture of Turkey, Lil. Exstatistics of the paper manufacture of Turkey, Lil. Expools, 222. Various descriptions of contame, 4x3,
423. Sperimens of raulters, 422-203. Hurdware and
Carlot variety of soaps and perfusivery, dil. Securic
Great variety of soaps and perfusivery, dil. Securic
Great variety of soaps and perfusivery, dil. Securic
mainle from Machine, 221. Was casolies and visited
figil. Remarks space the employment of parasols and
maintenian in Turkery, fiz. Specimens of an embeddered
descriptions of piper from Turker, 522, fiz. Specimens of different what of rault downs. 500.

Security of the control of the control of the control of the control
of the control of the control of the control of the control
of the control of the control of the control of the control
of the control of the control of the control of the control
of the control of the control of the control of the control of the control of the control
of the control of the cont

Turkey, H.H. the Sultan of, 381, 434, 460, 600, 626, 652.
Turkeys Governor, Tur, 67, 58.
Turkey-Ren Derivo-Specimens of, 457, 459.— See also
Wiere, Spen, 60., Fabrics (printing or dyclog). Lead,

Chromate of. TURKEY-CARTEES.—See Carpets.
TURKEY-CARTEES.—See Carpets.
TURKERC—Samples of, from the East Indies, 88. Colouring matter ubtained therefrom, io. Exhibited in the

ground state as used by dyers, ib. Turnbull, J. L. and J., 447, 454. Turnbull and Ramsoy, 33. Turner, -, 509, Turner and Cu., 548

Turner, G. (Jurer), axviii.

Turner, H. N., and Co., 552 Turner, H. and W., 200

turner, 11, and W_{1,2}025.
Turner, J. A. (Juror), xxviii.
Turner, H. A. (Juror), xxviii.
Turner, T., 40, 611.
Turner, T., 40, 611.
Turner, T., 501/cs. on various articles illustrative of

turnery, exhibited, 602. TURNIT-CITTING MACHINES. - Great utility of these ma chines, and economy in the use of them, 237. Hivst found to the Backury turnip-cutter, ib. Relative merits of Burgess and Keys, B. Samuelson's, and Phillippe's turnip-cutters, 253. Prizes awarded, 228.

TURNIP-FLY (HALTICA HEMOREM) - Preparation for de-

TREMITERY (ILLY A HIMOREY) — Preparation for destroying the, 25.
TREMINING.—Series of the ordinary turperations of company of the Laglish's Patent Compline Company of Illul, 22.
Samples of common turpentine for the United States, 25.
Samples of grainful turpentine property by J. P. Flenry of Boardeaux, 26.
Samples of turpentine from Spain, ib.

Turpentine from Spain, 66.

Tragcorsts.—Discovery by Major Mardonald in his journey into Arabla Petrea of several localities in the country of Sonalby, 15 days' journey from Sucz, in which turquoises existed, Z. Difference in the colour of these tarquoises from those of Persia, ib. Number and nature of the specimens exhibited, it. Analogy of external character of the turquoises from Arabia and

Abyssinia, 7, 8, aur Crocas, Small number exhibited, 338 aur Crocas.—Small number exhibited, 338. Those which deserve fovourable notice still fewer, ib. Two clocks with east-from wheels, ib. These ought to coneffocks with cast-iron wherea, in. I need out to con-vince anybody that the prejudice against cast-iron clock wheels is oftogether unfounded, ib. Both clocks have wheels is oftogether unfounded, ib. Both clocks here a remontoric apparatus in the going train, ib. Effect of that apparatus, ib. All turvet clocks should have this apparatus, ib. I can be applied at a moderate ex-pecse, ib. Chespness the principal sixtantage which cast-iron wheels have over brassor gua-metal, ib. Also greater streegth, ib. New plan of striking in Mr. Robert's elock, ib. Explanation thereof, ib. Compen-Compra-Robert's elock, ib. Explanation thereof, ib. Compensated pendiulums to some of the elocks, ib. Mr. Robert a evenpement a new one of his own contrivunce, ib. Principle thereof, ib. Description of, and retnarks on, Mr. Dent's escapement, ib. Maintaining power for keeping elocks going while winding, ib. I so of wire ropes, ib. Mr. Dent's elock possesses greater securacy. and greater strength then usual, ib. Collection of turret-clocks of M. Wagner of Paris, 329. Great fertility of inenegas or as. A aguer of Paris. SEE. Great fertility of in-ventiondisplayed, ib. Cleek with a continuous motion, in-tended for the purpose of driving equatorial telescopes, ib. Ingenious and simple mode by which effected, ib. Gravity remonitors apparatus, on the bevelled-wheel principle, ib. Description thereof, ib. Remontoire in one of these clocks without any additional wheel in the train, ib. How this is managed, ib. Escapement with a direct recoil, ib. Superior contrivance to Harrison's, a direct recoil, ib. Supernor countryance .

ib. Remarks on the striking parts of the clocks, ib.

The lever compensation pendulum the only one used in France, ib. Hardly any compensation now used in English clocks, ib. Other clocks from France remark-able for cheapness, ib. Otservations on the electrical clocks, ib. These may be considered as connected with turret-clocks, id.

Turtra, S., 462.

Turtra, S., 462.

Turtra and Sous, Iu., 486, 460.

Turtra and Sous, Iu., 486, 460.

Turcavy.—Interest in a mineralispical point of view of the exhibition from Tuscany, 32. Fine collection of minerals sent by the Hoyal Technological Institution, which was a manufacture series of marbies and sighaster and sighasters. including a magnificent series of marbles and alahaster and superb specimens of the numerous minerals found in the isle of Elba, ib. Observations on two blocks of mineral fuel from Tuscany, ib. No agricultural produce from Tuscany worthy of notice, i2. The maccaronics of this country the finest in the Exhibition, ii. Pineseels from Tuscany an article of great consumption in the Italian provinces, 37. Good samples of olive-oil, 83. Series of samples of dye stuffs, 21. Excellent and valuable collection of Italian woods, 126. List thereof,

156, 157. Samples of raw silk, 162.
Fine examples of eoral, 164. Weavers' reeds, 199 scription of a planimeter, 2013, 2014. Beautiful speci-nen of a chamber organ by Ducci, of Florence, 226, Anatomical models, 216. Statistics of the poper manufacture of Tucony, 411. Specimen of embroidery, 472. Selections of very fine Leghern hats and

Specimen of iron-casting, 505. Elaborately carved furni-ture, 544, 550, 551, 552. Articles sculptured in a kind of hithographic stone, 558. Various fusts of columns in marble, one of them remarkable for the extreme beauty main's, one of them remarkable for the extreme beauty of the material, 25. Figure specimes of marble date of the material, 25. Figure specimens of marble date of the material, 25. Figure specimen of true Florentine models, in plates date, 25, 25 ML. New and proposed monostream of the specimen monotone in registal, 25. The specimen of true florentine monotone of the proposed over a for specimen of the proposed over a for support contributed by the proposed over a for specimen of the proposed over a for specimen ov

Tustian, J., 50. Tustian and Usher, 50.

Tutt, G., 218. Tuvee and Co., 365 Tuxford and Sons, 231, 21

Tweedale, J., and Saus, 322.
Tweens—Specimens of milled, 353.
Twigg, G. and W., 569.
Twise.—See Cordage, 8c.

Tylden, Capt., 230.

yler and Co., 20 ylor and Pace, Tylor and Son, 526.
Type-Boxes (roa Compostrons).—New arrangement of

type-boxes for compositors, 128.

Type Composing and Distributing Machines.—Ingenious

mechine for composing and subsequently distributing type, 128. Ingenious machine on an entirely new

principle from Deumark, 495.

Typz And Typz Forsusa.—Machines for founding types, 123. Gothle-shaped letters used in the carliest books printed in Germany, 428. Then rounded and became semi-Gothle, ib. Form completely changed in italy under the influence of the Homan inscriptions, ib. under the influences of the Homas Interplace, Al-terters in insidiate of the hardwring of the period. Letters in insidiate of the hardwring of the period. Letters in insidiate of the hardwring of the period by A. Verant at the same period, d. Modification of the form of the type by Baskervilla and others, &. Letters of the form of the Very Baskervilla and others, al-ches of the last ecstury, th. Exercison of the Blub-ellas of the last ecstury, the Exercison of the Blub-cing of the Letters of the type-casting machine in 192A, 2b. Purchase of this machine by the type-condens and decisionists thereof, and the Letters of the Letters of the Letters of the latter powers, the Passaciant types fitly designated force yeters, the Distribution of the data better of Garamond and Jerson, ib. Some beautiful works have been printed with these old letters, ib. But little pergress made in the art of type-founding since the inventor of easing types by Feter Schoelier, ib. Workshop of the Counter received somewhat more easy by the use modified and the counter received somewhat more easy by the use modified and the counter received somewhat more cay by the use modified and the counter received by the counter received by the counter received by the counter of the letters by Biblet in 1864, ib. Beauty of the types eat by Didata, ib. Invention of the compressing modul, ib. Mechanical Invention of the compressing modul, ib. Mechanical Garamond and Jenson, ib. Some beautiful works have moult, and ingentions suvenes of the severand pures, moult in the confirmation of the types the most numerous and conjugate local extension of the types the most numerous and conjugate local extension of the confirmation of th Specimens of types from the United States, ib. Com-binations or logotypes among the specimens from America, ib. No advantages result from their use, ib. General remarks on stereotyping specimens exhibited, 411, 412. Table showing the number of type-foun-dries, &c., in the Zollverein States in 1816, 412. List of Awards and Exhibitors, 451–151.

Typus Mrst.-Prepared from the risizoma of T. latifolia,

Typin Mr.M.—Prepared from the rhimoma of T. datgoda, a cutodity worky of nucleicy 31.

Trinsonerous.—Description of this apparatus, 312. Designed as a four polater, dt. Mesic in which used, dt. Triotrania—Willig machines for the blind, 311. An difficulty in use, dt.

Typicalarit.—See Crosso-Typigraphy. Printing.

Types Brothers, 321.

Tyree Brothers, 22 Tyrrel, --, 103. Tytherleigh, W., 22 Tyznek, W. V., 355

Ungay, Sr., 153, Ucclitrita, L. von, 78, Uhlhorn, H., 200, 203 Uhlman, -, 438, Uhlmann, J., 331, Uhlmann, J., 331,

Ullenberg and Schnitzier, 500.

Ultradurf Flax Establishment (Moravia), 22.
Ulmer, E. and W., 198.
Ultradamic — Pre-eminence of M. Gnimet as a manu-

facturer of artificial ultramacine; his process nuknown, Desidecata in ultramacine, ib. Utilize discoverers of artificial ultramarine, ib. Increase in the number of manufactories in France, Germany, and England; total production in France in 1818 and in 1831, 41, 42. Samples of ultramarino, 44, 45, 47, 40. See also Green

ples of unramas Ultramarine, Ulwar, Rajah of, 661.

IMBRELLA HANGLES-In carved Ivory and bone, 682 UMBRELLAS AND PARASOLS. Oriental origin of parasols, Form of, an indication of high rank, from its bbb. Form of, an indication or sign rank, from its having been always energied by an attendant over the head of the owner, ib. Seems in have possed, both as a distinction and a laxury, into Greece and itome in the declining ages of these countries, frig. Hereview to the Shiedrand, or dray-shade of the Offrecks, th. Not the Shiedrand, or dray-shade of the Offrecks, th. Not commonly known in this country till the beginning of the seventeenth century, ib. Discorder use in Venice, ib. use of the parasoi in England and France most probably adopted from China about the middle of the reven-teenth century, ib. The use of undirellas apparently adopted much later than the use of parasols, and but very showly established in England, ib. Improvements which have been made in its construction since its first which have been made in its construction since its first Introduction, fair. Review of the various contributions from different countries; the largest quantities re-ceived from England and France, fix d sq. Remacks on the contributions from Austria; mames of exhibition and articles exhibited, ib. Contributions from Bel-gium; observations thereon, ib. Contributions from the British Colonies, ib. Rich contributions from the the Dirivia Collecte, i.e. 1429 contributions team for East Indica and the island of Ceylon, ib. Description East Indica and the island of Ceylon, ib. Description exhibited by his Highness the Maharajah of Nagyeos, ib. Other osemples from India, ib. Carrison examples of numberllast and parasols from China; not in cotonon mea among the middle and liewer elasset; statistics of the trade in them, 651, 528. France undenlitedly pre-cuinced in the higher class of multi-like and parasols; cument in mic higher class of minbrilias and parasols; statistics of the trade in litera, 628. Nonemather French umbrella and parasol trade of the last century, 55%, 65%, Henards on the contributions from Fortigal, Praissal, and Tunis, 520. Use of umbrellas and parasols in Trickey, 66. England without a rival in the production of parasols and umbrellas of the plainer descriptions; causes to which this may be attributed, ib. Statistics relative to the umbrella trade of the United Kingdom, relative to the unbredla trude of the United Kingdom, id. Description of the various processes in patting the features together, showing the reason for the small cost of the inbour in the manufacture of these articles, 60%. Classification of the exhibitors according to the various recountries, 650, 651. List of awards for warrious articles exhibited and for mechanical improvements, &c., 661.

UNDERCLIFF, ISLE OF WIGHT-Model of the. 208. Underwood, -

nderwood, T., 688, 696, ngeree, F., 586.

UNITED STATES OF AMERICA .- This part of North America NYTH PATEN OF AMERICA.—This part of North America idestined to occupy an important place in mineral lesitanty, L. Abundance of magnetic from see sad apeculac iron over, or eligist, in many of the Sutles, & Almo of first for iron-making establishments, & The trap formations of Lake Superior contain native copper of great richness, th. The exhibition from the States, however, does not illustrate these sources of wealth, th. Notices, at length, of the principal contributions in this

Sources, at length, or the principal contributions in this Department, Li, Li, Li, Denish respecting the deposit of Properties of Coronic Properties of Co samples of floor exhibited from this country, 54, 55 Samples of malt made from maize, ib. Samples of

pearl barley, ib. Samples of oil-cake, 55. Excellence of the long-staple cottons of xeellence of the long-staple cottons of the United States, 63, 95. Excellent specimen of blenched sheli-len, 26. Samples of staceb, 72. Samples of oils, 83. Yew small samples of flax and beaut; of fale average quality, 98. Collection of woods from America; by no quality, ac. oriectors, 149. List of words and specimens in bark, 149 List. Somples of American words, L.S. Spe-cimens of whalelone, 160. Specimens of all, 163.

bark, 149 Ltt. Somples of American words, 158. Spe-cimens of whalelsone, 169. Specimens of all, 163. Carriages from the United States, via., a allde-top buggy and a sporting waggon, 193. Drawing regulator for and a spectring voggon, 193. Drawing regulator for cotton, 125. Cotton-spinning machinery, 126. 844-acting leads and power-beom, 125. Sexing-machine, 198. Anti-friend engineers tools and presses, 226. Weed-planing, tongueing, and proceeding meril inc, 201. Weed-planing, tongueing, and proceeding meril inc, 201. do, Bookhboling meeding, 40. Hermacks on the rank of Bookhboling meeding, 40. Hermacks on the rank stem any, 46. Recklessmess of the Americans in stem mary, 46. Recklessmess of the Americans in stem mary, 46. The process of the Americans in stem mary, 46. The process of the Americans in term mary, 46. The process of the Americans in term mary, 46. The process of the Americans in term mary, 126. The process of the process of the local markets. The process of the proces

steum navigation, do. Models of ships, 212. Annuted Instruments, 218, 222, 220. Rifes and photols, 221. Floughs, 226, 227. Nowlined AV Commick's and Husery's Proceedings, 226, 227. Nowlined AV Commick's and Husery's Description of a transal flatinament, 221. Various samileal instruments, 225. 233. Surveying Instruments, 225. Blaines, 225. Large Bulescope by Hanart, 227. Cameras, 225. Green superiorly of the degenerously refutures exhibited in the United States Department, 277. Names of the virious contributors and objects exhibited, ib. Domestic telegraphs, 294. Description exhibited, ib. Domestic telegrapus, 200.

of an instrument called an alaum barometer, 301. Use
of an instrument called an alaum barometer, 302. Inflated and construction of Exicsson's pyrometer, 3-2. Inflated pictors of India rubber and sik, 3-8. Alto India-rubber maps, ib. Invention for teaching the blind to draw and write, 3.11. Lightning-reds of improved construc-tion, 313. Bid of the seasons, ib. Diacrams intended to incilitate the study of mathematics, ib. Stringed, or ow, musical lustraments, 301. Artificial leg, of excellent contrivance, 345, 346.

ient contrivance, 315, 340. Email quantity of cutom manufactures, 318, 310. Email quantity of woollen goods of moderato pretensions, 522, Speci-mens of fannesis, well made and finished, 323. Speci-mens of tartans, 322. Semples of various descriptions of leather, 220. Specimens of saddlery and increases,

of lacther, 3.9. Specimens to seemen state of the lacther of the superpose; melting remarkable either in the printing or lowers of price, 462. History and present state of type founding in America, 416, 411. Specimens of steecetypes and electricypes of some history of the superpose of the super

America, 413. Peralline description of paper for envelopes, 413. Collection of stationery and beek-binding, 422, 451, 453.
Small variety of printed goods from, 438. Chiefly adapted for their own mackets, th. Specimens of carpets and foor-colline, 473. Specimens of boost and shore, 473,

perimens of cutlery, e.lge-tools, &c., 489, 420. Observa-tions on the various specimens of general hardwace and from manufactures, 255 et e.g., Insignificant display of works in the previous metals and jewellery from America, 251. The American glass commenced for the perimental control of the contributed by the Interd States, 555, 527. Mechanical reclining philic 539.

Articles manufactured in steatite, or soap-stone, 559.
Specimen of a kind of cartly fire-proof cement or of a kind of earthy fire-proof.

Productions in enoutchour, 504-506, SpeProductions in enoutchour, 503, Various Specimen of a kinst or eartify ure-press remains of point (§2), Productions in cooutchous, [326,206, Specimens of Ivory veneer cut by markinery, [522, Various articles manufectured from Ivory, i.6. Superior specimens of coopers' work, [522, Specimens of brocaus mule of Indian corn straw, i6.

Various kinds of soap, [622, 613-615, Specimens of specimens o

maccti and spermacett candles, <u>627</u>. Blacking, <u>631</u>. Soft-fruit preserves, <u>637</u>. Brandy-penches, <u>631</u>. Stuffed animals, birds, and fishes, <u>636</u>. Remarks on the collec-tion of some of the mineral and vegetable products and manufactures of the State of Maryland, contnined in au manufactures or the state of Maryanus, concurse in an ornamental cabinet made of the principal woods of that State; list of the objects exhibited, 651, 652, Gold-headed walking-stick of curled hickory, 665, India-

rubber toys, 623 Notices of the principal works of sculpture on a large scale contributed by the United States, 206, Castings In bronze, 706, 707, Castings lu zinc, 707, Castings

in Iron, ib. United States Government, 62

nwin and Rogers, 420.

Unwis, W., 420. Usasium, Oxide or Samples of, 43, 44, 47. See also Nichel. URANGRAPHIC APPARATUS. -- Description thereof, 307.

Ure, Dr., 607, 635. Unea - A chemical preparation, 44.

Unic Acip - Specimens of, 4t. Uniglio, -, - His analysis of the water of the Mediterranean adverted to, 31 Utrschneider, -, 123

Vactor and Co., 202, 212. Vacuus Garges, Various gauges, 315

VACUUM SUGAR APPARATUS - Sets of, from England, France, and Prussia, 201

and Prusts, 221.
Valanct, —, 241. 41.
Valenct, Arguington, 21. 82, 162.
Valenct, Arguintum Beard, 21. 82, 162.
Valenct, Arguintum Beard, 21. 82, 162.
Valenct, Arguington, 23, 25.
Valenct, Carlot, 24. 25.
Valenct, 25. 38.

Vales, C., 318, Volgona, T. A., 22, Valence, J., 564, 566, 568, 571, Valence, J., 564, 566, 568, 571, Valence, Amples of this dye-stuff from Asia Minor and

Turkey, 87.
Valscecki, P. Bagatti, 703.
Valves, ros Penrs.—Triple-heat valve for large pumps. affording three passages for the water; description of the valve, 181. VANADUM.—See Nichel.

VANADUM.—See Nichel. Vanden Abeele, L., 103. Vandenbroucke, E., 212. Vandercamer, J. A., 562. Vanderdorpel and Son, 448, 45. Vander-Kelen-Bresson, 171.

Vanderoost, -, 480. Vanderstracten, F., 83

Vanievin, F. 197. VAN DUNEN'S LAND -Rocks and minerals from, 12. Varieties of granite and metath updic linerstones con-taining coai, b. Gems obtained from Van Diemen's Land, ib. Van Diemen's Land ranks next to Port Adelaide for the quality of its wheats, 52. Sample exhibited, ib. Barrels of excellent wheat-flours, 54, 55 exhibited, 46. Darrets of executent wheth representations of hope, 55. Samples of diried applies, 46. Samples of precise and sances, worthy of notice, 52. Good specimens of resis and gums, 45. Samples of dye-stulls, 52. Cood specimen of flax, 55. Extensive and interesting collection of the woods of Van Diemens. Land; list thereof, 148, 142. Samples of wax, 163. Specimens of guano, 166.

Specimens of guano, 166.

Specimens of printing, 407, 452. Examples of book-binding, 426. Fre specimenes of manufactured matther, and the specimenes of good boundaries of the specimenes of manufactured matter and the specimenes of good boundaries of the specimenes of the specimenes of matter specimenes of small present specimenes of matter specimenes of matter specimenes of small-boare, like stick, 565. Intervetting specimens of small-boare, and specim

Van Diemen's Land, Royal Society of, 426.

Vangoethem, V., 20 Vaniskoff, T., 22 Vanner and Son, 36

Vanned, J., 223 Vantillard and Co.,

Vantroyen and Mallet, 317

Vargounia Brothers, 432, 453. Varley and Son, 262, 263, 266, 274, 305. See also Telescopes. Varnish, E., 33

Varnishes can Coating Index, &c.—Samples of, 50.

Vantoure ron Courtee firet, Ne.—Samples of, 20. Verrently, Dirlifton, and Elverli, [192]. on an Elverli, [192]. Our sand Sascentier, Sart, xwit, xwit, Varvently, Dr., Guere and Sascentier, Sart, xwit, xwit, Varven, Anna Perentle, Marchael De Signer, T. Dallmenha, of Home, (2d). Aver, Ganz, and Saver, —Magniferent allower research left by Saver, Charles and Saver, —Magniferent sense and the between Jupiter and the plants, Lid. Deveryiption on a vance calbidled by Marrell Brederics, of Farts, represent a sense of the sen Sasikoff, of Moscow, 215. Description of a vase in the ancient style, entirely of gold, enamel, and precious stones, exhibited by Watherston and Brogden, 216.

Burnished silver vase exhibited by Strube and Son, of Letpxig, 517. Vasts, IROV.—Specimens of east-iron vases. (6). Lnrg vase of cast iron, inlaid with sliver, from Berlin, 17.

VASIS, MARIAL,—Various vacs in marke exhibited, some of them of elegant shape and well farished, 154. VASTS, Poscellats. - Specimens of porcelain vases, 519, 540-

VASIS, STONE - Various vases and other objects, sculptured in the soft stone of Malia; delicacy of workmouship in

these sculptures, 558. Remarkable pair of vases, cut out of sandstone with a peaknife, ib. See also Tofa. Vascy, T. (Associate Juror), xxix. Vassal, —, L52. Vatin and Co., 32

Vittat and Rouille, 482. Vancher and Co., 42

Vaugeorer and Co., 3222. Vaugeois and Truchy, 470. Vaughan, --, 551. Vaumael, --, 227. Vaz, A. P. F., 153. Vaz, Pinto da Fonseça, 57. Vachto d. 683, 683, 683.

Vechte, A., 684, 685, 643, 735, 738, 732, Vedy, —, 252, Vector, Leitin, exx.

EGFTABLE KINGDOM-Incompleteness of the collection of the natural raw produce from all parts of the globe, from the fact of the Exhibition being the first attempt to bring together a complete collection, 7.1. Circum-stances by which the Committee of the Jury was in-fluenced in making their awards, ib. General remarks on the objects in the various sections, is: 1st, guins and resins, including starch; samples exhibited, names of exhibitors, owards, &c., 71.72 2ml. Oil series; general remarks, exhibitors, exhibits, and awards, 79. general remarks, cablidion, cabibits, and awards, 72–82. And Dyes and colours; general remarks, exhibitors and swards, 52–15, 4th. Touring materius, last substances; color, general remarks on the object substances; color, general remarks on the object cablidited, uwards, with the sames of the exhibitor, S0.056. Flax and heren; samples thereof exhibitor, S0.056. Flax and heren; samples thereof exhibitor, formarks thereon, exhibitors, exhibitors, or formarks thereon, exhibitors, exhibits, and wards, [181, 168]. Gh. Cellular substance; circles exhibited, notices and swards, [161, 161, 171]. Timber and ermanestal neods) detailed report thereon, assets

and ermaneum) woods; detailed report dereon, anales of exhibitors and awards, RE-LET 8th. Miscellaneous substonces; objects exhibited and awards, LET. Sea also Animal and Vegetable Substances, ye. VEGETABLE OLLS.—See Oils. VEGITABLE STRANCES, WORKS OF AUT IN .- Notices of the

principal, 685.—See War.
VENTABLE WALLS, Parstanton Samples of, from France, 65.—See also Aliasatory Preserve.
Vell and (5.0, 412.

Veitch, Cuptain, 71 Veitch, Dr., 345. Velkoe Estate, 99.

Velkoe Listate, 193.
Yealess Besurso.—Separate branch of bookbinding trade, 425.
Consists of binding account-books, ledgers, &c., 476. Consists of binding account-tooks, tedgers, ac.
66. Works of English binders fully sastain their reputation for beauty of execution and solidity of workman. ship, sh. Remarkable progress of this branch of trade In France, ib. Improved mode of numbering the leaves by means of a paging machine, patented by Mr. Shaw, ib. Other machines for the same purpose, ib. Application of caoutchone to the manufacture of account and other books, ib. Not sufficiently strong to sustain the wear and tear consequent on the frequent opening and

Vieweg and Son, 329, 453 Vignas Brothers, 365

shutting of ledgers, 426. Specimens exhibited in the English Department, also from France and America. ib. Vigneau, L. J., 332. Vignoles, C., 20 Villars, D., 103, Villars, J. B., 9 Specimens exhibited, and awards to the exhibitors, 452-Villensens, F., 548, Villensens, F., 548, Villerol, —, De, 332, Villeroy and Boch, 542, Vinas, A., 103, Vinecut, J., 162, VALLEM AND PARCHMENT. - Mode of preparation; specimens exhibited, names of exhibitors to whom Prizes were awarded, 324. See also Leather, Se. Velocimitants. - Aquatle velocimeter for showing the dis-YLIGGMATAINS.—Aquatite velocimeter for showing the on-tance traversel by a vessel in a given time, and its velo-city, 253. Description of the instrument, ib. Instru-ment well obspect to its work; ib.
YELVETS AND VALVET RIBBON—Various specimees of vertex and velvet ribbone exhibited in the Brillish Department, and sito from Prunsia, France, Northurtha, 260-368, 267, 2576.—New abo Solit and Lefter the Computer of the Computer of the Contraction. Vincent, J., 162, Vincent, R., 252 ant, 451, 455. Vincent and Tisserant, 451, 455. Vincent and Tisserant, 451, 455. Vincent, 152, Island collection of supple-jacks from, 164, Vinc and Asbured, 201. Vinc, R , 640. VINCHAR-Samples of, 47.—Vinegars sensitiy exhibited, 62.
Malt rinegars of Hills and Co. particularly delicate, 76. VELVEREENS - Specimens of, 353 Venables, C., Churor and Associate), xxviii, xxix; (Exhibitor), 431, 453. Venables, G., 431, 453. Venables, Wilson, and Tyler, 422, 431, 453. Sample of wood vinegar, ih. Vingert A., 500. VINO 181 AMANCIO.—A Sardinian orange wine, quite a novelty, and of agreeable flavour, 202. Venables, Witson, and Tyler, 429, 431, 433.
Vendelius, -, 329.
VISSTAS GLASS - Specimens of, 596, 537.
VISSTAS GLASS - Specimens of, 596, 537.
VISSUACE, - Early period from which Venice has possessed the art of glass-making, 522. Concern with which the manufacture was regarded by the Government, ib. Its establishment in the Island of Murano; privileges Violas.—Specimens of, 330. Violette, L. H. M., 55, 166. Violosekalos—Specimens of, exhibited, 330. Violess.—Meritorious specimens of violins exhibited, 330. Virebent Brothers, 583 Vischi, A. M. J., cxx. Visser, E. E., 163. Visser, Nolet, and Co., 78. granted to the merchants; stringent regulations ca-forced, ib. Improvements in design and colour effected, ib. Circumstances which led to the destruction of the Vissiere, -, 336, 342. Vittoz, G. T., 513. monopoly possessed by the Venetians, ib. The cylin-VITREM MARNORATUM.—A species of glass in imitation of drient process in glass-blowing was that principally employed by the Venetians, 255. See also Boleson. drient process in glass-blowing was that principally employed by the Venetians, \$22. See also Beleone. VENTILATION OF MINES, APPARATE TOR.—Contrivance for opening and shutting the ventillating doors of mines by means of levers, 2. Model thereof exhibited, it. Great safety of this contrivance, it. Ventilator for airing mines from the works of the Maranelle and Conflict marble, 537. Vivet, E. T., 546, 552, 718. Vizetelly, J., 463, 604. Vizinnogram, H. H., the Rajab of, 81. Vocalan Worsted Yarn Spinning Company, 350. Vogel and Carner, 318. Smelting Company's Works, Belgium; A. Fabry, in-yeuter, L. Construction of the machine and working Vogel, C. F., 278. Vogel, W., 557. Vogelsung, J., Sons, 537. Vogelsunder und Evans, 277. thereof, so. Vgvr11ATons - Speriment of various descriptions of 507, Glass Ventilators, 537. E., 500. C., 550 Vokens, C., W. Verard, A., 404, 408. Veraraic Acin—Samples of, 47. Volderauer, G., 21 Venarane Actin—Samp Verbeeck, —, 32. Vercanteren, J. L., 56. Vercanysse Brothers, 5 Vercan and Co., 72. Verdan and Co., 152. Volkoasky, Prince, 79, 99, Voluciasty, Prince, 12, 22. Voluce, -, 32.1. Volucealt, J. P., 642. Volterra Salt Mines (Tuscany), 35. Vonwiller, Ulric de Gaeps, 471. Voort, H. Van der, 273. Vorster, —, 31 Voster, —, 31 Vostes, The (France)—Collection of marbles, granites syenites, porphyries, and diorites, &c., from, 27, 561, 166 VERRIGRIS.—Specimens exhibited, 43. Verhelst, F., 29. Verkhne-Barantehinsk Imperial Establishment (Russia), 33. vergense-marantenings imperial r-statument (Russia), Verkhoe Tourlusk Imperial Establishment (Russia), 23. Vergensessa — Samples of, from Lille (France), 55. Vozelsangs, L. P., 335. Vslvolosjky, N. V., 63. Vuillanne, L. B., 330-333. VERNOY, STATE Or (United States).—Collection of the woods of, 150, 151.
Verstneen, L. N., 265.
Verstneeten, E., 105. VULCANIZED INDIA-RUDDER.—See Cuontchouc. Vyse and Sons, 483. Vertu, J. (Juror), xxviil, xxxl, 352. Verza Brothers, 364. Waagen, Dr. C. (Juror), xxxi. Supplem Dr. Waagen, on Sculpture, 691-707. mentary Report by Vessiere, A., 450 VE-TIMES.—See Silks, Manufactured. 17. wagen, on scupture, 691-104.
Wachter, J., 166.
Wachter, J., 166.
Wachter, S., 166.
Beautiful specimens of cames wafer, 682. This manufacture, to a great extent, superseled by the general employment of adhesive carecipes, 69. Vezon Brothers, 55, 78. Vecon Brothers, 55, 28, Vilil, 8. A., exx. Visual-Este, J. J. J. B., 480, Vibera, -, 290, 305, Vicera, R., 220, Vicera, R., 220, Vickers, W., 240, Victoria Felt Carpet Company, 353, 475, Videro and Simon, 465, 470, Videro and Simon, 465, 470, wagnonan, scylet, and Co., 22, many wagnon and stylet and stylet and compared to the wagnon and stylet and in particular districts, such great economy resulting from the use of one-berne carts, 233, Crosskill's wagnon a good specimen of an improved Vidi, -, 301. Vie, J., 527. 235. Crosskill waagon a good wagner, E. A. A., 514, 695, 738. Wagner, J., 337, 308, 312. Wagner, J., and Soas, 698. Wagner, T., 686, 669. Walt, F., 55, 78. Waht, F., 55, 78. Wailes, W., 687, 635 WAISTCOATINGS - G Great varieties of specimens exhibited, Vienna, Imperial Printing Office of, 451, 688, 703. Wait, J., 202

Wakefield, F., 506. Waldron and Sons, 400. Waldthausen, O. W., 50. WALES .- See Building Stone. Cond. WALLS—See Building Stone. Cord.

WALLS, H.E. H. THE PINY OF OF Remarks on the shield pressented by the King of Prusin to, 514, 685, 697, 698, 738.

WALLS, SOUTH—See Authorite.

WALLS, SOUTH—See Authorite.

WALLS and Hisbby, 4824.

WALLS and Hisbby, 4824.

WALLS and Hisbby, 4824.

Walker, Sir B. (Juror), xxvli., 210. Walker, C. V., 201.

Walker, C. V., 201.
Walker, E., 627.
Walker, E., 627.
Walker, J., 54, 303.
Walker, J., 54, 303.
Walker, J. and Sons, 353.
Walker, J. Walker, J. W., 322, 333.
Walker, J. W., 322, 333.
Walker, R., 527.

WALKING-STICK HANDLES-Collection of carved ivory and Walsino Sticks.-The use of the staff for support in walk-

LENCO STICKS.—The use off the staff for support in walk-ing very accient, (fif.). Certain amount of historical interest attaching to the pilgrim's staff of the misble ages, and the algentstock of the present time, &. Pe-scription of the boundow or pilgrin's staff, and the use thereof, ib. Ascient eutston of baving the breal of the stick or staff hollow, and making it the receptacle for various articles, &. The first head of saffron hrught over from Greece in the hollow of a pilgrim's staff, ib. The silkworm first brought over to Europe in the holious part of a pilgrim's staff, ib. The ancient contrivance of making a repository in the hollow of a walking-stick not yet obsolete, ib. Medical walking-stick displayed in the Exhibition, containing a variety of instruments modern sticks containing telescopes, instantaneous light modern sticks containing telescopes, instantaneous light apparatus, swords, direk, se, e&c. Description of the alpeanors, a travelling staff of modern use, but of great antiquity, &. The present light wands to which the name of walking-sticks is now exclusively attributed, descreaded from a time of considerable antiquity, &. The staff or come formerly an attribute of rank, &. Brief note on some of the substances employed, and some of the peculiarities of the common walking-sticks of other times, 662, 663. Vast quantity and great variety of materials annually consumed in the manufacture; enumeration of a few of those in most general use, 663 meaning the way though it is the principally ob-tained, &. Description of the principal processes in the meanifactor of walking-sitcks, &.C., &.C., &.C., &.C., stances used for the manufacture of sticks, &.C., &.C., soloul use of metal is the formation of sticks, &.C., &.C., or metal is the formation of sticks, &.C., &.C. of the contributions of walking-sticks from various antions, 664-666. London, Hamburg, Berlin, and Vicuna, the chief seats of the manufacture of walkingvarious

sticks, 664. Number of exhibitors elassified according to the different countries, 666. List of awards, names of exhibitors, articles exhibited, &c., ib. Wall, C. B. (Juror), xxx.

Wall, C. B. (Juror), xxx.

Wall Deconations—Handsome specimens of, 546.

Wallace, A., 431. Wallace and Son, 509 Waller and Co., 507. Wallich, Dr. N. (Ju (Juror), xxvi., xxxi.; (Exhibitor), 50, 76,

Wallis, G., xxv. Wallis, Count O. von, 158. Wallis, Capt. P. W. P., 565 Wallis, T. W., 686, 694, 723 Wallis, T. W., 686, 694, 723

WALNUT VENERS .- Execulent veneers of walnut wood, ent

in a peculiar manuar, invented and shown by A. Ducci, of Florence, Laz. Lau, Bisnor, Toma or—Remarks thereon, 687, 603. Walsh, Bisnor, Tox Walsh, W., 480 Walters, B. and P., 5 Walters, J. and Co.,

Walterand Sons, Walters and Sons, 327.
Walther, G., 688, 622.
Walther, P. (Juror), xxix.
Walton and Co., 562.
Walton, F., 549.
Walton, P. and Co., 373, 552.
Wanton, P. and Co., 373, 552.

Wansborough, J., 125. Warburton and Co., 421.

Ward, Ann. cax. Ward, C., 331, 332-334, 631. Ward, J., 33, 143. Ward, J. W., 338.

Ward and Payne, 420. Ward, Smith, and Co., 50

Ward, N. B., 314.

WARLEN'S PATENT FELT.—Nature and object of this line, LE. Specimens exhibited, it.

Warment, V. E., 120.

Warner, J., and Co., 122.

Warner, L., Warner, P. F. T. Mariner, P. F. T. Mariner, L. W. L. Warner, M. War

Washington and Davis, 368.

Washington and Davis, some Wassef, 7, 267. Wasserott, S. 262. Warner Casses. Watch cases in enamel, and cases orna-mented with gold and diamonds, and eugraved gold according to Switzerland, 212, 223.

plates from Switzerland, 517, 520.
WATCH GLASSES Specimens of, 536, 537.
WATCH-HANDS— Machine for cutting, 20 WATCH-PLATE DRILLING MACHINES Ingenious description of, 340.

WATCH-WHEELS -See Watcher. WATCHES .- Observations on the various watches exhibited, O. Carriage clocks [actuded under this head, ib. 340. Carriage clocks iscluded under this head, h. Difficulty in establishing any principle on which pulse can be given, h. Watches of such various descriptions, h. London, Liverpool, and Coventry, the three principal places in England where watches are made, h. Beautiful collection of various kinds by Dent, h. ib. Beautiful collection of various kinds by Dest, ib. Contrivance for sinding up and setting the bands without a key, ib. Description of the contrivance called a spill second hand, ib. Tac-watels for blind persons, ib. Description, ib. Remarks on the collec-tion of Mr. C. Frodham, and Mesers, Parkinson and Il. Frodham, ib. Ingenious watch-plate drilling machine, & Extraordinary number of watches exhibited Movements of watches and small elocks made by machinery by Mesers, Jupy of Parla, 340, 341. Extra-ordinary eleganess thereof. 341. Cheap kiad of watch alarum from Paris, ib. Models of different escape-ments, ib. Soliclare watch invested by Mr. Jackson, ib. Main springs from Paris, ib. Importance of good main springs, ib. Pockot chronometers, ib. Cheap watches in German silver cases, ib. Large collection of watches from Switzerland, remarks thereon, 311, 312. Small watch in the ead of a pencil-case, 312. Instrument for tracing out the teeth of watch-wheels in the epicy-cloidal form, ib. Machine for polishing the teeth of thoseape wheel of a horizontal or cylinder.

escapement, ib. W ATTEMER'S CLORE.—See Clock, Thespirer, Sc. WATTE CLOSTS—Specimens of, 208, 504, 505, 508, 502, WATTE CLOSTS—Specimens of, prepared with wax, 48, WATTE-CANK—Specimen of n, 157, WATTE-CANK—Specimen of n, 157, WATTE-STREAM, CONTRACT OF THE
WATEL-MYERS.—Five different confrivances for this object exhibited, but mose as for perfected as to unity confidence with the confidence of the confidence o

Waterhouse, G. and S., 520. Waterlow and Sons, 198, 426, 447, 455

862 INDEX. Watermeyer, C., 90, 102. WATERPROOF FAURICE-Specimens of, 475. Remarks on the application by Messrs, Macintosh and Co. of caoutchoic or India-rubber to the waterproofing of garments, 503, 594. See also Caostchouc and Manufactures therefor Waterston, G., 451, 453. Waterston and Brogden, 516. Watkins and Hill, 173, 232, 262, 264, 267, 282, 283, 301–303, 315. Watney, A., 13. Watrelot-Delespaul, 59, Watrelot-Delespaul, 99, Watson, Bell, and Co., 475, 728, Watson, G., 552, Watson, G. W., 193, Watson, H., 198, Watson, J. and R., 163, Watson and Ledyard, 413, Watson, M. L., the repre scutatives of, 695, 693. Watt, James, and Co., 172. Watt and Son, 165. Watt, W., 50. Watt, W., 50.
Watter, J., 199.
Watte, I. (Juror), xxvil.
Watte, R. M., 52.
Watte, R. M., 52.
Wann, T. W., 509.
Wax...—Substances of various origin and of very different composition included under the name of wax, 624. Description of wax employed in capille-making, Description of wax employed in candid-making, ib. Chinese wax not a vegetable wax, ib. The knowledge of tran elemical composition of wax, owing to the researches of Mr. Broule, 624, 625. Chevrations on wax bleaching, 625. Processes employed, ib. Wax more valuable when bleached, ib. Large quantities of wax imporred toto the United Kingdom, 625, 626. Colletion of specimens to iliustrate was bleaching, 626, ist of awards and exhibitors, 623 et acq. See also Oils, Waz, &c. WAX CANDLES,—See Candles. WAX CLOTE.—Remarks on the wax-cloth decorations exbi-bited by M. Vivet, 718. WAX FIGURES.—See Ethnographical Models. WAX FLOWERS.—See Flowers, Artificial. Weaber, -, 273.
Weaber, -, 273.
Weaber, -- Existence of large quantities of hrown he-matite and carbonate of iron at, 7. Weare, -, 298. WEARING AFFAREL (Class XX.)—Tabular classification of objects in this class, xix. List of Jurors and Associates appointed for this class, xxix. List of exhibitors to whom Price Medais have been awarded, xo-xell. And of those of whom linonurable Mention is made, xell, xciil. General remarks on the articles for general or

personal use exhibited, 481-484, Articles of npper clothing, 481, 482, Specimens of shirts, 482, Coracts. 483. Specimens of straw piatt and bonnets, ib.
Wearmouth Paper Company, 429.
Weatherley, H., 202, 642.
Weavens' Rexue—Specimens of, 199.

Webb Brothers and Co., 63, Webb, E., 384. Webb, J. (Juror), xxx, xxxii. Webb, R., 52. Webb, T., 536. Webber and Hairs, 379,

Webber and Hairi, 579. Webber, 5, 557. Webber, S. (Jnror), xxvii. Weber, G. 52. Weber, G. D., 50. Weber, J. B., 448, 449, 455. Weber, L., 102. Weber, Frofessor, 313.

Weber and Schnitheis, 221. Weber and Co., 654.

Weber and Co., 534.
Wadding, Professor W. (Jaror), xxvii.
Wxrors, Rauway.—Specimens of wedges for railways, 187.

Whome, Hausen, —Speciment of wedges for railways, 187. Welgwood, J. and Sons, 540, 694. Welgwood, J. and S. and S

description thereof, from Austria, 191. Steel-yards and weighing-machines invented by Davidson and Co., of Edinburgh, st. Patent welching-machines, invented Faithfully and heat and effective construction, the simplicity and nest and effective construction, the Patent weighing-machines of Day and Milward, of Birmingham, 35. Injectious machine which registers on paper the weight of overy article weighed, 259.

Other specimens of weighing machines, 505, 508.

Witours and Measters.—Standard scales used for the

Windows Avi Maxian.—Standard scales of Cornation of many seales now in use, 257.

Weill, C., 45, 642.

Weill, S., 101.

Wolch, Margetson, and t.o., 422, 482.
Weich, T., 429.
Weich, T., 429.
Weich, T., 459.
Weich, T., 40, 78.
Weich, J., 174.
Weich

Europe, 88. Plant from which obtained ib. Colouring matter extracted, ib.

Weils, J. T., 507. Well and Thompson, 201. Well and Thompson, 201.
WELSH HARRY-See Horps.
Wennier, J., 480.
Wennyas, Admiral, 259.
Wenlaun, J. F., 267.
Wenlaun, J. F., 267.
Werlaun, J. A. 200.
Werlaun, J. S. 200.
Werlaun, J. S. 200.
Werthaun Co., 78.
Wertheim, F., 490.
Wertheimer, S., 520.
Wertheimer, S., 520.
Wertheimer, S., 520.
Wertheimer, S., 520.
Wercheimer, S., 520.

Wescher and Strassman, 500.

Wescnfeld and Co., 50. Wessel, F. W., 373. West and Son, 516.

WEST OF ENGLAND-Observations on the woolien manufactures of, 351. Seats of the principal manufactures In. 66.

In. ds.

In. ds.

Warr Inver.—Samples of rice and maire, 53. Samples of dried fruit, 56. Remarks on the various specimens and samples of cotton from the West India blands, 95. Various specimens of expediable fibres, 102, 103. Collection of woods, native of or grown in the West Indies, 116, 117. See also Barbadous. Januariae. Trisided, ye.

Westall and Co., 160, 600. Westermann and Co. (Berijn), 333. Westermann, A. H., and Co., 372. Westermann, A. H. C., and Sons, 730. Westermann, G., 399. Westhead and Co., 470. Westley, J., 424, 453.

Westley, J., 424, 453. Westleys and Co., 424, 453. Westmoreland, J., 281, 282. Weston, W., 76, 78, 83, 95, 104. Westrap and Co., 202, 203. Westwood and Moore, 587. Wetherell and Brother, 50. Wetsteins, -, 406.

Wetsteins, -, 406.
Wettli, -, 304.
Wettli, M. L., 552.
Wex and Linderr, 479.
Weyer, S. Van de (Juror), xxv, xxviii, 597.
Weynand, A., 512.
Xxvi.
Weynand, A., 512.
Xxvi.
Weynand, A., 512.

WHALE OIL .- See Oil.

William Ork.—See Oil.
Walliam Ork.—Samples of whalebone exhibited; remarks thereon, awards, &c., [60. Articles made of whalebone exhibited; prizes awarded, 600.
Wharnelliffs, Lord (Jupor), xxv, xxix.
Whatman, J., 427, 447.
WHILLY.—Samples of Mr. H. Payse's "Revist" wheat, 52.

EEA.T.—Samples of Mr. H. Payue's "Reviti" wheat, 52.
Great value it possesses, ib. Should wholly superseds
the cultivation of the Egyptian revitt, ib. This latter
for too abundant in the English market, ib. Samples of
R. Webb's "Thalavers" wheat grown in England, ib.
Exceilent quality of samples of "white Chidham" wheat

exhibited by H. R. H. Prince Albert, ib. Samples of | Whittaker, Mr. - Description of the process employed by wheat from Ipswich, 52. Excellent white wheat from wheat from lipswich, §2. Excellent white wheat from Cawdor, Swiland, ib. Samples of wheat from Austral-asia, including Van Diemen's Land and New Zeoland, ib. Samples from Pert Adebilo, ib. From New Zeoland, ib. From Causala, ib. Samples of good red wheat from New Teolia, ib. Samples of foot white wheat from the Capa of Good Hope, ib. Cellection of specimen cars of est from Jersey, sb. Sample of white wheat from Malta, ib. Numerous samples of wheat from Belgium; none of any striking supernority, sb. Samples of wheat from France, sb. Sample of wheat or great promise from Algeric, b. Samples from Spain, generally dirty, but unusually time in quality of. Sumple of wheat from Madeure, it. From Olessa, 53. It me sample of black Madein, 6. From Coisson, 18. From samples of once, wheat from Russis, 4b. Samples of other wheats, 4b. Sample of hard wheat from Turkey, 4b. Samples of wheat from Tunis, 4b. Samples from the United Sintes. ib Whentstone and Co., 332-331.

WHEAT-TONE'S FLECTER TELEGRAPHS-Referred to and de-

Wheeler, --, 203, Wheeler and Ablett, 482, Wheeler, T., 208, Wheeler, T., and Co., 479,

WHEREA AND ANDEY, RAMEWAY.—Disc wheel and hollow axle for milways, 186. Specimens of Brigg's potent com-pound axie, tire, and mils, sb. Railway axle and milway a heel-tire, forge harmerest, 187. Specimens of milway

wheels and axies; form of wheel peculiarly adapted for express trains, ib. Locomotive carriage tires, ib. Description of Normanville's patent axie-box, ib WHET-TOYAL - Collections of whetstones from Belginm, remarkable for their dimensions and preparation, 23.

Whicker, -, 345,

whiter, -, 345, 277.
White And Carlo Specimens of, 304.
Whiths And Carlo Specimens of, 304.
Whiths, E., Jun., 481.
Wurray (York)—Specimens of jet from, 13.
White — 93.

White, -, 97.

White, A., 205,
White, G., 505,
White, G., 505,
White, G., 505,
White, G. B., 505,
White, J. - Statement by, showing in quinquential periods,
from 1823-1850, the amount of bichromate of polash

From 1825-18-0, the amount of technometer of perpendicted by n single meanufactory in Scotland, 39, white, J. and Co., 25, White, J. and Co., 25, White, J. C. 394, White, J. C. 394, White, J. C. 394, White, Mesers, 238, White, Son, and Co., 728, 729, 1821, Son, and Co., 728, 729, Son, and Co., 728, Son, an

White and Wing, 410.

WHITE-LEAD, Several producers of white-lead manufi tured by the old processes distinguished by awards, 42, Other saits of lead proposed to replace the exhount generally found deficient to some property when brought tulo use, is. Originality of the process exhibited by

Mr. II. Lee Pattimon; description thereof, ib. State-ment as to the present condition of the white-lead manufacture in France, ib. Sperimens exhibited, 43-50. See also Ziur-white, WHITE PAINTS- Specimens of, manufactured from exide of

Witter Popers, Extract or Samples of, 50, Whitehead, J., 233, 503, Whitehell, M., and Co., 381,

Whitehouse and Co., 507, Whitehouse, N., 273. Whitehurst, -, 277. Whiteley and Sons, 431.

Whitesides, —, 148, Whitesides, —, 148, Whitfield, S., 507, Whitfield, S., 507, Whiting, C., 403, Whiting, J., sen., 403, Whitley, J., 350, 509, Whitley, N., 13,

Whitney, N., 10. Whitney and Billinkl, 469. Whitney and Chapanan, 507. Whitmore and Co., 350

Whitney, A. (Juror), xxvii. Whitney, E., cxx. Whitney, J., 64.

eing illuminations for books, 403, Whittaker, R., 417

Whitzaker, R., 417.
Whitlingham, C. (Juror), xxvill; (Exhibitor), 400, 401, 409.
Whittington, G. T., 90.
Whitwill, J., and Co., 477, 109, 200, 203, 255.
Whitworth, J., and Co., 177, 109, 200, 203, 255.
Whytworth, J., 211, 373.

Wirvilaw and Son, 103

Wichmon, L., 697. Widdowson and Veste, 520.

Wiele, J. B. Van, 99. Wielman, -, 6.9, Wiesmunn, A., and Co., 32, 43, 50.

Wiss. - Specimeos of wigs, peruker, and ladies' head-dresses whole-specimens of wigs, peruker, and indice fead-dresses exhibited, 388. Was-waxvisu Macrixa.—Frame for weaving wigs, from France, 197, 198.

Wigder, -, 661. Wight, Dr., 75, 94, 101, 122, 131.

WIGHT, ISLE OF Relief model of, 309. Geographical and geological features carefully delineated, it. Wigram and Sons, 217. Wild and Robinson, 517.

Wilds, W., 43, 101, 601. Wilder, W., 43, 101, 601. Wilder, W., 43, 101, 601. Wilford, J., and Sons, 371, 372, 373. Wilford, W., 473. Wilford, W., 473. Wilford, W., 473.

Wilfrest, Bulley of Worcester, window-geome surprise 17, and his outlevilla, 252, 272, 550.
Wilfrest, W. C., 203, 272, 550.
Wilfrest and Weatherly, 10, 207.
Wilfrest, S. C., 203, 2011, xxiii. Sir G. Wilkinson, Sir G. Qureny, xxiii. Sir G. Wilkinson, Sir G. Qureny, xxiii. Sir G. Wilkinson Sir G.

Wilkinson, H., and Co., 520. Wilkinson, J. (Juror) xxviii; (Exhibitor), 353.

Wilkinson and Son, 221, 4:0. Wilkinson, T., 239, 242. Wilkinson, T. and G., 490.

Williams, C. C., 187, Williams, C. C., 187, Williams, C. C., 187, Williams, D., 559,

Williams, D., 509.
Williams, J., 152, 200, 446, 453,
Williams, J., 152, 200, 446, 453,
Williams, J., and Son, 615.
Williams, T. M., 647.
Williams, W., 242.
Williams, W., 242.
Williams, T. Williams, T. W., 242.

Willis, H., 324, 325, 333.
Willis, Rev. R. (Juror), xxvi
Willis, Rev. R., and Co., 582.
Wills and Bartlett, 551. Wilmot, --, 447

Wilshin, S. B., 480. Wilson, Charlotte, exx.

Wilson, Charlotte, exx. Wilson and Co., 368, Wilson and Co., 368, Wilson, E. B., and Co., 173. Wilson, G., 198, 205, 621. Wilson, G., xxv, 338, Wilson, Dr. J., 16. Wilson, J., and Son, 42, 50. Wilson, J. and W., 475. Wilson, J. J. and W., 359, Wilson, R. and W., 507, Wilson, R. and Son, Wilson, R. and Wilson, Wilson

Wilson and Soo, 382,

Wiston and Soc., 52, 47.
Wiston and Som., 450.
Wiston and Som., 450.
Wiston M. Wiston M. Wiston M. Wiston M. Wiston M. Wiston M. Wiston, W. 254, 281.
Wiston, W. 254, 281.
Wiston, W. 254, 281.
Wiston Crurect—Model of, 566.
Wiston M. 254, 281.
Wist

(wood and metal) for orchestras and military baods ex-

hibited, 332. Objects exhibited, ib.
Wholle and Blythe, 507.
Window Baines, Paryrep-Specimens of, 475, 546, 551.

Window Blaison, Planten-Specimens of, 475, 546, 551.
Winnow Currantes-Specimens of, 348.
Winnow Glass,—Different kinds of glass Included In the term 'window glass, '524. Uncertainty respecting the period when first generally uses, 522, 525. Introduced into the churches of France about the sixth century. 525. Into England in the seventh century, ib. sparingly used in demostic architecture till a much

Methods of making window glass described. I. By the eyllodrical process (sheet glass); 2. By the effect of centrifuml force (erown glass), 525, 526.—See also

Croser Glass. Short Glass.
Window Glass.—Prize Medals awarded for window glass,536
Window Sassers—Model of, 208. Ingenuity of construction of the sashes, ib,

Wive Casks. - See Coopers' Work. Winfield, R. W., 497, 503. Wingender Brothers, 673.

Wingeworth Iron Company, 12, 13, Wingeworth Iron Company, 12, 13, Winkler, F., 164, Winkler and Son, 357, Wioks, B., and Sons, 491, Winkler and Prosters, 367, Winkworth, T. (Juror), xxvIII.

Wissowisa Machines - Description of the work performed

WINNOWAM MACHINES - Description of the work performed by Messer. Hornaby's winnowing machine, the most winnow and Messer. Prize awarded, ib. Winnor and Son, 3-3. Winstanley, —, 300. Winston, C. (Associate Juror), axx.

Winter, F., 197. Winter, G., 82. Winter, W., 388

200

Wheney, W., 588, Water-field, J., 673, Water-fine wire from New Jersey, remarkable for its reputative and the process of the p

graphs, 290. graphs, 256.
Wine Clorin.—Specimens of wire cloth, 504, 505, 508, 509.
Wine-mawino Bench.—Specimen of a, 201.

Wiar Rors. Samples of metal ropes and cables mannfac-tured by Messrs. Wilkins and Weatherly, according to Specimens of metal ropes, 505,

Smith's patent, 10. Wirth, T. F., 552, 723, Wirz and Co., 368,

Wirtz, J., 602 Wisdum and Co., 388

Wise, J. A. (Juror), sxx. Wise, T. A. (Juror), xxx. Wise, T. A. (Juror), xxx. Wishaw, F., 285, 293, 294, 564. Wise, R., 503.

Wittekop and Co., 55 Wittlch, Kemmel, and Co., 682.

Witton and Dawy 221.
87. Colouring matter analogous to indigo, ib. Plant from which obtained, ib. Very little used, ib. Chicory wood can be used as a blue dye in the place of real wood, 88. Price of chicory wood and of real wood, ib. Witton and Daw, 221.

Samples contributed, ib, Wäberke, 11., 674. Wodderspoon, J., 426, 455,

Wohler and Co., 483, Wohlfarth, --, 403.

Wolf and Son, 450, Wolf and Son, 450, Wolff, A., 685, 697. Wolff and Co., 50, Wolff, E., and Son, 455, Wolff, F. A., 277. WOLFRAM.—See Tox, Oxide of.

Wolgemuth, 400. Wollams, -, 718.

Woollaston. -, 258,

Wöllersdorf Tin-plate Works, 21. Wölwski, — (Juror and Associate), xxx. Wolverson, E., 509. Wood and Bedford, 50, 88. Wood Brothers 507.

cuted by machinery, 550, 551, interesting, th minor, collections of carving and working in wood ex-

hilited, 602. Instances afforded by these collections of the application of earling to utility and the improve-ment of the form of articles of ordinary use, ib. Prizes awarded, ib. Notices of the principal wood carvings, 686, 701, 704, 705. Wood carving much esteemed by Bwarded, 16. Notices or the principal access to the control of control of the con ples on which wood earving in cabbet-work and fur-oiture should proceed, 721. Characteristics and state of progress of the English and Continental nations in wood earving, 724, 725.

woos curving, 124, 123, Wood, Dertilative or. Products thereof exhibited, 43, Wood, Particulation or By a chemical process, 48, Woodlary, J. P., 201, 205. Woodlary, J. P., 201, 205.

Woodin, D., 500. Woodley, -, 569. Woodruff, -, 566 566, 568,

Woods, -, 235. Woods, W., 509.

Woors. Specimens of Indian woods, furnishing dye-stuff resins. oils, and medicinal substances, 50.

Timber, Sec. Woods and Forests' Commission (Algeria), 103, Woors, IMITATION.—Various specimers of great excellence, 546. Awards to exhibitors, 551. See also Painted

Woods. WOODS AND OTHER VEGETABLE SUBSTANCES, WORKS OF

Asy 18 - Notices of the principal, 686. Wood-Vinesias .- See Piacoura.

Woodward, B. 11., 475.
Wood. - The raw material of the most importance and in most general use for textile fabrics and clothing, 157. Hairy nature of the wool of sheep in their wild state; modifications and improvements which have taken place therein is the domesticated breeds, it. Objects which the Jury have kept in view in judging of the quality of the wools exhibited, ib. Unanimous opinion of the Jury as to the wools exhibited from Germany very pre-eminent in the qualities of highest value, ib. Observations on the samples of wool from various countries; samples exhibited; names of exhibitors and awards, &c., 157-150. Fine samples of wool from Austria, 157, 158. Remarks on the samples of wool from various of the Zollverein States, 158. Samples of American wools; observations thereon, ib. Examples of wool of n good and valuable quality in the Russian Department, 158, 159. Remarks on the exhibits of wool in the French Department, 159. Numerous samples of wool of good quality transmitted from Spain, &. Samples of wool in the British Department of the Exhibition, ib. Case containing 132 specimens of merian wool from Australia, ib. Samples of wool from the Cape of Good Hope, ib. Remarks on the specimens of wool the production of the Cachemere goats kept by H.K.H. Prince Albert at Windsor, 159, 160. Specimen of Thibet wool, 478,

Woolcock, Catherine, exx. WOOL-COMMING MACHINES,-Machine for long-wool comb-

WOOL-COMING MACHINES.—Machine for long-wood comb-ing, on a new principle, 1956.

WOOL-DYEING.—Use of bichromate of potash for the pur-poses of, 3.5 Successful employment of red and yellow pressintes of potash in wool-dyeing, 41. Colours for wool-dyeing without boiling, 45. Extracts and solutions for dyeing wool in a single operation, 47. Stantanean of devices broad cloths, 43.

solutions for dyeing wool in a single operation, 2... Specimens of dyeing broad cloths, 439. Woollams, H., and Co., 547, 548, 552. Woollams, W., and Co., 548, 552. Woollams, W., and Co., 548, 552. OLEY CLUTES.—Difference between our home produc-tions and those of the Continent, 350. Considerable attention given to the divelop of cloth, 331. Sents of manufactures from which the Exhibition has been supplied, ib. Woollen manufactures from the West of England, ib. Leeds the most important town in England for woollens, ib. Attention paid to perfect the woollen manufacture in all its branches, ib. Ituddersfield and its neighbourhood second in importance dersided and its neighbourhood second in importance for the production of clotta, & Other towns in the for the production of clotta, & Other towns in the clotta, & Variety of cluths from Scotland and Ire-land, & Ferriga countries contributing woollen clotta, 331, 332. Excellence of the goods exhibited clotta, 331, 332. Excellence of the goods exhibited with the contribution of the contributing woollen clotta, 331, 332. Excellence of the goods exhibited the contribution of the contribution of the Ville, and E. Silvinouis of Helguiga, 332. These exhi-bitors, being members of the Jury, are disqualified from receiving a Modal, although their goods for

entitled thereto, ib. Description of the goods oxhi-bited and Awards made by the Jury, 351-353. WOOLLEN MANTEACTERION MACHINEAR—Very slenderly represented in the Exhibition, notwithstanding its extent and importance, 196. Machines exhibited in represented in the Exhibition, novertherapsing cartest and importance, 196. Machines exhibited in the British Department, 28. In the French Department, 48. Not a single electring-machine contributed by English mechanists, but several of very creditable.

workmanship in the Foreign Department, &
Woolley and Wosser Manufactures (Class XII.).—
Tabular classification of objects in this Class, xiv.
List of Jurors and Associates appointed for this Class, xxviii. List of exhibitors to whom Prise Medals have been awarded, lxxi. lxxiii. And of those of whom Hosourahle Mention is made, bxiii. List of oxhi-bitors in favour of whom Money Awards have been made, ib. Division of the duties of this Class into four oliters in tareaux of whom Memory Awards have been made, ib. Division of the duties of this class has four properties of the state of the class has four worsted and mixed fishrics, and yarms, 3:0. Asi afforded by Associate Jures, ib. Smilatriy and equality of merit displayed in every department, ib. the control of the Colota. Worstel Serf Goods. Yursa.

Woolridge, J., 509.

Works-noxes.-Specimens of indies' work-boxes in wood us-noxx.—Specimens of indice' work-boxes in wood and papier make from Austria, 653. Remarks on the contributions from Psp., in Belgiam, db. Specimen the Chinese Department; remarks thereon, 653. Examples of Indiad and japanned work-boxes from Persis, 654. Remarks on the Exhibition, of work-boxes in the British Department, db. Specimens of syramore work-boxes from Wurtemburg, 654, 655. Awants, work-boxes from Wurtemburg, 654, 655. Awants,

Workman, J., 581.
Wornum, R., 334.
Worsdell, G., and Co., 187.
Wolstrix Sverr Goods.—Distinction between these fabrics and woollen cloths, 3.53. The worsted manufacture, though of ancient date, only attained its present eminence in England during the last quarter of a century, ib. invention of the wool comb attributed century, ib. invention of the wool comb attributed to St. Blaise, ib. All the goods, up to about 1831, were made of wool alone, 334. Manufactures of worsted weft and cottoe warp first brought forward in 1834; great impetor given to the trade thereby, ib. introduction in 1834 of the wool of the Alpaca, ib. Difficulty at first experienced in the working of this Difficulty at first experienced in the working of this material, is introduction, about the same time, of Mohair or gests' wool; beautiful fahrirs produced from it, is Progress of the trade illustrated by a reference to the population of the town of Bradford, is increase in the ounder of mills, is. Returns showing the extent of its present manufacturing operations, its Summary of the whole of the worked rations, ib. Summary of the whole of the worsted factories in firest British and Ireland, 3345, 353. Classification of worsted stuffs contained in the list drawn up for the Jurory, 351. Consumption of these various manufacturers, ib. Exports from 1st January to 28th June, 1831, ib. Articles exhibited under this head, and Prizes awarded, 356-538. Specimens of worsted manufacturer for personal use, 478.

WORSTED YARNS .- See Yorns,

Wospira Yaan.— See Yorm,
Worthagton, W., 1000.— 400.
Wotherpoon, J., and Oo, 407, 643.
Wotherpoon, J., and Oo, 407, 643.
Wotherpoon, J., 70, 400.— 407, 1000.— 1000

printers, 4-9. Changes in the trace ance the repeated the heavy duty on printed cottons in 1831, ib. Great the heavy duty on printed cottons in 1831, ib. Great Substitution of machine work for block-printing, ib. Reduction in price consequent thereon, ib. Encourage-ment of a less show y taste in these goods; preference for goods of clepant and quiet patterns. ib. Formerly the Linglish printer borrowed extensively from the style of the French, ib. Progress of the trade in scientific knowledge combles the English printers to produce all Wnest, C. L., 417. descriptions of goods successfully, ib. Taste in almost Wniff, -, 509.

overy market changed and improved with the reduc-tion of price, 456. Mousseling-de-laines of French and course remarks and improved with the relative remarks of the control of the contr kerchiefs; originalty of Eastern origin, ib. Still an article of considerable import, ib. Changes which have takeo place in the relative imports, ib. Progressively increasing trade in this branch of the print manufactures, ib. Trade carried on for some years in Ger-many, ib. Attempta made in France of late years to print silk handkerchiefs, ib.

print silk handscremets, io.

Excellence of the specimens of printed goods exhibited in the British Department, 457, 458. Absence of any specimens of printed goods, the productions of Rouen, Reference to the contributions of the French dos. Hoference to the contributions of the French printers, the Character of the French goods ulfere from that of the English, the Fine printed farmitures from France, the Beautiful speciations of parapetiods from Switzerland, the Speciatron of printed goods from Switzerland, the Speciatron of printed goods from Mania, Prania, Austria, and other foreign countries, prepared chiefly for their respective markets, the Expylant contribution of printed goods, curious, to Speciatron of printing from Ventral India, the Cir-cumstances which here guided the Vary in their desi-tation. sions and awards, ib. General remarks on the speci-mens of dyed goods, ib. Numerous specimens of great ments of dyed goods, & Numercous speciments of great variety and purity of colour in the British Depart-ment, & Collection of dyed goods from France, variety of mecinos, & Varieties of dyed yarms from Saxony, Prussia, Austria, and Russia, & Numorous specimens of dyed silk from Switzerland, & Completo specimens of dyed silk from Nutterfand, ib. Complete assortment of dyed silks from China, as used in her manufactures, ib. The art of dyeing has participated in the great industrial movement of the isst 25 years, ib. Difficulty of presenting bright and uniform colour, on fibres leaving different affinities, has been overcome, Substitution of Prussian b.uc, with a tin mordant, & Substitution of Prussian Duc, with a un mercuan; for indigo, with complete success, ib. Colonns ex-tracted from dye-woods rendered brighter and more permanent, ib. Preparations of fin in general use, ib. Great improvement in the bleaching or whiteaing sitk fibro intended for the dye-bath, ib. Points of excelonce upon which the awards in this Class are founded lence upon which the awards in this Closs are founded, like—In printing; 20td—In Oyeng, 409, 459. List of calibities awarded Frice Medials in this case for for dycing, 30. Application of a selecutife principle in preparing various textile fabrics, by John Mercer, ab-Results above in the goods exhibited by him, 30. The Jury would have recommended this inventor for a Consell Medial if his discovery had been extensively

applied in manufacture, ib. Wray, -, 264

WRENCHES, - Screw-wrench

Warscruss.—Serkew-wreach, 346.
Wright, Crump, and Co., 475.
Wright, G., xxv.
Wright, J., 24, 53, 536, 741.
Wright, L. W., and Co., 100.
Wright, L. W., and T. C., and Co., 353.
Warriso-Dzsas And Casta.—Elegant variety calibited,
450. Specimes of writing-devise from China, 653. Elegant clony writing-case, inlaid with Ivory, centri-huted by the King of Portugal, 654. Writing-case from Sweden, ib. Exhibits of writing-desks in the British Department; remarks thereon, ib. Exhibitors and Awards, 655.

Warrino-Parza. See Paper, Sr.
Warrino Parza. See Paper, Sr.

Wrottesley, Lord (Associate Juror). xxvii. Wuest Brothers, 448.

```
Wulff, Jens, and Sons, 471.
Wunder, L., 615.
Wurm, --, 302.
```

WURTEMBURG-Dried fruits from, 56, 57. RTEMBURG—Dried fruits from, 56, 57. Achromatic telescope, 261. Chemical opparatus, 297. Speciment of lines, 373. Specimens of mixed fabrics, 376. Spe-

Wüstish, -, 687.—See also Eckelmann and Wistish. Wustlich, O., 687, 639.

Wuttig. -, 442. Wyatt, Digby, 689, 695, 716, 741. Wyett, R. J., the iste, 681, 692.

Wyste, R. J., the late, see, co-, Wyhuro, Meller and Turaer, 193. Wylde, H. (Juror), xxvli. Wynants, C., 201. Wynkyn de Worde, 400.

Wynne and Lumsden, 552,

yun, L. C., 686, 694. yun, L. C., 686, 694. you, W. (Juror and Associate), xxiz, xxxl, xxxii; (Exhibitor), 686, 693,

Xheffray and Co., 360, 361.

Yarborough, Earl of, 684.

Yardley and Statham, 615. YARNS.-General remarks on the cotton yarns exhibited, ARKS.—General remarks on the cotton yarns oxnunicu, 347. Specimens exhibited, 348, 349. The dyed yarns not warrhy of especial mention, with the exception of the Turkey red showe by Leumarm Bro-thers, of Switzerland, 347. Specimens exhibited, 348, 319. Specimens of dyed woolles yarns in various

colours. 450

Different descriptions of worsted and woollen yarns, 359. The Jury do not report on Berlin or embreidery yarms, 320. The Jury do not report on Berlin or embreidery yarms, descriptions of the second o manufacture of Merino cloth, ib. Samples of Merino yarns exhibited, 359, 360. Peculier kied of barege yarn exhibited, 360. Samples of lustre worsted yarns, ib. Speexhibited, 39th. samples of instre worsted years, or. spe-cimens of woolles yarms numerous and generally good, ib. List of exhibitors contributing the best samples, ib. Specimeas of hosiery yerns from Leleester good, ib. Deserved fame which the Leleester houses have long

maintained for the production of this class of yarn, ib. Casbmero yarns of excellent quality exhibited by -Carbinero yarns of excedient quality exhibited by — lindenlang, ib. Good samples of yarns made from a manufactured for the control of the con gonie wools, 478

Observations on the specimens of flux and hemp yerns uservations on the specimens of max and nemp yerns exhibited, 370. Little competition in mill-speu yarns, ib. Ireland not adequately represented, ib. Specimens of fair quality from Scotland, &. Excellence displayed in the various specimens from Belgium and Prussia, ib. Samples exhibited, 371, 372, 373.

Yetes, Emms Jane, 315. Yates, G., 253. Yates, Il., 507.

Yates, Haywood, and Co., 507.

Ybarra, J., 491. Yeates, —, 262, 273, 281, 300.

Yeates, -, 202, 2-4, 201, 500. Yeates Bernes-Samples of, from Cubl, in Derbent (Russia), 91.

Trillor Ochar Specimens of, from Trinidad, 17. Yolland, Capt. W. (Associete Juror), xxvii. York and Sheepshanks, 353.

Young, C , and Co., 189. Young, J., 41, 43, 50, 625, Young, W., 509.

Younge, R. (Juror), xxix. Youzbush Mahomet Khan, 159. Ysasi, M., 583. Yun-kee, 163.

Yurghouson, -, 79. Zaniberg, J. C., and Son, 359, Zakharoti, S., 89, Zaloghin, —, 368,

Zaloghin, —, 368, Zaman, Messes, 555, Zavagli, P., 162, Zayas, J. 84.

Zechlin Glass Works (Prussle)-Collection of chemical apparatus made at, 297. Zeegers, F., 549, 551.

Zeegers, F., 549, 551. Zegciaer, —, 450. Zeigler and Co., 459. Zeisel, J. and J., 380. Zeisig, H., 470. Zeitler, J., 674, Zeitlinger, J. A., 491. Zeitz, J. F. 387.

Zeller, F., 32. Zeller, Felix, and Sons, 367 Zemberg Mise (Hungary), 21. Zerack, -, 302. -, 307, 308

Zibermayer, -, 307, 308 Ziegler and Hausmann, 357. Zeigler-Pellis, 542. Zilfoogar Beck Iskander Beck Ogli, 53.

Zilleger bech Musander Beck Ogli, 5a.
Zimmer, C., 26.
Zimmer, Sheet zine for roofing from Breslau, & Assortment of sheet zine from Breslau; remarkable execution of some samples, as thin as paper, & Specimens of aine over from different mines in Mülheim or Ruhr, & Mannfactured sine, of fine quality.

Mannfactured sine, of fine quality, Stephenson, Stephen

also Castings, Zine

Zinc, Culoning or—Samples of, 43.
Zinc, Gargen Oxide or—Samples of, 43.
Zinc Manuractures.—Limited use made of sine 30 years

C MANYACTURE.—Limited use hadde of ane 30 years, a. & Extraorism of the high speed fold, and another than the second of the second of the second constant of the second of the second of the second to home painting, 26. Extent of the works of the Company, ib. High character of its products, ib. Nu-traorism of the second of the second of the second years of the second of the second of the second of the States of the Zollverein, 40%. Use of this needs in the country confined theight to the mannfacture of house-country confined theight of the mannfacture of house-ters. country conduct chieffy to the manimicure of acoust-hold utentils, & Extensive use of this metal on the Continent for castlags, & Effect of castings generally good, & Specimena exemplifying the various sases to which sian may be applied, & Zino might be ad-vantageously employed to a larger exteat, & List of Awania, 503, et seq.—See also Castings, Zinc. C, Daton or Goo Zino Wurre).—The introduction of

this oxida in the place of e salt of lead a remarkable this carda in the place of e sail of setu a reconstator everal in the history of the clessical arts, 42. This application first successfully ande in France; is rapidly extending, ib. How prepared by some of the exhibitors, ib. Specimens of white paints manufactured from oxide of a inc., 43. Samples of this oxide, 4, the control from oxide of a inc., 43. Samples of this oxide, 4, the control of the oxide, 4, the control oxide oxide, 4, the control oxide oxide, 4, the control oxide, 4, the control oxide oxide, 4, the control 45, 47, 48, 49, 50,

ZINC. SULPHATE OF .- Price per pound in Germany, 49. Samples thereof, 50. ZINC, YELLOW CHROMATE OF Samples of, 43.

ZINCOGRAPHY—Natice of specimons of, 688. Nature of the process, 696. Its great adventages, ib. Zlataoust imperial Steel Works (Russia), 33.

Ziataoust Manufactory of Arms (Russia), 33. Zohrab, E. (Juror), xxviii. Zohrab, M., 364. Zolesi, S., 34.

OLLVERE

IN .- All those mining districts of Germany re-ARTARIAN. All those minling districts of Germany regularies at classical by the entitypiny of their works, or agacted as classical by the entitypiny of their works, or agacted as classical by the story, silven size of the entity of the enti Neighbourhood of Siegon one of the most remarkable Reignbourhood of Segon one at the most remarkable of the mining districts, ib. Spathic from as abundant in the Stolberg as in Styria and Carinthia, ib. Importance of the mines of copper in the bituminous sehist of Mans operations and large establishments, a character entirely different from that of the other mining districts of the Zollverein, ib. Silesia the only country in Germany where the manufacture of Iron in the English fashlon where the manufacture of root in the Sagian manion is carried on on a large scale, ib. Annual production of Silesia In bar and pig iron, ib. Valuable deposits of calamine, very easily worked, included in the palacozoie rocks of Silesia, ib. Manufacture of zinc in Silesia, ib. rocks of Silesia, ib. Manufacture of zine in Silesia, ib. Considerable deposits of mineral fuel possessed by the Zollverein; relative production of coal in the different states of the League, ib. Beds of excellent lignite found on the Rhine, in Saxon Prussia, in Silesia, and near Breslau, ib. The exhibition of the mineral wealth of the States of the Zollverela not corresponding with the the states of the Zolivereln not corresponding with the relations and variety of the mines, \$\text{is}\$. Enumeration of the objects which have been noticed by the Jury; names of exhibitors; rewards granted, &c. 1st. Speci-mens of iron ores and bar iron, \$0, 31. 2ndly, Natural steel, histered steel, and cast steel, 31. 3ndly, then of lead and metallic lead, \$\tilde{0}\$, 4thly. Zinc and endmium, \$\tilde{0}\$. \$\tilde{0}\$, \$\tilde{0}\$th, Copper, \$\tilde{0}\$, \$\tilde{0}\$th, Copper, \$\tilde{0}\$, \$\tilde{0}\$th, \$\tilde{0}\$th, Copper, \$\tilde{0}\$, \$\tilde{0}\$th, \$\tilde{0}\$th, Copper, \$\tilde{0}\$, \$\tilde{0}\$th, \$\tilde{ 10th, Coal, coke, lignite, and bitumen, 32. 11th. Amber, 12th. Working of salt mines and purification of

salt, 6b. 13tb. Millstones, marbles, and refractory clays, 6b. 14th. Geological maps and collections, 6b. No agricultural produce from the Zollverein States worthy No agreedural prestuce from the Zoilverein States worthy of notice, 22. Excellent quality of the apeciment of of notice, 22. Excellent quality of the apeciment of the State o

s, 198. Specimens of sman arms. Remarks on the brass musical instruments from

Germany, 331.

Cotton manufactures, 348. Immense quantity of woollen Cotton manufactures, 348. Immense quantity at woollen goods, 351. Their excellent quality, if. America the chief market for these goods, 352. Specimens of woven stuff goods, 336-338. Worsted yarm, \$76, 360, 361, 361. Silk fabrics, 394-398. Mixed fabrics, 374, 375, 377. Collection of shawle of various descriptions, 350, 352. Specimens of fars from Praysia, 367., Samples of various

kinds of leather from Prussin, Hesse, and Bavaria,

kinus of testuer from trussa, news, and navarra, 314, 392, 333. Specimens of veilum and pareliment from Erfort (Prassia), 334. initiative and statistics of space-making in the States of the Zollverein, 443-442. Pericums of paper and mames of exhibition, 442. Various specimens of ar-History

ticles of fancy stationery, 442. Yarrow specimens of ar-ticles of fancy stationery, 448.

General remarks on the printed goods, 458. Specimens of honey from Saxony, 478. Boots and shoes from of honey from Saxony, 478. Boots and slikes from Prussia, Luxemburg, and Beer, 480. General bard-ware and from manufacture, 4.5. Works in the preclaims metals, jewellevy, &c., 511. Set of magni-ficent chesime from Hanna, Prussia, 512. Shield presented by the King of Prussia to B.R.H. the Prince of Wales on his christianing, 514. Specimens Prince of Wales on his christening, 314. Specimens of articles manufactured in onys and agate, from Oberstein (Prussia), 517. Specimens of jewellery from Hannu (Prussia), is Works in silver from Leipzig, Saxony, is. Vase and candelabra of estimation inside with silver, from Berlin, is. Tenservice

from infald with after, from Berlin, ib. Ten-service of coloured cornelian, from Oberstein (Prussia), ib. Yarims articles of Jewelley from Prussia, the Grand Darly of Hesse, Nassau, and Slevin, 520. Veined Carrar markle chimney-plue from Cologne, 563. A few objects in marble of a miscellaneous character A rew objects in marrie or a inviscinaneous entracter contributed from Germany, 564. Specimens of Inside work in marbic, 569, Specimens of cements and similar compositions from Wurremburg and Prussia, 574. Spe-elmens of terra-cotta works from Wurtemburg and Prussia, 583. Specimens of carving in ivory, from Nassau, 309. Specimens of straw work and straw plaiting from Prussia and Wurtemburg, 602. Notices of the principal works contributed by the several counof the principal works contributed by the several countries forming the Zoliverein, to the Fine Arts Department of the Exbibition, 697-700, 707. See also Barcaria. Hesse Consel, Electroate of, Hesse Durwatudt, Grand Ducky uf., Prussia. Oblemburg. Surv Gotta.

Duchy of, Sarony, Wartenbury.
Zolotoreff, J., 160.
Zoolfres, Collection of zoolites from Trappear rocks in

America, 1 Zos, Widow Carl, 20

Zuber, J., and Co., 41, 50, 548, 551, 718, Zuccani, B., 507.

Zuccani, B., 507. Zuccani, E. (Associate Juror), xxx. Zuleages, E., 221, 517, 687, 765, 746. Zulucta, J. De, 63. Zupringer, T., 475. Zurban, —, 718.

Zurbon, -. 718 Zurrer, J., 367. Znurdeeg and Son, 359, Zwecsaardt, -, 406.

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CATALOGUE

Great Exhibition of the Works of Industry of all Nations,

1851.

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ADVERTISEMENT.

PREFACE TO THE OFFICIAL DESCRIPTIVE AND ILLUSTRATED CATALOGUE,

PERHAPS no statement connected with the appearance of this work is calculated to create more surprise than that the greater portion of it was netually in type prior to the first of May. Its condition at that period may be thus described. The manuscript accounts of the articles of a large number of the Exhibitors had been compiled, set up in type, and subsequently condensed, annotated, and up in type, and subsequently condensed, annotated, and revised, and required but a little more attention to fit them for publication. In addition, a large proportion of the illustrations were completed and fit for printing. But at that moment, what was the condition of the Exhibition Building itself? Only on the morning of the first of May were tickets affixed to a few articles in a few Classes, and the position of many Exhibitors, even on the British side, was not finally determined. This arose out of the efforts made to obtain a strictly classified prrangement of articles on this side. Many articles placed in the hurry of preparation in the space allotted to one Class were improperly thus placed, and required to he removed to other Classes; and a large number of explanations were found to have been received from Exhibitors who bad ultimately not been able to send in their goods in time. Whilst many Classes were arranged rapidly, others remained, owing to peculiar difficulties, in a state of great incompletion, and incessant alterations of the numbers and positions of the Exhibitors were necessary before they could be considered perfect. During this time, which is to be reckoned by weeks rather than days, the number of additional manuscripts received from Exhibitors who had neglected sending them in until long after the opening of the Exhibition, was immense, and the adjustment of the additional matter thus created was

in itself a difficulty not to be easily subdued, While an amount of order-surprising in its extent, though imperfect in the degree requisite for the publication of a work so couldy in its preparation as the present
—reigned on the British side of the Building, the state of
that devoted to other nations could scarcely be entitled to that term until a mouth subsequent to the day of opening, Many foreign states had not sent in their catalogues, and the arrangement of their productions was very imperfect.

The peculiar nature of the Catalogue, also, as a work

produced by many thousand authors, naturally brought npon it, through the medium of the small Catalogue, the corrections of a large number of those whose manuscripts formed its foundation, in addition to those rendered necessary, in order to obtain some degree of uniformity in the literary composition.

The combination of the elements of disorder thus presented has never before arisen to oppose the publication of any work in this or other times; and its effect upon its preparation is only to be estimated by those who have watched its progress, and are familiar with the complicated arrangements necessarily preceding the production of any printed book containing illustrations. The great extent of the Catalogue rendered the disturbance of any of its parts absolutely fatal to its publication in a reasonable time, and oven in a moderate condition of accuracy. In the midst of all these adverse circumstances an attempt was movie to publish it as speedily as possible after the opening of the Exhibition; but this attempt was rendered fruitless in consequence of the alterations of position in that already set up.

Under these circumstances the Contractors, auxious to produce so extensive a work in as perfect a condition as ossible, resolved, at considerable loss to themselves, to delay its appearance until every alteration of importance had been made in the arrangement of the Building and by Exhibitors themselves. In this state it is now published, and is intended to serve as a lasting memorial of the splendid collection of which it professes to be the exposent. When its magnitude is considered, and due into moding which is not in harmony with the spirit of regard half to the great difficulties inseparable from the the motor on the title-page; and, while descriptive of the production of an illustrated book of this kind, it must be acknowledged that the period occupied in its published that the period occupied in the production of the productin of the production of the production of the production of the pr

ention has been comparatively brief and its preparation

The due appearance of the smaller Catalogue, on the first of May,—in itself, perhaps, one of the most remark-able instances of rapid typographical execution ever accomplished,—is also an indication of the substantive pre-existence of the present work before that date, since the smaller Catalogue is only a very condensed summary of the present, and was derived from the material forming the illustrated edition. The difficulties attending the publication even of that work, may be gathered from the fact, that only three days before it appeared was the order of succession and temporary arrangement of the Exhibitors in the Building determined on; and in that short interval, and before its publication, their arrangement in the Catalogue had much of it to be made. For an account of the method adopted in the pre-

paration of this Catalogue reference should be made to another page. It is, however, due to those whose valued assistance has added so much to the permanent interest assistance mis source or many to the state, that there are several portions which could not, by pressure of time, be submitted to the benefit of their revision, and for such, and the general scientific accuracy of the work, the sub-scriber to this notice must be considered alone account-

able. That the following pages are to be considered free from technical and scientific inaccuracies could scarcely be expected; but much care and labour have been expended to give them, as far as possible, this character,
The consideration just named may also render expedient

if not necessary, a simple statement of the part fulfilled by the writer in connection with this work. The production of the general plan of the book, its development, after sanction by the Executive Committee, and literary construction out of the crude material obtained after compilation from the manuscripts of Exhibitors—this material resulting from the official instructions given for the compilation of the Catalogue, and the term compilation including, in this case, merely the rough preparation of Exhibitor's manuscripts for setting up in type, the resulting matter being consequently in a very imperfect state -with the general literary and scientific apportatedence and management of the work-these have formed the occupation of the writer in connection with it, and for these he may be held responsible. As the result of the combined labours of the scientific annotators and of the combined labours of the scientific annotators and of the writer, and after having reveived official sanction and revision on the part of the Executive hy the officer appointed, this Catalogue is now put forth. The constant effort of the writer bas been to prepare a work of permanent value and cadming interest. May it be shown in the issue that the labour bestowed upon it has

not been in vain. At the period when this work makes its appearance in a complete state, the Exhibition is about to close. The first function of a Descriptive Catalogue can therefore scarcely be fulfilled ere the great spectacle it illustrates will pass away. To those wonders of Art and Industry which man, taught by God, has been by Him enabled to accomplish, it will prove a guide but for a brief period. But its more permaneutly valuable offices then commence; and it may be reasonably hoped that, as a record of the most varied and wonderful collection of objects ever beheld, and as a book of reference to the philosopher, merchant, and manufacturer, it will constantly prove both interesting and instructive to the reader

It is probable that, with the return of the Exhibitors and of the articles to the numerous localities abroad whence they were derived, copies of this Catalogue will be sent, and taken also, and that these pages will be read in many lands long after the Exhibition shall have become matter of history. May they be found, on examination, to con-

ROBERT ELLIS.

OPINIONS OF THE PRESS.

"No work published of lase years has a history so remarkable as that of the Official Cutafron. The work was already designed in 1850, and the right of publication was recorded by the order of the cutafron of the cutafron cuterrained of its plan or ever of its authorship. Utilmately it was decided that the exhibitors themselves should be the subton; and with a view of assisting the prives for their guidance. The result of such a decision can be more easily insigned than described; and the labours of the cellors, Mr. Robert Ellis, in redering the labours of the cellors, Mr. Robert Ellis, in redering the Hercelors.

"The three volumes may be divided into four parts. First, the introductory matter, comprising a history of the enterprise by Mr. Henry Cole, an account of the building by Mr. Digby Wyatt, and of the compilation and revision of the Catalogue by Mr. Robert Ellis, a classification of the objects by Dr. Lyon Playfair, and a map by Mr. Peterman. After the introductory matter come, secondly, the entalogue proper, written by the exhibitors in the manner above described; thirdly, the system of introduction to elasses and countries, with scientific annotations; and fourthly, the illustrations. Of these four quarters, the chief popular interest will probably attach to the first, and especially to Mr. Cole's introduction, which tells the tale of the origin and progress of the Great Exhibition. The anthor glaneing back observes that such institutions as industrial displays, in which the race is for excellence, and direct commerce is not the primary object, have taken and affect commerce is not toe primary copies, may taken place during the last century; and be dwells with proper emphasis upon the fact, that from the first they have been entirely originated by individuals or societies, inde-pendently of any Government assistance. He then gives a sketch of the various minor exhibitions instituted by the Society of Arts and other societies, with a passing allusion to the important subject of the national exhibitions of Frunce. Perhaps a greater detail was desirable on this part of his task, counsidering the importance that was ttached to a report on the last French Exposition by Mr. Wyatt, which undoubtedly furnished valuable elments in matters of detail towards the development of the Great Exhibition itself. To this succeeds a complete history of the nudertaking, showing its adoption by Ilis Royal Highness Prince Albert, the origination by him of the great idea of summoning all civilised nations to take part in it, the early difficulties through which the promoters of it had to struggle, and the arrangements mecessary to its proper ordering and final institution.

Mr. Cole evidently considers the great feature of this
Exhibition to be the thorough development of the selfsupporting principle on which it was catallished. We may take the following as the expression of a very general feeling on the part of the Royal Commissioners upon this

These who have had reprience only of the Couliment systems of collisions, which we managed and surrical systems of collisions, which we managed and conferenced the collisions and effective principles and the collisions of the collisions of the helpide should be collisions of the collisions of the helpide should be collisions of the collisions of the helpide should be collisions of the collisions of the helpide should be collisions of the collisions. The principle collisions of the collisions of the collisions of the collisions of the face and the underliked responsibility, not only of contacts and the underliked responsibility, and only of contacts of the collisions of the collision of the collisions of the works on a satisface of the collisions of the collisions of the collisions. On Satisface Exclusions are not been charged with these. On Satisface Exclusions are not been charged with

In payment of the militery and police assistance which to Government, has presented to be employed on the oreasten. No enspired popularisms has been the organism-incipal connection, the opportunities of the contribution of the fact of the contribution of the fact of the contribution of

OThe result has demonstrated the wisdom and the ruces attendant upon this career of honourmble independence, and has taught on a grand scale the truth of the popular aphorism—Heaven helps those who help themselves.

"Mr. Wyatt's account of the construction of the Crystal Palace is a good appearent of an architectural paper, par-Palace in a good appearent of an architectural paper, reader. It is divided into two parts—she first treating of the building as it atand; 'the second,' of its creation.' The progress of the structure is traced in this paper from The progress of the structure is traced in this paper from the progress of the structure is traced and the paper and the paper of parts are also as the paper of the paper, and contains an internal paper of glass. The subplaced extract will indicate the general character of the paper, and contains an instendant appear the progress of the Exhibition Initialing;—

The change of the same one of presented formulated infinitely, from the difficulties, from the system of present of the system of the state of the system of

To exching the men sat at the end of the platform ment to whater work hall been late done; from which they pushed the stage backward sufficiently far to allow them to lasers i spon of glass, mid a soon as that was the stage of the stage of the stage of the stage of the interrupted (produced to the stage of the stant and west ends interrupted) (produced to transpire the team and such as the interrupted) (produced to the stage of the stant and west ends working the machines was very remarkable. By mean of them 50 men in one week put his purposited [51,339 panel of gloss, being not less than \$62,500 feet unperful. The was 100, being \$62,760 feet (before of gloss).

⁸The third introductory article treats of the difficulties through which the Catalogue had to pass, from its first stage, as exhibitors' manuscript, to its completion in in prevent form. No person can read it withmut wender that after such a complication of perplexities the book ever made its appearance. The following givens notaline of one of the first troublet into which it fell in its progress towards perfection: —

*So soon as the work actually commenced, a mechanical difficulty of no commen proportions precented incid. On the distribution of proofs for the purpose of annotation and incomparison of the proofs of the proo

same form and order as that assumed prior to their dispersame norm and other as that assumes prior to their subpre-tion. The substitute of the and immediately affixing the proper place of such a minute strip in a work of such oughttude as the present, seemed to be great. A simple method of ascertaining, not merely to be great. A simple method of ascertaining, not merely the place in the Catalogue, but its entire history, its desti-nation, annotator, and return, was, however, contrived, and the history of every proof has thus been accurately re-corded. The information thus obtained was so necurate and precise that on the temporary delay of very small proofs their destination was instantly discovered, together with the date of transmission and the name of the annotator must me uses of transmission and the name of the annotative to whom they had been sent. Much ponentiality characterised the return of the dismembered portions of this large volume. Had not such been the case, the original plan of scientific and technical revision could not have been persisted in."

" Of the classification of objects compiled by Dr. Playfair, with the assistance of eminent persons in the various arts, we can say no more than it is an elaborately accurate skeleton of the philosophy of industry and art.

"The Catalogue Proper is thus arranged:—i. United

Kingdom, classes 1 to 30; British Colonies and Dependencies, which are thus subdivided—a, British possessions in Asia; b, in Europe; c, in Africa; d, in America; e, in Australia. To these succeeds the portion of the work devoted to Foreign States, commencing with Austria and ending with the United States. The British Catalogue extends over 1,002 pages, the Foreign over 470. In the former are iscluded the united catalogues of almost all of our colonies and dependeocies, with that of Great Britain ; in the latter are the distinct catalogues of every Foreign State, even when, as in some cases, these were not ren sented by more than two, or even one, exhibitor in the Industrial Palace

"It would be impossible to give an adequate idea of this portion of the work without such copious extracts as would swell this notice to an unusual and inconvenient length. Besides it might happen that the sacrifice of our space would receive on adequate compensation in the ap-probation of our readers. The wagaries of exhibitors, which would undonsteedly have proved amusing in their original shape, have necessarily been toned down to an noiform monotony, and the task of selection would be odvantageous neither to render nor reviewer. Something, however, should be said of the annotations, which form series of short and pithy notes, which will always make them not less interesting than instructivo to readers of every class and position in society. Their essential cha-racter is less commentatoriol than elneldatory. They ore exclanations and additions—unt criticisms. They ore intended to give value to what might otherwise have eccaped appreciation, and importance to subject whose significance the general reader might not have otherwise ength. They often consist, it is true, of simple enuncio-tions of known facts; but they are so associated with the text as to give nanual force and prominence to the most nuiversally accepted truths. At the same time the octual amount of information they embody offers a very com-plete view of the sciences which are now daily ministrant to industrial progress.
"We regard the introductions to the different classes

ond countries as among the most valuable portions of this work. They are all, with one exception, the production of the scientific superintendent of the work, Mr Robert Ellis, who has contrived to indicate distinctly in a single page the most prominent objects of every class or dependency

"The addition of an index of nomes and a separate one of subjects adds great value to this Catalogue. system of classification renders the work of easy reference to the end of the Catalogue of the United Kingdom; hot beyond this it would have been of little use to the reoder without the indexes. In fine, these volumes may be accepted as a very valuable addition to the stock of useful practical knowledge. Independently of the extraordinary undertaking which they are intended to commemorate, they form a collection of facts connected with the industrial progress of the civilized world which carnot fail of luxury, the symbol of his peaceful intercourse, the enta-

producing important results for the future; and even admitting that greater care and more leisure might have produced a more complete work than the Official Cata-logue which lies before us, yet it must equally be admitted that the production itself in the short space of a few months is not the least wonderful event among the wonders of the Great Exhibition."

"A work of immense magnitude, and most carefully and elaborately compiled. Produced with the assistance of men of science, it is intended to form a scientific, historical, and illustrated record of this gathering of the orts, products, and industries of the world; and when finished it is likely to be one of the most interesting manuals of general information in the English language.

"This will be a great is del for all men's shelves; and the Assas Mirabilis 1851 will live in its pages, long after the longest assignable duration to Mr. Paxton's prodigy of glass and iron."

" In the compilation of this catalogue, the official contractors have evinced not only enterprise and activity, but an extraordinary amount of care and of consciunting application. Nothing searcely could be more clear than the whole arrangement of the contents, more easy of reference, more complete even to minuteness, or more com-prehensive in their entirety. Those tooching and majestie nes of Holy Writ are with a solemn significance inscribed upon the title-page-"The corth is the Lord's, and all that therein is: the compass of the world, and they that dwell therein."

"The two 'Official Catalogues' must not be overlooked;

they will be historical monments. The larger estalogue, which is descriptive and illustrated, is a work interesting which is descriptive and illustrated, is a work interesting in itself. The introductory chapters give a locid account of the story of the Exhibition, from its first conception through all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution; and the illustrough all the stages of its execution. trative woodents will render it a delightful work to turn over hereafter, when the images have somewhat faded in our memory.

Examiner.

" Jules Janin has been lately eloqueut on the theme of British punctuality, and there surely never was n more merrial poncenanty, ond there surely never was a more marriellos exemplification of the quality that so stortles the lively Frenchman than the appearance of the Catalogues of Messr. Spicer and Clowes for sale ou May-day morning. Up to a late hoar on the previous day the thing not only seemed impossible, but would have been so to any printer whose dictionary contained ce bete de mot; but, precisely as promised, the goodly quarto of three hundred and twenty pages made due appearance for n shilling, and will remain a really striking monument of the zeal and determination employed in this great enterprise."

Morning Advertiser.

"The progress of the human race, Resulting from the common labour of all men, Ought to he the final object of the exertion of each

In promoting this end
We are carrying out the will of the great and blessed
God."

"Such are the lofty sentiments recorded in imperishable "Sees are the torty sentiments recorded in impersional print, poin the page of a mere catalogue, which, or our prescience is worfully at fault, will be treasured among the most remarkable records of this age of rapid progress. To this dry list, as it seems at the first glance to be, will many a future reference be made. The subject-motter, we need hereby any rises above and 'goest beyond the mere scope of review. It is simply the dictionary of art and industry, the guide and expositor of man's progress, the indication of his state of civilization, the lexicon of his

Ingue of his domands and apprings, their positions, namber, and supply in the assess residuals 24. The initial year of and supply in the assess residuals 24. The initial year of prictions of the first versus of commerce, art, and industry, produced the first survival produced the first survival produced the first survival produced the produced the initial year of practice as yet without chart, chronology, are some of the major shoughts surgestion by a sight of the majorities and multifrations category of the subject of the subject of the subject of the survival produced the produced the survival produced the survival produced to the survival produced the survival produced the survival produced the survival produced to the survival produced to the survival produced to the survival produced to the social series in which we then the survival produced to the social series in which we survival produced to the social series in which we

here possess it.

"To omit mentiou if the diligence, enterprise and
executive ability here shown by the contractors, Messra.
Spicer Brothers, and Clowes and Sou, would be more
than an oversight, it would be a positive injustice,
"As a whole, the 'Official Catalogue,' like the great

vitreous palace which stores the invaluable tressures, deserves study as one of the monuments of the national industry in the year which gives it to the world."

Framiner

"Here in three handsome volumes we have the Eahbiton itself upon paper sizes the pleasars of the sight, and plea a great deal of information. What the eye loses, pietraes, shounding in these volumes, do a pool concentrated aid of about forty of the best attainable quides (writers employed for the purpose), who tell the story of the building thoroughly, and take as through it, giving justeresting information bout everything that it

These three volume, in short, see of a size somewhat commensures with their railycet, and of a quality that commensure with their railycet, and of a quality that most liberally indicate. There is a directory of muses connected with the understaling, are althitistion or otherwise, which ecceptes about above floody-princed directions, and the control of the control

Tools, Toothpicks, and Tow, to Towelling.

"The volumes of Messrs. Spicer and Clowes will of course be necessary farniture in every large library; and being anything but an nuinteresting estalogue, being truly a real living, talking record of the Exhibition, and talking moreover in a very pertinent and interesting manner, it will be a pleasant book for any man to have upon his

will be a pleasant book for any man to have apon his shelves.

"We need say no more to recommend this catalogue as a work most worthy of its object; a work that will remain for ever as the record of the famous undertaking.

We do not know with what pecuniary results the 'official contractors' may have brought their labourt to a close tit it is certain that they base perfectly kept faith with the public, and that among those who have largely contributed in various ways to the completeness of our industrial trimmph they have established a strong claim to be remembered;

Morning Herald.

"Among the many wonders which the Crystal Palace contained, the Catalogue itself, from the extensive arrangements attendant upon its compilation, and the gigauic encyelopedical size to which it necessarily a welled out, is not the least. We have now before as three goodly sized valunes, containing about 2,000 pages of engravings and letter-press, the result of the literary industry of many

menths, and the faint of the skill and intelligence of a bester rept of citizen commentation, and interpolations, the street of citizen commentation, and or repealed about the citizen commentation of the citizen comments of the citizen comments of the citizen comments of the same commentation of citategors, and systems are many point of interest to the public involved in the commenty point of interest to the public involved in the commenty citizen comments of the citizen comments of the confliction and responses. The same many citizens are comtracted in the citizens of the citizens of the citizens of many citizens of the citizens of the citizens of the citizens of many citizens of the ci

"Every branch of releme, as, and industry is here high and efficiently represented. The most enthing and thin and efficiently represented of the relation of the Exhibition, are here emboded, diversel of all the promping of partiality and all the inflamine of judge near. The literary department has been probabel over most analysis of the control of the properties of the properties of the properties of the minuses workey of object collected in the holding in 115th Part. I would be a support of the properties which it exemine, insumes the noriginal information of which the commiss, insumes the noriginal information of contrast which have then a promisent part in the Exhi-

"In addition to thee difficulties, which have been surmonnted to an invertible degree, it must be observed that the Catalogue embodies to a large extent the science of the control of the control of the control of the control terms of trude are been ja many instances, converted into the precise and embranch language of science; and we it is the control of the control of the control of the science of the control of the control of the control of the terms of the control of the control of the control of the terms of the control of the control of the control of the cauch litherto obtateles have been experienced by conmercial use in their endeavours to streed so not trade

"Of the manner in which the wood engravings, amounting to upwards of 1,200, have been executed it is impossible to speak too highly. They have all the delicacy and finish in many instances of steel; and from many months' personal observation, we can bear testimony to the accuracy with which forms the most complicated and elaborate have been transferred to paper. Unlike a cata-logue, in the ordinary acceptation of the term, it abounds in sources of amusement and instruction for every class and every taste, the vast collection of the Exhibition here finding its literary type, and furnishing matter for enter-tainment and reflection, as well to the fashionable render, the student, the man of science, as to the hard-handed sons of labour, by whose energies and industry the vast pile and its contents have been brought together. the respectable contractors, Mesers. Spicer and Clowes, have amply fulfilled all the stipulated requirements and conditions of the agreement causot, we think, be questioned. Indeed, we have reason to think that they have felt something of the dignity and importance of the ocrasion, and have neted with a spirit and liberality beyond, perhaps, what the pecuniary results would justify. One of the great obstacles to the progress of the work, as well as one of the chief causes of the great additional expense incurred, was the incessant necessity for the alterations of descriptions and places, and insertions of fresh material. In its preparation, however, an amount of literary labour has been expended which communicates to it a value enduring beyond that of the occusion of its production. The wast and wonderful accumulation of the production of human industry, of which it is the type and the exponent, was collected only for a time. Its intention accomplished and its objects achieved, the industrial store is being again rapidly scattered among the uations of the earth. The Illustrated Catalogue, the record of the history and objects of the Great Exhibition, will form an enduring memorial, which few of those who have rambled through the vast collection and can afford the means will willingly

be without. It is somewhat remurkable, as ovincing thu judgment that presided over the objects selected for illustration, that the bulk of them have been the recipients of priso medals. We have only one other observation to ake, and we feel called upon, in justice to the contractors, to offer it for the consideration of the executive committee. During the time this large series of publications was in progress, the greater portion of the ordinary business of the contractors was suspended-the Catalogue itself was put in type at least three or four times over; thus adding another very serious item to the expenses incurred. We another very scrious near or the expenses beautiful think when so many of those who have rendered good service to the Exhibition are being rewarded, it would be a graceful and appropriate set of liberality, on the part of the executive, to waive the claim for royalty, which the terms of the contract implied, even if they do not consider the contractors cutitled to any further remuneration."

"A few weeks more, and of the visible glories of the Great Exhibition but a visible wreck will remain. Memory, as we have said, may reproduce-and will-many a picturesque section und selected object; but less uncern records are required to inform us of the actual value. industrial and scientific, of those contributions from every quarter of the world which we have seen assembled in flyde Park.

" In the 'Official Descriptive and Illustrated Catalogue' we have such a record. The work is without a precedent in the annals of literature; and when we regard the cir-cumstances of difficulty that surrounded the task of its execution, the praise bestowed in those who modertook it can scarcely be too great. The contractors, in that enlarged spirit which appears to have entered into all that belongs to the Exhibition, engaged men of reputation and authorsty in every department of science and manu-facture to contribute such descriptive notes as should render the work eminently instructive. It, thus, contains a body of annotations which express the condition of human knowledge and the state of the world's industry in 185t :- and is a document of the utmost importance, as a summary report of this vast interuntional 'stock-taking, which no great library—nor any gentlemen's library, of those who aim at the collection of library standards—can hereafter be without. It is not the work of a day, a month, or a year; it is for all time. Centuries hence it will be referred to as authority on the condition to which man bud arrived at the period of its publication. It is at once a great Trades-Directory informing us where we are to seek for any particular kind of manufacture - a Natural to seek for any particular and of manufacture - a resource. History, recording the localities of almost every variety of native production—and a cyclopedia, describing how far science has ministered to the necessities of humanity, by what efforts the crude products of the earth have been converted into articles of utility or made the medium of that refined expression which belongs to the province of

"Let it unt be thought that because the Exhibition is over it has falfilled its purposes. It stands to the world in precisely the same relation as do the philosopher and his works. The individual will die; but the thoughts which have been born of him, the truths which he has discovered, live on, quickening and kindling other thoughts and truths. The Exhibition has lived its allotted time, and died; but this Catalogue is the sum of the thoughts and truths to which it has given birth-and which form the intellectual ground whereon the generations that we are not to see must build."

" It will be evident from what has been already stated that a more important contribution to a commercial country than the 'Official Descriptive and Illustrated Catalogue of the Great Exhibition' could scarcely have been offered;—and this will be yet more strikingly shown when we come to the consideration of the manufacturing sec-tions and of the contributions of foreign states. Regardless of expense, this work has been completed by the aid of a the state of the s

pendently of the editor's staff of assistants, some ten other gentlemen were called on to farnish technical informatio and lend the assistance of their knowledge :- so that all possible means have been taken to render the 'Official Descriptive and Illustrated Cataloguo' worthy of the wonderful gathering of which it is the permanent re-

Observer.

" It may be truly said that this is the most extraordinary work that has been ever brought forth in this or any other country, containing, as it does, a mass of infor-mation relutive to the matural and artificial productions to be found in every quarter of the globe, with descriptions of the nature, use, and history of each. If the object of such a publication had been merely to serve the purposes of an ordinary descriptive catalogue, it might justly be observed that for such purposes it has come forth too late, seeing that the objects therein described have been already withdrawn from our view; but these volumes are designed to serve purposes at once more important and more enduring. They are designed to preserve and to fix in the public mind a lasting record of the results to which the industry the ingenuity, and the invention of the world had reached in the year 1851, and to establish a sturting point whence future ages may proceed onward in the march of improvement.

"The first volume opens with a list of the illustrations, This list, simple as it may appear to the eye of an ordinary observer, is suggestive of the extraordinary character of the work in which it appears. The space devoted to this simple 'list' would suffice of itself to form a respectably sized volume; and hence may be inferred the enorme number of illustrations dispersed throughout the work, and which, when examined, are found to be in the beauty and the perfection of their execution, as well as in the judgment by which appropriate objects for illustration were selected, worthy of the occasion which these volumes

are designed to commemorate.

"In noticing this Catalogue, we purposely abstain from attempting to particularise any of the innumerable and able descriptions of works of art or of fancy, or the admirably-executed illustrations with which these volumes abound. Our reason for this abstinence will be appreciated when we remind the reader of the ulmost countless subects which are here described; and of the fact, that of these subjects some thousands are rendered the themes of artistic illustrations, the execution of which reflect the highest credit on the engraver. The publication of this Catalogue was a necessity, which, if left unsupplied, would have incalculably marred the benefits derivable from the great occasion which has called it forth. Great as was the good of calling all nations together to aid in a display such as that which has so long maintained an attraction as deserved as it was unparalleled, a still more substantial, though possibly a less brilliant result, will be found to consist in the valuable record which these volumes contain. To have produced such a Catalogue at an earlier period is now shown to have been impossible. The very magnitude of its merits conduced to create that impossibility; but even ut this period, and at future times impossionity; but even it this period, and at future times, however remote, it will be not less webcome, or less wainted. It was not not the time when a gathering of millions during a period of excitement caused by the feelings incidental to an occasion so imparalleled—it was not at such a time that such a record could have been productive of its destined good to the reader, however pecuniarily profitable a burried work might have been to the publisher; and, so far from regretting the delay, we rejoice at it; for by that delay the intrinsic merits of the work were enhanced, and its value stamped with an enduring character, which will remain as the best and most morally profitable result of the great industrial display of which it is a worthy and most invaluable record."

Weekly Dispatch.

"In addition to the medals to be awarded by the Jarors

memorative of the great event. In connection with this decision, we have received a suggestion which we deem well worthy of the consideration of 'the powers that be It is, that each medal should be accompanied by a copy of the Official Illustrated Catalogue. The Blustrated logue contains a mass of valuable information upon every branch of science, art, and manufacture, which renders it an invaluable work of reference; and its extensive diffusion among the industrial world, could not but be productive of the most beneficial results. And we cannot doubt that Messrs. Spicer and Clowes, the contractors, taking in so spirited and satisfactory a manner, would still further aid the views of the Royal Commission, by not permitting the question of expense to be altogether an insuperable element in the carrying out of what oppears to us a very admirable idea."

"An enduring and valuable record of the industrial marvels which the Crystal Palace contained. The time taken by the editors in preparing this Catalogue has been excellently bestowed. It was, indeed, not n work to be done in a hurry. By way of rade mecum to the Exhibition visitors, there was many acother volume of more manageable size devoted to special countries, departments, or branches of iodustry, besides that marvel of high pressure — the Official Catalogue. In the Illustrated Catalogue the attribute most desired was the permanency of its interest. By accurate well-sifted information, lucid arrangement, and wealth of explanatory designs, this end has been effectually achieved. Long after the rare and enrious contents of the Crystal Palace have been scattered over the world, this work will be valued as a memento and reflex of that marvellous collection. And if at some distant jubilee year another Exposition of human industry should take place under other conditions, and occupying, probably, a vaster space even than that which is now presented to our eyes, the exhibitors of that day will eagerly turn to the Illustrated Cutalogue as supply a standard by which to measure the advances they shall have made in their several metiers since the memorable year of 1851.

"Although, in compliance with the original design of its projectors, the Great Exhibition has itself only an ephemeral existence, it is satisfactory to think that the most ample and complete records will be preserved of its character and details. Few events have attracted such an amount of contemporary publicity. The pen and pencil have both been incessantly at work in perpetuating its industrial triumphs, and when all the material vestiges its industrial triumpla, and when all the material vestigate of the display are removed from our eyes, it will still the in a form the most valuable and enduring. The reports of the Juries in each class will obviously prove an important repertoire of facts and observations, and the information which has been collected in newspapers, in periodicals, and in other channels of instruction, may also be turned to excellent account; but it is to the 'lllustrated Catalogue' that we must look as capable of being made the most complete and satisfactory work of reference hereafter on the great industrial pageant of 1851. That publication now approaches its completion, for three parts of it have already appeared, and the foorth will soon be ready. It is intended that it shall be issued in three volumes, the first two of which will be dedicated to the products of Great Britain and her colonies, while the last embraces the contributions of foreign countries. As far as our own exhibitors are concerned the work is complete, and from the portions that have already been given to the public we are cushled to form a pretty fair estimate of its character and the style of execution. Of all literary labours, that of getting up books of reference is, perhaps, the most tedious and the most thankless. The bare name of a catalogoe kills the interest of the most indefatigable bookworm, after the collection of objects to which it was intended as a guide has ceased to be accessible. The pre-

standard reputation, and a large share of public patropage, when the grass has once more grown over the site of the Crystal Palace, and the great event of this year has be-come a thing of the post. From nunvoidable causes, the contractors, Mesors, Spicer and Clowes, are only complet-ing the last pages of their work as the spectacle to which it relates is about to close; but they need be little alarmed at such a consideration. It has an enduring interest in the mass of valuable information of almost every description which it contains. To put the industrial products of the world under a glass case was a woulderful feet to perform; but here we have a still more extraordinary example of condensation, partly executed and in process of successful completion. The Great Exhibition is reduced within the compass of three not very nawieldy volumes, and to the intellect in all respects, and in most important respects to the eye, its features and significance are preserved. Every object in the collection will be found noted down an described with the amount of particularity due to it. The promptings of partiality and the infirmities of indement are equally excluded from this unbiassed record. An extensive series of illustrations is made to embrace every object worthy of elucidation by the artists' power; and in order that the instructive character of the work may be fully sustained, annotatious written by men of the highest qualifications are introduced to explain processes, point out the character and uses of objects, and develop in brief terms the rationale of the more remarkable or le understood branches of human industry. With these fea-tures of interest, the popularity of the 'Illustrated Cutalogue,' when completed, seems secure. It will prove a complete literary type of the original to which it refers, opening up sources of amusement or instruction to every class of taste, and proving equally at home on the draw-ing-room table, haudled by fashiounble dilettanti, in the study, pored over by the scholar or the man of science, at the merchant's desk as a book of constant reference—in the factory, the foundry, the workshop, as a repertoire for designs, and as highly suggestive for future progress. A more pleasant work to dive into during an idle hour can hardly be imagined, for wherever it is taken up there is something new and striking, and worthy of uttention. The necessity for condensation renders prosing impossible, and the elassification of subjects secures an agreeable variety of subjects without monotony on the one hand, or a miscellmeous effect upon the other. Illustrations have been sparingly resorted to in the first portion, which relates to raw materials, but, as a substitute for this, we have tables and statistics of great value, and a large mass of information entirely original in its character. second part, which is devoted to machinery, numerous diagrams and sketches are introduced explanatory of the different objects exhibited. The ebief interest of the Catalogue, however, in this respect lies in the third and fourth parts, the lutter of which is still unfinished. three volumes will contain, altogether, about 1,200 illustrations, and the greater unmber of them will be given in the last volume, which will be dedicated to the foreign half of the Exhibition.

"This is the proper course to pursue, for the foreign contributions are those which it is most important to have sketched. We are informed that original information of much value and interest has been communicated to the compilers of the Catslogue from the different countries which have taken part in the Exhibition, and that this will form a prominent feature of the work when completed. At present, while the public mind is saturated with the subject, the introductory position of the book may not attract the notice to which it is entitled; but when we are able to look back upon the whole undertaking from a point in the future, and proceed to take its exact measure as an historical event, we shall not fail to be duly impressed with the remarkable character of the information there ontained. Within the limits of 107 pages are compressed Mr. Cole's account of the way in which the Exhibition was got up; Mr. Dighy Wyatr's description of the Crystal Palace; Dr. Lyon Playfair's classification of the artificial world; the directory of the scheme; the list of jarora; and the preliminary notice of the Catalogue by Mr. Robert sent, however, is an exceptional case, and we predict for the 'Illustrated Catalogue of the Great Exhibition' a Ellis, its editor. Mr. Cole's narrative is especially worthy of attention for the insight which it affords into the machinery, by which was projects like the Exhibition can be successfully carried out. Even in this country, where the principle of association is so thoroughly molerate, that machinery must be pronounced to be a master-piece of skilful combinations.

"Let us recall for a moment its chief incidents. A amail body of men, without any infinence of rank or wealth, and forming the conneil of what had previously been regarded as a useless society, conceived, as early as 1845, the idea of an Industrial Exhibition, national in its character. After one fruitless attempt, they engaged in a series of preparatory measures calculated to reader their scheme acceptable to the public and secure of its support. Four years of indefatigable labour claused, and they had gathered around their undertaking an amount of support which they conceived justified them In again bringing it forward. They lind placed it under the direct patronage of the Crown, and had seenred for it, as an appropriate head, the name and the personal exertions of the Prince Consort. A Royal Commission was appointed, in which men of all parties, irrespective of politics, were included In the meantime, the views of the projectors had expanded, and they resolved to give their scheme a cosmopolitan character. The great seats of our manufactures were successfully canvassed for aid, and foreign Governments responded to the invitations given to them, and promised respond to the co-operation. Yet even this powerful combination did not exempt the undertaking from perils that more than once threatened to be fatal. The question of ways and means was for some time a stambling-block in the path, and the Commission long hesitated to assume the pecu niery responsibilities which, in some way or other, it was necessary to provide for in consequence of the determination of Messrs. Munday's contract. At a most critical junc-ture Mr. Peto came forward, and, with a degree of public spirit and liberality which cannot fail to be appreciated, pledged his name for a startling amount. Then, when other difficulties had been overcome, the question of a haiding presented almost insaperable distacles. At the last moment Mr. Paxton end Messrs. Pox and Hender-son rushed to the rescue of the perplexed Commission, and after a succession of dengers, the scheme of the Exhibition was in safety. Had Mr. Cole's narrative been more detailed, it might have been rendered still more attractive; but the author, no doubt, prodently preserved atlence on points which would perhaps have been indiserect to touch upon; and the leading men in the Conneil of the Society of Arts having enined their object, are seen unietly resigning to more exalted names the honour and glory of an enterprise which they not only originated, but rendered practicable by their exertions. Of Mr. Digley Wyett's account of the building, and of Dr. Lyon Playfair's classification, it is nunecessary to spenk, as the public is already well informed on these subjects; but to the directory of the Exhibition and to the list of Jurors some amount of attention is fairly due. In these names ere comprised an extent and variety of practical and scientific talent, the nnion of which on eny one occasion, and for any given purpose, is altogether naprecedented. As the eye glonces over the seeming'y uninviting mray, it is im-possible not to be struck with the curious combination of persons which they present. Leading tradesmen and manufacturers ruh shoulders with the most eminent philosophers of the day, and science, descending from her edestal, mingles freely and phostentationsly with the followers of hard-handed industry. Not only so, but all the nations of the civilized world send the most disti guished of their citizens in the peaceful arts to sit in judgment upon the comparative excellencies of rival products, and to determine at polyglot conferences the stage of industrial progress which mankind have attained. The directory of the Exhibition and the list of Jurors, taken together, form one of the most remarkable organizations that the world has ever witnessed—au organization which, considering its objects, implies not only an act of homage to industry, but a guarantee to civilization. The pages of the 'lllustrated Catalogue,' which contain these names, are as instructive and reasoning as any within its Literary Gazette.

"The philosophy of the Exhibition has yet to be written; but whosoever would wield his pen in this high theme most take the Catalogue as his text-book, and discourse upon the sections which are stereotyped in its pages. We heard a wise man say, 'I enter this place as I would a church: the wonders of God are brought before me, and the achievements of man working in the spirit of truth are here displayed. I always leave this mighty huilding a better man than I entered it. The contemplation in quiet-now the excitement of the Exhibition and its thousands of visitors is over-of the Catalogue which registers its stores must have too its ennobling influences None can know the difficulties attending the construction of such e Catalogue as this who have not been netually engaged on such a work. Under all the circumstances of difficulty by which we know the undertaking to have heen surrounded, we are bound to declare that the work has been most ably performed in every department. Mr. Robert Ellis, to whom the editorial superintendence was committed, has worked most assiduously; and most of those gentlemen who were selected as annotators have added much to the value of the work. On the whole, we much question if in any country, in the same time, any book of the same extent, presenting so verious a character, could have been so well produced. The letterpress is unexceptionable; the wood-cuts are great infilithful; the registration, as far as regards the Exhibiess is unexceptionable; the wood-cuts are good and tion, is correct, and the notes of value. This is no ephemeral catalogue; centuries to come It will be referred to as marking an epoch, and indicating the point to which man had prrived in the industrial arts in the Year of Grace 1851."

Morning Advertiser.

"The reade, on jlanding over the page of this great production, is street, on less with the sumber than the contity, until one less with the sumber than the outly, until or greety, and west indestrial and conserved as a proper of the converse, it is all just to observe that they have more than kept fails with the continuous continuo

"To them, then, the public over a delt of gratitude, as adds—and no mean one—in the fraidion and perfection of adds—and no mean one—in the fraidion and perfection of adds—and one mean one—in the fraidion and perfection of our delta of the perfect
well as typographic excellence, 'time: 'Yet, how the difficulty has been grappled with, and almost utterly overcome, a careful collation of those vas columes will also with we noted ring examiner, 'Mo hall beneathy and diffigurity set him down the the hall beneathy and diffigurity set him down the the hall beneath to be the collation of the difficult task of definition and classification. The

collective idiosyneracies, the varying varieties, the clashing characteristics of 18,000 people of every class and of every nation, for such is the number of exhibitors, are here epitomised, arranged, compressed, chronicled, and, in many hundreds of instances, given to the eye in faithful, elaborate, and costly engravings.

"And all this is achieved, so that the last pealing died away along the huge ribbed curve of the transparent transept, ere the gorgeous gilt-telged record, which is all that shall remain permanently of one of the world's wonders, is laid, in its gay livery of blue and gold, noon the tables of its subscribers. In the words of Charles Dickens, applied to the smaller and cheaper issue, we have here e composition of fifteen thousand anthors; most of them anthors for the first time, who have had their excrescences pruned, and their diction occasionally mended. Now, the first production of an author, if only three lines, is usually esteemed by himself as a sort of Prince Rupert's drop, which is destroyed entirely if a person makes upon it but one single scratch. Some thousands of authors, therefore, must be dissatisfied with the attempts to make it available for public use."

"Thus far Boa's pleasantry as regards the cheap shil-lingsworth; but the 'Illustrated and Descriptive' essays a yet bolder experiment. While it retains the terseness of description, it adds annotations of equal purplicative, ability, and imperitality. These aids to a full comprehension of the Exhibition, from pens of the most qualified writers, set forth in succinct phrase the peculiarities, beauties, and characteristics of the various objects enumerated. This alone must insure the permanent value of the 'Official Catslorue," "

Baily News. "The 'Official Descriptive and Illustrated Catalogue' has now been issued in the form of three not over-bulky volumes. In the front pages of the first volumes are con tained a neat nrmy of industrial charts, of comprehensive induces, and introductory matters, which, along with the 'raw materials' and 'machinery,' form, on the whole, a pretty solid moss of information. The whole of volume the second deals as exclusively with all that is connected with the United Kingdom, as the third and last does with the industrial contributions of the 'foreign states.' lowing so closely as does the present publication on the heels of so many nimble forerunners, it must necessarily fullow, that much that it contains is not of a strikingly novel character, and to a certain extent, the present cat logue has lent its powerful aid in diminishing its claims to priority. Mr. Robert Ellis, the diligent and abla editor, has let us into all the secrets of the Catalogue's gestation. Its type, he tells us, was actually ready, and so were most part of its illustrations, before the memorable ist of May. One vast drawback, however, scon made itself manifest, inasmuch as that which, to the casual observer, might have seemed to contain all the necessary elements of order and symmetry, was, at least for the true purposes of the Catalogue's registry, confusion worse confounded. While some exhibitors had taken up positions which were clearly untenable, others weglected altogether to be at their posts. In this terrible dilemma, which it seems, lasted not days, but months, the contractors, Messrs, Spicer and Clowes, wisely adopted the plan before mentioned, of using the one, which thus acted as a feeler and test of substantive correctness. By degrees, as every one knows, successive editions were issued, in which lacunes were filled no. and inadvertancies properly corrected. And thus, by joint addition and elimination, we are now furnished with the most trustworthy industrial chart that has ever been issued. Besides these considerations, other notable influences were at work to retard progress: there were not merely self-landatory encominus to prune, unintelligible technicalities to lop off, and scientific jargon to pare down, the contractors had undertaken a higher, a more ardness, and more comprehensive task, that of being faithful exponents of the most striking features and instructive lessons derivable from the international gathering. The task, we are bound to add, they have executed in a lucid and masterly manner, which warrants the assertion of the

catalogue's baving been carefully revised by scientific It is pleasant for once to find science descending from its lofty curule chair, and electfully lending its aid to the sister arts. Somehow, one fancies that this is the auspicious dawn of another era; that the learned will no longer muffix themselves sullenly in the sheets of the encyclopedia; and one bails, as it were, the downfall of exploded and abstruse problems. Be this as it may, and without drawing any further distinctions between the commonly wise and the remotely sapient of this or any other generation, it may be fairly said that an immense fund of varied knowledge and sound gratification may be derived, almost at random from these volumes, and the countless facts disseminated throughout their 1,431 pages. "Those versed in chemistry, or endowed with a mechanical comprehension, will unturally revert to the first portion of the 'lllustrated Catalogue,' wherein we notice with satisfaction, not only indicated, but also illustrated, those specimens of buman skill and ingenuity to which of late, especially, the public mind has been attracted, since the long-expected awards of snecessful competition. In this respect, the promoters of the 'Descriptive Catalogue' seem almost to have been endowed with an intuitive, not to say a prophetic sense of individual merits. It must be acknowledged that, even looking at the succeeding volumes from the same point of view, they will be apt to convey impressions of greater interest. Many to whom the most hrilliant mechanical achievements are neither more nor less than singular contrivances, will have a tolerably accurate perception of purely ornamental achievements; these will dwell once more, if only in the faint recollection of them, on the glories connected with the 'Milanese win-dow' and the 'Veiled statue,' the 'Prussian shield,' and other illustrations, which, amid the priversal pictorial deluge, seem to have been withheld by their proprietors for exclusive insertion in the 'Official Catalogue.' It may here be stated that the embellishments to the letterpress have combined the lithographic process, steel en-graving, and wood engraving; though the latter, as usual, preponderates. The archaic pencil of Mr. Tenniel has given extra dignity to the cover as well as the frontis-piece, the latter of which is decidedly Maclisean in design. Let us turn over the tempting page. The arrayed list of contents and their exhibitors greet one, as it were, on the threshold, and by their twin aid we can steer through the tropbled industrial sen. Thus people, anxious to discover what species of heating apparatus has been rewarded by a medal, may search maler either bendings of 'stoves,' or 'Metternich,' and will at once be directed to the 'Austrian Section, No. 413.' Then, nearer home, may be found under either title of 'Tapestry,' or 'Silthorpe'—the latter, no relation we hope to an M.P. namesake—and so on it goes throughout works of more or less universal

"After dwelling in a sufficiently philosophical strain on the strangely varied host of individual characters con-tained in the list, and elbowing each other with alpha-betical respect and order, from His Royal Highness Prince Albert to Herr Zwickl, we next encounter a few brief but Affort to herr Zwiczi, we next encounter a rew ores out telling accounts of the rise and progress of the Great Exhibition. Mr. Henry Cole throws into his introduc-tory notice of the first stages of the proceedings, some novel traits which redeem its backneyed character. The construction of the habiding is narrated by Mr. Digby Wyatt in mingled facts, figures, and sketches. And lastly, Mr. Robert Ellis imparts to us a sense of the alarming difficulties he had to surmount in guthering together the thousands and one little manuscript slips of paper out of which one homogeneous work has arisen; justly remark-ing at the same time that the fact has bitherto been unexampled of bringing to successful issue a work of such monstrous complexity.

"The plan adopted in the long run was to direct atter tion at the opening paragraph of each section to the staple manufactures of the particular country or district; re-serving, nevertheless, purely exceptional facts to be ap-pended to that which was often its sole illustration. If the calm and venerable town of Frankfort exports the over that noxious weed 'chicory;' if the quiet city of

Leyden prides herself on her rigging; if Amsterdam, besides herrings for the million, produces horse-bair for the fiddlebow; Belgium, mill-stones as well as lines; all these facts, great and small, are carefully scratinised, and the weight in the balance of universal atility tested Following out the spirit which seems to bave dictated a gracefal impartiality towards our foreign rivals, the third volume, relating more specially to their efforts, has been evidently got up with extreme care, and a more lavish expendinger of illustration. Their jewellery, their da-mascene work, their laboured groups, their ingenious furniture, have received equal honours at the hands of the draftsman. We can only join in the hope expressed by the contractors, that with the elite of the exhibitors and their contributions, to the numerons localities abroad whence they were derived, copies of this catalogue will be not only sent but taken also, and these pages read in many lands long after the Exhibition has become matter of history. The 'lliustrated Catalogue, in its present comprehensive form, now affords almost the sole industrial source of fatare investigations which are professedly or in any way connected with the yet undeveloped resources of the nineteenth century.

Chemical Record.

" The list of annotators of the Catalogue, who have brought their practical knowledge to the clasidation of the various departments with which they were most conversant, comprises men whose names are guarantees of the value of the information furnished by them, and the appendage of whose initials to the articles described, sups the work with that degree of anthority, without which its practical value to the philosopher, the merchant, the manufacturer, or the general reader, would have been greatly lessened.

"We must not, in our notice of the introductory part of the work, omit to mention the valuable and interesting series of maps which adorn the commencement of the first volume, and on which the various manufacturing districts of our own and other countries are accurately delineated. and their natural productions shown,

"We cannot conclude our brief and imperfect notice of this important work, which Dr. Whewell commended in his inaugaral lecture at the Society of Arts, on Wednesday evening, without stating that the bighest credit is due to the publishers for furnishing so complete a record of the Great Industrial Exhibition. When we consider the immeuse difficulties attendant on the production of such a work-the joint production of more than 1,500 authors. whose varied contribations, in many languages, had to be classified and arranged, and, as far as practicable, onnotated and explained-when we consider that this vast amount of matter was actually in type at the opening of the Exhibition, before even the articles were fully arranged in the building, we cannot but regard the 'Official Illastrated and Descriptive Catalogue' as being itself one of the wonders of the Eabibition. As respects the general style and getting up of the work, we need only say that it is worthy of the publishers, who have evidently spared neither cost nor pains to bring out a work every way worthy both of the great industrial undertaking and of public patrouage and support. The library of the phisopher, the merchant, the manufacturer, the man of science and of refined taste, will be incomplete without the possession of a copy of this truly national work, which, interleaved, will serve the valued parpose of a record of the varied additions to our knowledge which every day present themselves to our attention, but which, the want of a suitable place for their immediate record, pass from the memory almost as soon as received New facts and discoveries, is any department of art and science, whether at home or ahroad, would here find a local habitation—a place in which to be recorded, always easy of reference and access-and thus a vast amount of practical and useful information, now lost, would be stored up for the future advantage of ourselves and others."

Mining Journal.

"Of all the various publications professing to treat of the Great Industrial Exhibition, none have in any way approached, either as regards accuracy or completeness. the work now before us. We believe there never was a work, the preparation of which was attended with so many difficulties; and we consider that the highest credit is due to the publishers, who preferred rather to run the risk of pecuniary loss, than to prescut to the world an inefficient record of an event, which-whether as regards the magnitade of its operations or the complete success which has

attended it - is without a parallel in the history of the world. "The annotations on the articles exhibited in the class of greatest interest to our readers, were wisely intrusted to Professor Ansted and Mr. Robert Hunt, and the result has been the production of a compendium of mining and mineral products, containing 70 pages of valuable matter, descring of publication is a separate form. The account of the nature and extent of the different deposits of mineral fuel in various parts of the world, written by Professor Austed, is replete with information. The remarks of Mr. Blackwell, on the series of iron ores contributed by him to the Exhibition, form a valuable treatise on the ironproducing districts of the country and the ores obtained therefrom, and elicited the marked commendation of Sir Henry De la Becha in his recent lecture at the Society of Arts. Mr. Sopwith's detailed account of the lead mines at Allenheads forms a useful treatise on this department of mineral produce, especially as illustrative of the various stages of progress from the mine to the market. Mr. Hant contributes a store of information on the tin and copper of Cornwall, whilst the general mineral produce is ably annotated by Professor Ansted.

The objects in the class of machines for direct use are illustrated in a very superior style, and their description is replete with sonad practical knowledge. The specimens of successful application of mechanical skill to objects both great and small, and their adaptation to useful purposes in the leading manufactures of oar country, form one of the most valuable portions of the work before us, containing, as it does, a history of the enterprise and industry of the mechanics of Great Britain, not to be met with elsewhere.

"The general style and character of the work through-"The general style and character of the work through-out is very superior, and the profusion of well-executed engravings with which it is adorned greatly enhances in practical value. The library of every Englishman will be incomplete without a copy of this truly national work, which will be headed down from generation to generation, as an enduring record of an event, which excited the wonder of the civilised globe, and formed one of the brightest phases of the present century.

We have from time to time heard various suggestions. put forth, as to the most useful mode of appropriating the surplus of 150,000l, is the hands of the Royal Commisscopers. We consider that in the distribution of this surplus, no country which took part of the Exhibition should be overlooked; and we see up practicable way of accomplishing this desideratum, more likely to give general satisfaction, than that of presenting a copy of the *Official Descriptive and Illustrated Catalogue mechanics' and scientific institution and public library throughout the United Kingdom, and also to the public libraries and institutions of the principal towns of the foreign countries which contributed to the success of the undertaking. Such a present would be a graceful acknow-ledgement of the assistance rendered by each town to the promotion of the general good, would meet with universal approbation, and give such as apportunity of including foreign countries in the distribution of the fand, as could not be well obtained in any other manner."

"Bot it is not as a catalogue, in the common sense of the term, that the three large and handsome volumes before as were ever intended to be considered, or could be used in the nature of things. They are not an introduction, but a comment; they follow, not precede, the vast collection which occasioned them, and our experience of it, The purpose of the entalogue is fulfilled if it moulds and enlarges our views and strengthens our recollections; for neither has it in fact accompanied the general mind to any large extent in the study of the Exhibition itself, nor did it mainly profess such an aim.

"The 'Descriptive and Illustrated Catalogue' is, then, a memorial of the Great Exhibition; and if that was nothing less than a compendium of the industry of the age and a concrete of its tendencies, this is a cyclopædia coudensed. It is well known that the best assistance was secured to render it a scientific no less than an accurate representation of the Exhibition in its several branches. France with her exquisite art, Austria with her proofs of wide and diverse empire, Northern Germany with her multiform thought, Russia with her massive productivegorgeomess, Egypt and Tunis with the lesson of their grand taste, as old as the world and as unalterable in its basis, our Colonics with the elements of their future-the nations from the four points of the compass are returning from our shores; England herself is resolving her congregated industry into its thousand constituents; the phenomenon is gone, and its habitation knows it not-too dubious of its own existence for long; but with these volumes in our possession, the fact will remain still a preseut fact. It has sumped itself not on the retina only and the memory-though it will not fade thence yet awhile, but here also, copiously and enduringly, to be referred to as yet with us. And if the record is valuable to us, its historical worth to future generations as a picture of the nineteenth century, in its products and results, in its ideas of itself, its belief of what it has done, and its expectations of how that is to be applied and rendered fruitful, and of what remains to do, is not easily to be estimated at the present day. We cannot match with it any so complete expression of a period, material and inventive. The age has impersonated itself, and sat for its daguerrectype. Whether we shall be judged as eminently moral or spiritual, or truly progressive, we must leave to the future :

but in one many-sided aspect we may expect to be known. "The work, as we have said, has been ably got up. It presents a very sufficient view of the transactions relative to the Exhibition, as well as of its actual components: hat we could wish, as the publication was onecessity post-posed to so take a period, that it had been drived some posed to state, a period, that it had been drived some many that the properties of the present post of th

"And to party give up what was meant for mankind." Atheneum.'

"The third volume is devoted entirely to Foreign States; and to see a mountherning state this redune is even more important than the effort ress. If there is a Directory to all the great producers of the data and now continued. If gives intelligence in connection with the producers of the continued of the continued of the stances engloyed—nech now could not by any other stances engloyed—nech now could not by any other actions to the continued of the greatest important the continued of the continued of the categories and control information of the greatest importtion of the Exhabition Charloge from the control of the other third of the control of the control of the other third of the control of the control of the categories of the control of the control of the control of the categories of the control of the control of the categories of the control of the control of the control of the control of the Challegory of the control of the con

"Such is an analytical review of the 'Official Description are an Illustrated Catalogue, compiled an arranged, the analytic challenges of the work. The descriptions furnished by the child of the work. The descriptions furnished by the child official child of the work of the descriptions furnished by the child official child of the child of t

ment snight be effected. Inst under all the circumstance of the time and the oceasion, we regard the Chislogue as worthy of the great phenomenon which it records. A work of permanent value, and enduring interest has been produced; and to all parties concerned it must be ashirt faceby to know that the labour which has been belstowed facturer, and the merchant, we repeat this Cattalogue must, for ever, prore an invaluable work of reference.

"The 'Hustrated Catalogue' is, it is true, but an echo of the Great Exhibition. Three volumes can furnish but a faint reflex of the varied works of industry that were erowded together in an area of nearly twenty acres, Such, however, is the power of graphic and typographic art, that in these volumes are contained the essence and very preguant sonl of that so vast body. Thus of roses may be compressed into a few drops of the most precious attur .- a vast volume of vapour may be condensed into one drop of water. Such is the relation which may be assumed to exist between the Great Exhibition and this its Catalogue. Should this record of human industry survive some thousand years, what a picture will it present of the universal activity, the fiery energy, and the indumitable activations of this truly iron age! When generations yet unborn, in turning over its pages, may yet reflect on the wonders of engineering skill and me-chanical refinement which were concentrated within the glassy walls of the Crystal Palace, and remember within how brief a period they had attained to such extraordinary development, the conclusion will be forced on their minds that if the will and energies of the public and the artists of the present day had been directed with corresponding intensity towards carrying the Fine Arts forward to the same degree of perfection, a result might have been realized equal to that which characterized the pulmiest days of Greece."

Weekly Rews.

"Among a profusion of excellent designs by fine-time artists, very carefully outgraved, each high desiring at attention, we amond bely calling to view the following as testimated to the control of the

Boston (American) Post.

Juries,' is the same size pages, and could be bound with it. In this magnificently illustrated work there are several thousand woodcuts engraved in the first style of the art, representing all of the most striking and beantiful objects shown at the exhibition. It will be, with the 'List of Awards granted by Juries,' the only complete, valuable, and enduring record of the 'Great Exhibition of 1851.' I doubt not but there are several score of exhibitors in the United States that will get this work. The articles in the United States department that are illustrated by engravings are the American Chair Company's chairs, Chilson's furnaces, Cornelius and Co.'s chaudeliers, Dennington's floating church, Philadelphia, Ericeson's nantical instruments, Goodyear's India-rubber goods, the Maryland cabinet of woods and other products, and Watson's gazelle

There were few of those splendid works of art from the United States that shone so conspicuously in the departments of many of the old nations of Europe. Powers's 'Greek slave' not long ngo (1850) was engraved in the London Art Jonenal, with a most fair, candid, and every way complimentary criticism. I will mention that Part V. of the 'Illustrated Official Catalogae' is done up as a separate part, and sold at fifteen shillings sterling, (som S4.) and that contains the United States part of the exhibitors, with those of two or three other foreign countries. In the 'Illustrated Official Catalogue,' all, or nearly all, the articles are described much more in extenso than in the brief one-line paragraph of the 'Shilling (50 cent) Cata-These 'Official Catalogues' are the only ones published that are deserving the name of cutalogues, the one called the 'Art Journal Illustrated Catalogue' being a mere list of a few prominent contributors, with engraings, without one-twentieth part of the contributors being mentioned. No person naw who reads this, can say be does not know 'where to find himself in the printed records of the Great Exhibition. I learn that a lot of the Official Catalogues (small), the Illustrated Catalogue in three volumes, and Part V. of the Illustrated Catalogue (separate,) have been sent over to the United States. Let those who have or have not been successful as contributors, that wish a permunent record of the Great Exhibition of 1851, send to his bookseller and get a copy of any or all of these works. As time flies away their value will increase with years."

Arbronth Guide.

The statistics furnished by Messrs, Spicka and Chowes, the enterprising contractors for the Catalogues, and, next, to anmberless other works connected with the Exhibition, show the gigantic and formidable nature of this part alone of the undertaking. These statistics present, ex facie, newhat of a barren, repellant appearance, being given in long columns of nainviting figures; but it is the very carefulness and minuteness of detail thus manifested that give to Messrs. Spicer and Clowes' statistics an added charm. Before proceeding to notice the actual sales of, and the sums realised for, the Catalogues, Official and Illustrated, Hand-books, Synopsis, &c., it should not prove unprofitable to say something of the preparatery

EXTRACT FROM THE FIRST REPORT OF THE ROTAL COMMISSION.

Catalogues.—It was obviously necessary that a complete and accurate Catalogue should be made of the articles exhibited, not only for the use of visitors, and of the Comnissioners, Jurors, and others during the continuance of the Exhibition, but also as an enduring record, in the most perfect shape, of the Exhibition itself. The Commissioners considered that these advantages wen'd be best secured by submitting to public competition the exclusive privilege of preparing and selling the Official Catalogues. Of these the cheaper one was, in accordance with the conditions of tender laid down by the Commissioners, to be sold to the public at the price of one shilling, and to contain not less than 320 pages of foolscap quarto (printed in double Ont of the above sum a royalty of twopence colamns). per copy was to be paid to the Commissioners.

In addition to the Shilling Catalogue, an Illustrated
Catalogue (also official), extending to two or more volumes,

steps necessary to be taken before these publications were fit to be placed in the hands of the visitors to the Crystal Palace. And first as to the trades necessary for the pro-duction of the Catalogues: these were, type-founders, printers' joiners, iron-founders, paper-makers, wholesale stationers, letter-press printers, printing-ink makers, composition roller-makers, engravers on wood, lithographie printers, hot-pressers, and booklinders—in all twelve. Then as to the quantity and value of new type mannfactured, and the quantity of type actually used for the publications. The technical names given by printers to the different kinds of type required we consider it useless to state, as being unintelligible to a general reader. The quantity of type necessary sorely taxes credibility; but the facts are incontrovertible. In addition to the usual the facts are resources of Mesers, Clowes' establishment-the extent of which can be judged of from their employing from 500 to 600 workmen-the supply of new type was 37 tons; the cost of which, and other necessary material, amounted to above 6,000/. Adding the type required for the Report of the Commissioners (the work from which we gather these interesting facts), and for the Jury Reports, a weight amounting to nearly forty-right tous was set apart for the service of the Exhibition of 1851. For each of the three small Official Catalogues—in the English, French, and small Omerat Catalogues—in the English, Presen, and German languages—from three to four millions of types were required; for the "Priced Lists," apwards of four millions; and for the "Illustrated Catalogue," no less than seventeen millions. As illustrative of the amount of type in use in the several publications, the combined quantity, it may be observed, should be equal to the printed surface of 116 single Times newspapers. Next, as to the paper required for the Official Catalogues, and Reports of the Juries and Com-missioners. For the small Official Catalogues 24,173 reams, or 507,631 lbs. weight were required; upon which, reams, or 507,631 list, weight were required; upon wneen, and 337 reams of colonerle paper for covers to these catalogues, the paper darty, at the rate of 1½d, per pound, amounted to 3,4560, 12s. 6d. For the Illustrated Catalogue were required 100,000 lbs, weight of super-royal—the duty paid upon which was 625d. The entire weight of paper used for the Catalogues and Reports immediately warehoused west 756,698 lbs. the duty on which was in or paper used for ine Catalogues and Reports intercenting mentioned was 758,098 lbs., the duty on which was, in round numbers, nearly 4,740%. Of the small Official English, French, and German Catalogues, 305,000 were printed; of the Synopsis of the Contents of the Building, 89,500; of the Popular Guide, 26,000; of the Hustrated Catalogue, 8,250; of the Reports by the Juries, in two different types, 20,550; and of the various smaller publications, such as Hunt's Hand-book, Keys to the Cata-logues, Priced Lists, &c., somewhere about 30,000. The cost in the different departments, for the price of compositors' labour, eugraving, lithography, hot-pressing, binding is also noticed by Messrs. Clowes. As to the sule of the different volumes—Plans, Keys, Hand-books, Gnides, Catalogues—the number sold, it may be briefly stated, was 473,731, realising 19,014l. 8s. 4d.—a sum which, we have grave doubts, will prove anything hut an adequate return to the spirited Contractors for their

immense outloy.

was to be produced, the price and manner of printing of which was left to the discretion of the contractors. An option of preparing more editions than the two above mentioned was also given.

The Commissioners adjudged the right of printing and sale of these Catalogues to the joint tender of Messra. Spicer Brothers and Messrs. Clowes and Sons, who offered the sum of £3,200 for the privilege (besides the royalty payable on the sale of the small Catalogue). The difficulties necessarily attendant upon the execution of the engagements entered into by the Catalogue contractors (owing not only to the extensive nature of the undertaking itself, but also to the changes consequent upon the continual arrival of additional articles from foreign countries for a long period after the opening of the Exhibition) were surmounted by them in a very satisfactory manner, and the volumes that accompany this Report will serve to show, both by their accuracy, completeness, and their general execution, that the Commissioners have every reason to be satisfied with their having intrusted the preparation of the Catalogues to Mesors. Spicer and thows.

r Appendix No. XXVII. contains a statement furnished by the contractors, showing the extent of the sale of the edifferent Catalogues, and other works illustrative of the Exhibition, which they were authorized to sell in the Building.

Statistics of the Catalogues, extracted from the Appendix to the First Report of the Royal Commission

all now averageous many one wall
odnetion of the Catologues.
Printing-ink Makers.
Composition-roller Makers,
Engravers on Wood,
Lithographie Printers.
Hot-Pressers,
Bookhinders,

Type-Fise-flip. The first step towards the mechanical production of the Chatlogues was the preparation of type on a scale commensurate with the magnitude of the undertaking. Two sines were referred—one for the Small Canloques and the French and German translations; the other for the Historical Canloque. Of each of these reports of the control of the

As these works progressed, a larger snapely was found necessary. New works illustrative of the Exhibition were contemplated; and the mapply of new type was eventually the bosts. The cost of this larger quantity of type and other necessary material aumanteed to above £6,000. And adding the quantity required for the Report of the Commissioners and for the Jury Reports, a weight amounting to of 1831, as we expert for the service of the Exhibition of 1831,

The following Table shows the Quantity and Valor of New Type manufactured, and used for each Publication:—

Title of Work,	Weight in 1bs.	Number of Types required for each Work.
Small Official Catalogue-English -	5,664	3,877,008
Ditto Ditto French -	5,712	3,909,864
Ditto Ditto German-	4,604	3,103,460
Synopsis of Contents of the Bullding	425	202,400
Ditto Ditto French -	425	202,400
Popular Guide	984	210,944
Index to Official Catalogue	2,780	1,555,7t0
Priced Lists	5.376	4,199,062
tiunt's Hand-Book	4,114	2,301,120
Plans of the Building equal to = = Key to the Catalogue = = = = = = = = = = = = = = = = = = =	195	225,888
Key to the Catalogue	3t	19,200
Illustrated Catalogue	28,210	17,345,120
Reports and Awards by the Juries (large type)	30,107	11,513,336
Ditto Ditto (small type) -	14,121	8,903,280
Report of Commissioners	3,752	1,824,084

The printers of the Catalogues are type-founders as well as printers, and by working night and day, with relays of hands, they produced a great portion of this quantity themselves: the assistance of other founders, however, was necessary; and the Messrs. Milter and Riebard of Edinburgh, and the respective firms of Besley, Caslon, and Figuins, of London, supplied the remainder.

and Figilis, or Louwon, supplied the remainder.

As as illustration of the amount of type in use in the
various publications, it may be observed that the combined
quantity would be equal to the printed surface of 116
single Times' newspapers.

A great subdivision of labour is necessary in the manu-

A great subdivision of labour is necessary in the mannfactor of type: the persons employed are usually in the proportion of 5 men in a boys. The following statement shows the weight of four descriptions of type mannfactured in one week by 20 men and 12 boys, and the number of separate types in each quantity:—

360 lbs, Small Pica, equal 124,720 separate types, 240 Bourgeois, 122,880

240 , Bourgeois, 122,880 , 190 , Brevier, 113,280 , 168 , Minlow, 109,200 , Although type is moch lower in price now than it was

some few years back, it is still an expensive article, so no much from the cost of the raw material—a compound of lead, antimony, and tin—as from the amount of Indoor necessary for its production, five operations being required necessary for its production, five operations being required and the heavy representation of the production of the warm out. In the case of the small English Citalogue, from the large number of copies printed, the value has been deteriorated at least 60 pre cent.

been deteriorated at least 60 per cent.
The price of type varies according to its size; each page
of the small English Catalogue cost 20a, 624, and of the
Illustrated Catalogue 21a, 944, Large as these prices may
appear, they are exceedingly low, when compared with
the average market price, and are such as could only be
obtained by contracting for the manufacture of large
quantities.

Poper.—The manafesters of paper includes a variety of processes—from the sorting of the rags to the production of a complete sheet of paper. Two sizes only were necessary, described as super-royal and double-foolkeep; the folding of the sheet into 4, 8, and 16, forming the different-sized books. For the convenience and economy of printing the small Catalogue, the double-foolkeap was, however, made into four sizes, the sheets folding into 8, 12, 16, and 24

The three six consisting of 16 pages, was princed on one of these large sheets, at one impression. The entire quantity of paper musuffeatured was 338 tons; and list production required labore qual to 588 hands (nem and (Wholesale Stationers.) joint contractors in the production of the Calcilogue, snapided the whole of the page; and o efficient were their mrangements with the various miles curred in the appointed times of delivery.

The small Official Catalogue, with its cover, before the edges were cut, weighed I fb.; the daty on each copy was therefore I dd., or I the selling price: equal to I 2½ per cent, on the cost of the Catalogues, but 21 per cent, on the manufacture of the news.

Compilies and Printing.—The Catalogue Forms issoed to the Exhibitors (in order that they might supply their own descriptions of the articles exhibited) were printed in four colours, representing the four great divisions of the Exhibition; on the receipt of those forms they were examined by the compilers, who made such alterations sa they considered requisite; determined, to the lest of their judgment, the Class to which the article exhibited more especially belonged; and forwarded the returns thus especially belonged; and forwarded the returns thus corrected to the printers. On Jan. 30 the first portion of these returns was placed in the hands of the compositors, and speedily set up in type for the Illustrated Chatlogue; keeping each of the four divisions reparate; and distinguishing, by a figure at the end of the last line of each article, the presumed Class to which it belouged. Proofs of these returns were forwarded from time to time to the compilers, who examined them as to their general correctness, and returned them to the printer for such emendations as were necessary: these effected, 50 proofs were printed, and forwarded to the Excentive; to the editor, who transmitted copies to the various sunotators; to the compiler of the small Catalogue, in order that the descriptions might be reduced: and to the French and German translators, for the same purpose of reduction and trans-lation. Ten weeks now had elapsed—the 20th of April had arrived-the whole of the exhibitors' returns received up to that date were in type, amounting to nextly 2000 pages; this mass, however, as astill marranged; and it was not notif flour days previous to the opening of the Exhibition that any-defined plan of classification could be determined upon. The contractors were bound under a penulty to produce a certain quantity of the small Catalogue on the first of May; to effect this within four days by the contractor that the Illustrate Chaintogue should also appear at the same time, but all hope of predicting mything more than a specimen Part was abandoued.

The classification, which should have been the labour of literary men, became the task of the operative printer: the type was arranged in 368 slips, each representing a page; slip after slip was taken up by the compositor, and the exhibitors' returns, as unmerically distinguished collected together, nutil the whole 30 Classes of the United Kingdon were arranged. The same arrangement neces-sarily took place for the Colonies and Foreign States; for nithough each State had but one numerical order for all the articles exhibited, they stand in the Catalogue in the respective State in the same order as the 30 Classes of the United Kingdom; newards of 100 distinct arrangements had to be effected; the classification completed, revises were forwarded to the compiler, to receive the numbers by which the articles were to be distinguished in the Building; 320 pages was the prescribed limit of the small Catalogue, and 368 pages were in type; a further reduction had to take place in the description of the articles ex-hibited; and it was not until the midnight immediately receding the opening of the Exhibition that the small

Catalogue was finally " ready for press."

The first or specimen Part of the Illustrated Catalogue was also proceeded with on the same principle laid down for the production of the small Catalogue; and on the

morning of the 1st of May both these works were on sale in the Exhibition Building.

The printing in itself would have been but a small affair for the number of persons employed, could the matter have been placed before them according to the usual routine of authorship and printing; this, however, was impractedable; and no better plan could perhaps have been suggested than that followed to a most vacces-ful terminations and through most extraordinary difficulties.

After the opening, additional returns came in. The first ecition was found exceedingly imperfect the neprentedons of Classes molectook the examination of the proofs, supplied omissions, and corrected the numerical nerrangements; many articles were found in one class that tolonged to another; the exhibitors descriptions had again longed to mother; the exhibitors descriptions had again 41 pages; and a second edition was produced, with greater labour and exertion than the first.

New returns continued to come in—removals from one class to another were still found necessary, and it was not until a third edition was produced, at n cost of labour equal to the two preceding, that a correct Catalogue of the

Exhibition could be said to exist, Under these circumstances it was found impracticable

Under these circumstances it was found impracticable cicher to produce the Illustrated Catalogue in a complete form, or the French and German translations, antil a late period of the Exhibition: and as the labours of the printer did not really commence until within four days of the opening, so neither did they terminate until within foar days of the close of the Exhibition.

A detail of the progress of the Illustrated Catalogues would be a repetition of the circumstances connected without the small Catalogue; inaxmoch, however, as the larger work is five times the size of the smaller, and the care and attention required more minute, the cust and labour in the printing-office were at least ten times greater.

Freech and German compositors were employed on the foreign translations. The Exhibition of all Nations, however, had created a demand for foreign papers; and the compositors, knowing that the employment on the Catalogues would not extend over a long period, sceepted other engagements; and those works were finally and successfully brought to a close by men who knew not a word of the respective languages: French and German

readers, howevers, were employed to insure correctors, The repeated alterations and transpositions in the English The repeated alterations and transpositions in the English forcing Catterpress. The same mechanical classification, applied to the English, evuid not be effected: a number of persons were therefore employed to cut up seek return of persons were therefore employed to cut up seek return respective class and country, and again place them in the compositors' hands for reproduction. Of the French Catterpress were the composition of
The time occupied in printing the various works was 216 days. The whole of the other employments necessary for their production were also completed within the same period.

Period.

Every alteration in the small Catalogue ereated a corresponding alteration in the Illustrated Catalogue, and in the French and German translations.

The eost of these alterations, compared with the usual cost for setting up the types, was—

On the small Catalogue as four to one.

"Hinstrated Catalogue as five to two.

", German Translation as fice to one.

And to this most be added, as an increased element in the
expense of printing, the extra amount received by the
workmen for night-work, equal to 10 per eent. on the

workmen for night-work, equal to 10 per section to the wages paid.

Wages paid by the honor for corrections: the complete arrangement of abgresson. Tabular Statements similar statements similar statements similar to the Priced Lists are attended with extra trouble.

to the Priced Lists are attended with extra trouble, and are paid double the price of nther work; and works in Foreign Languages a small increased price per 1,000. From the circumstance of all the types need for the Catalogues being new, the Compositor had an advantage of about 10 per cent. on the day's work.

The honrs of attendance are from 8 in the morning antil 8 in the evening. When the men are employed during the night they receive extra payment, equivalent to 40 per

cent. on their earnings.

To this branch of printing must be added readers and reading boys, in the proportion of one reader and one boy to each 12 compositors.

From the extraordinary number of proofs required during the progress of the Catalogues, four proof-pullers were constantly employed so long as the empositors were at work: 54 reams of paper, equal to 27,864 sheets, were

consumed in proofs only.

There are two descriptions of machines employed in printing: the cylinder machine, attended by one man and two boys, predneing on the average 7,000 impressions per day of 10½ hoors; and the platten machine, managed by one man and four boys, averaging 4,000 impressions per

one man and four boys, we engage 4,000 impression per deep The machine and tools me of hereby primate or both sides (or Lood impression), the price verying or both sides (or Lood impression), the price verying to which the contract of the contract of the contract to worked by two men and it is refinanted that, on the ment description of printing, two new world problem; lood to the contract to the contract of the contract to the contract of the contract of the contract to the contract of the contract of the contract for the contract of the contract contract to the contract of the contract of the contract of the contract impression were produced in a day, and, in addition to the contract of the contract properties where the contract contract to the contract of the contract to the contract of the contract to the contract of the contract to the c

cogravings on wood, preparatory to the printing.

To the Press and Machine Departments must be added persons to wet the paper before printing, and others to dry and press it after printing, and deliver to the hinders. The average number of persons employed in "wetting" paper was equal to 6 men for 80 days.

Comparative Power of Production of Hand-Presses and Steam-Machines.—Comparing the press and the cylinder machine, the size of the paper and the quality of the work being the same, the press will produce 1,250 copies and the machine 7,000 in the day, at about the same cost for labour; and comparing the press with the platten machine, the press will yield 1,000 copies, and the machine 4,000, at the same cost; the quality of the work always being in favour of the press,

This high rate of production, however, is only attainable where the number of copies required is large; where the numbers to be printed do not exceed 2,000, not more than one-half these quantities can brobtained on the average; and when less than 2,000 little advantage is gained by using

the steam-machine. The machines, however, have an advantage over the ress in size, which doubles, and in the larger machines, press in fize, which domines, and in the index most and tribles the quantity produced; while the press can only print 8 pages of the Catalogue at each impression, some of the machines printed 48 pages at one operation.

Taking the small Official Catalogue as an example.

290,000 complete copies were printed at t5 cylinder machines, in 42 days; it would have required 47 handpresses 97 days to have produced the same result; or, while t5 machines, with 15 men and 30 boys, produced 7,000 copies of the Catalogue daily, 47 presses, and 94 mes, could have produced but 3,000.

The following Table shows the average number of

persons engaged in editing, compiling, and printing the various Catalogues, &c .--

Edltor	-	-	1	
Compilers	-	-	17	
French Translators -	-	-	2	
German Translator -	-	-	t	
Annotators	_	-	30	
Indexers	_	-	20	
			- 71	
Compositors	_		44	
Readers and Boys	-	-	8	
Pressmen	-	-	32	
Machinemen and Boys	-	-	55	
Wetters of Paper	-	-	2	
Warehonsemen and Boys	-	-	11	
			- 152	

Printing Ink .- The cost of this article forms no incon siderable item in the expense of printing. The ink used for the Catalogues was manufactured by Messrs. Shackell and Edwards; the quantity required for the small Catalogue amounting to nearly 4,000 lbs.; for the Illustrated Catalogue about 400 lbs.; and the entire quantity con-sumed on all the works printed for the Exhibition not less than 6,000 lbs. The ink for the Illustrated Catalogue is a fine specimen of black, made purposely for the printing of wood engravings. Printing ink varies much in price, according to the quality: that used for the Illustrated Catalogue is nearly four times the cost of the ink used for the small Catalogue; but as a less quantity of the finer description is necessary to cover the same amount of surface, the comparative increase of price is somewhat reduced. Engraving.-Three classes of artists are necessary for

the production of an engraving—the designer, the artist who transfers the original drawing to the wood-block, and the actual engraver. The designer is usually considered the superior artist, although the elaborate workmanship exhibited on some of the engravings in the Illustrated Catalogue would make this point somewhat doubtful: two, three, and even four weeks having been occupied on a single illustration. Engraving is a profession followed by both sexes: many engravers are also designers; and where this is the case, the highest point of excellence exhibits itself in their productions

U1.wards of six thousand pounds have been expended on this department: it would be difficult to form more than an approximate estimate of the number of persons engaged, but as a Supplementary Volume is in the course of preparation,-prohably not less than 200, from the commencement of 1851 to the present time.

Lithography. The art of printing from stone also con-tribated towards the embellishment of the Illustrated Catalogue. The Plan of the Building was lithographed in three colours, and employed a draughtsman 10 days to complete three stones: 96,417 impressions were therefore necessary to obtain 32,139 copies, and was equal to the work of 3 printers for 108 days: 22,187 of the Plans were

mounted; this operation employed 6 persons 40 days.

The Prince of Wales' Shield occupied one draftsman 9 days, and the Liverpool Model 6 days, in lithographing; and printing 9,000 copies of the former, and 11,000 of the

The Kieff Bridge—a Deautiful specimen of tinted lithography—employed the artist 14 days. To produce the desired effect, three stones were used; and as each impression was the result of three printings, 6,000 copies employed 3 men 24 days

When the numbers to be printed are large, transfers to other stones can be mode: and by this meaus, with the aid of additional presses, copies can be rapidly multiplied. This process, however, is only applicable to ink drawings, such as the Shield and Liverpool Model; but for chalk drawings, similar to the Kieff Bridge, it is scarcely practicable. tienhle.

The entire impression of the Kieff Bridge, and the greater portion of the other lithographic illustrations, were executed by Messrs. Day & Son, and the remainder by Messrs, Standidge.

The coloured map of the Geographical View of the Great Exhibition, by Mr. Petermann, was engraved on stone (a process combining despatch and excellence of execution). It was found necessary to refer to at least 150 different maps and books, in order to identify the various localities from whence the contributions to the Exhibition were supplied; and occupied 3 persons upwards of two months in compiling and engraving; printing 7,000 copies

(and for which two printings were necessary) occupied 4 men 70 days; and the colouring 6 persons about 50 days. Het-Pressing restores the fine gloss and smoothness that the paper originally possessed before printing; and which the wetting and the impression from the type destroys. After the printed sheets are thoroughly dried they are After the printed sheets are thoroughly dried they are placed singly between highly glazed thin card-boards, called Pressing Papers, and it certain intervals a hot iron or zino plate is introduced. When a sufficient quantity has been thus prepared, the batch (as it is technically termed) is placed in an hydraulic press of great power, for 8 or 10 hours. In cold pressing the only difference in the process is in the use of cold instead of hot plates. The pressing of 6000 remas employed 4 men and 4 hoys for 75 days.

Binding. The services of 12 binders were retained to

effect this last operation in the production of the small Official Catalogue; and, by the united efforts of not less than 500 persons, 20,000 copies were sewn and covered in the course of a few hours

The binding of the Illustrated Catalogue was intrusted

entirely to Messrs. Remnant, Edmonds, & Remnant, and the Messrs. Westley & Co., in addition to the binding of a very large portion of the small Official Catalogues Presentation copies of the small Catalogue, and of the

Presentation copies of the similar Catalogue, were also prepared for Her Majesty and H.R.H. Prince Albert, on the opening of the Exhibition. These books were elegantly bound, with gilt edges, by the Messrs. Westley & Co., in the short space of six liours. The division of labour in hinding is great: the various

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